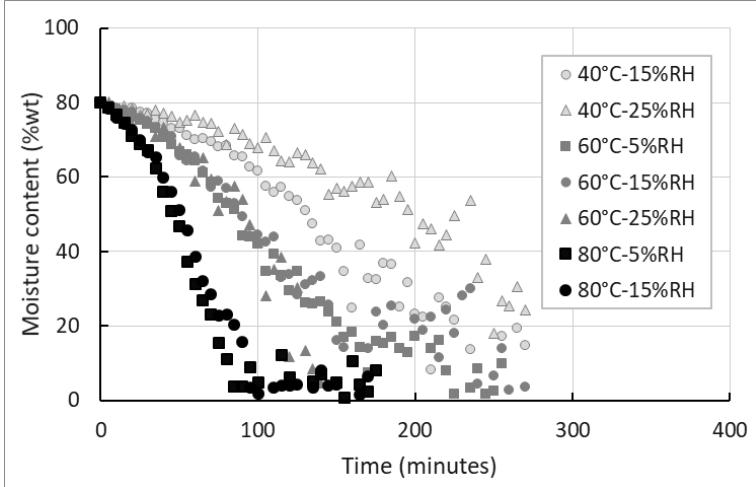
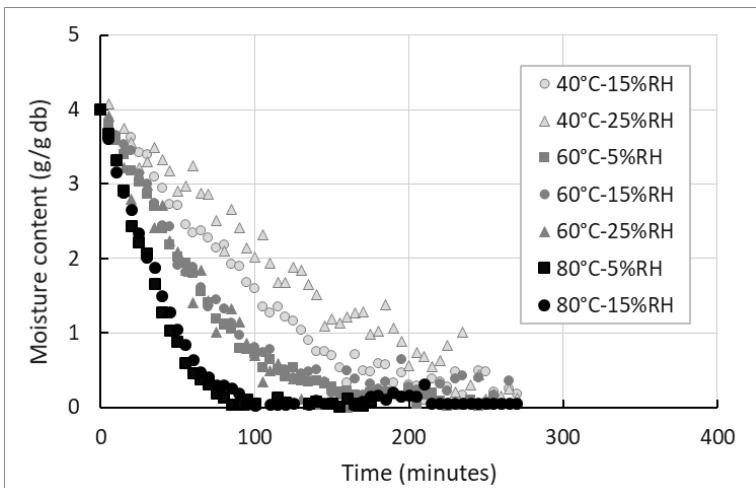
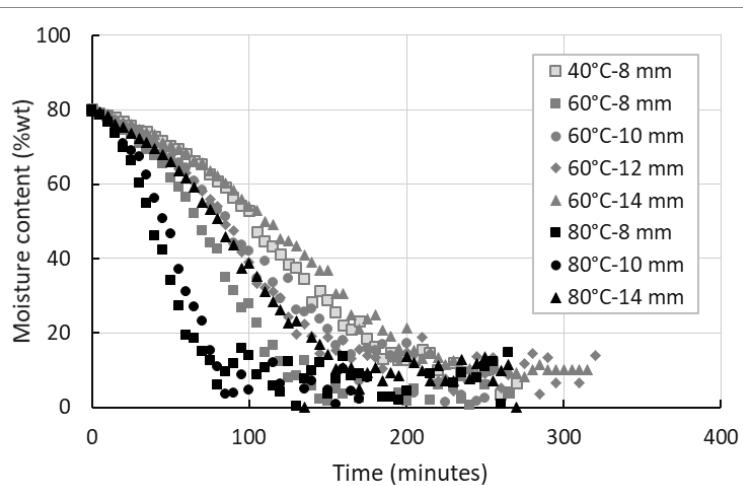


<u>General information</u>	
Type of data	Kinetics of convective drying
Place of experimentation	Pollution Research Group, University of KwaZulu-Natal (South Africa)
Dates of the experiments	2014 - 2015
<u>Feedstock</u>	
Type of faecal material	Faecal sludge from ventilated improved pit latrine (VIP)
Location of collection	Durban, South Africa
Age before collection	Up to 5 years
Moisture content	~ 80%wt
Total solids content	~ 20%wt
Volatile solids content	~ 50%db
Ash content	~ 50%db
Presence of trash?	Yes
Pre-treatment	Screening to remove the trash
<u>Experimental Procedure</u>	
Drying experimental setup	Custom-design convective drying rig
Drying time	Until stabilisation of the sample mass
Operating conditions	<ul style="list-style-type: none"> ○ Air temperature: 40, 60 and 80°C ○ Air humidity: 0, 15 and 25% ○ Air velocity: 0.03, 0.06 and 0.12 cm/s
Sample form in the dryer	Pellets of 8, 10, 12 and 14 mm diameter
Analysed parameters	Moisture content
Employed method	Thermogravimetry (determined through the measurement of the sample mass variation) (SOP 8.7.1.1)
<u>Publications</u>	
Makununika, B. S. N. (2016). Thermal drying of faecal sludge from VIP latrines and characterisation of dried faecal material. Master thesis. University of KwaZulu-Natal, Durban, South Africa.	

Data source files	
<u>Wet basis</u> https://www.dropbox.com/s/zmm55q2o47iedcp/Convective%20drying%20of%20VIP%20pellets%28wb%29_2014-2015.xlsx?dl=0	
<u>Dry basis</u> https://www.dropbox.com/s/4a3m2a6pi5e0vfc/Convective%20drying%20of%20VIP%20pellets%20%28db%29_2014-2015.xlsx?dl=0	
Additional Notes	
-	
Description of Data	
<u>Moisture content as a function of temperature and relative humidity</u> Wet basis  <p>Moisture content (%wt)</p> <p>Time (minutes)</p> <ul style="list-style-type: none"> ○ 40°C-15%RH △ 40°C-25%RH ■ 60°C-5%RH ● 60°C-15%RH ▲ 60°C-25%RH ■ 80°C-5%RH ● 80°C-15%RH 	<u>Observations</u> <ul style="list-style-type: none"> Drying time varying between 100 and 250 min Faster drying at increasing drying temperature and decreasing relative humidity at 40°C No effect of relative humidity at 60 and 80°C
Dry basis  <p>Moisture content (g/g db)</p> <p>Time (minutes)</p> <ul style="list-style-type: none"> ○ 40°C-15%RH △ 40°C-25%RH ■ 60°C-5%RH ● 60°C-15%RH ▲ 60°C-25%RH ■ 80°C-5%RH ● 80°C-15%RH 	

Moisture content versus time as a function of temperature and pellet diameter

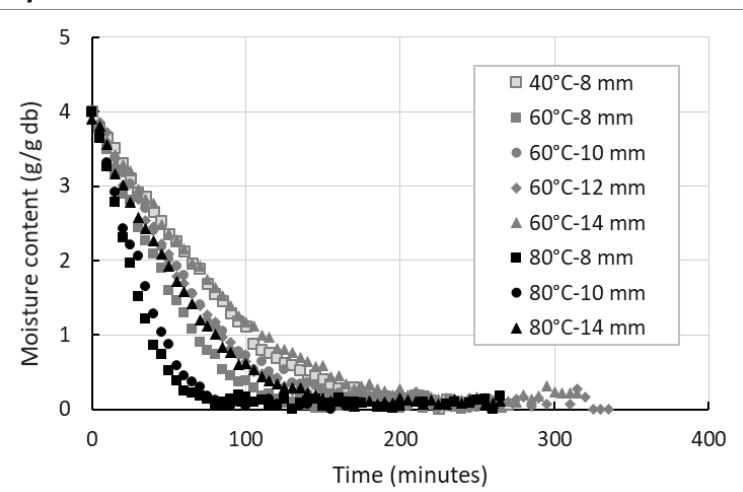
Wet basis

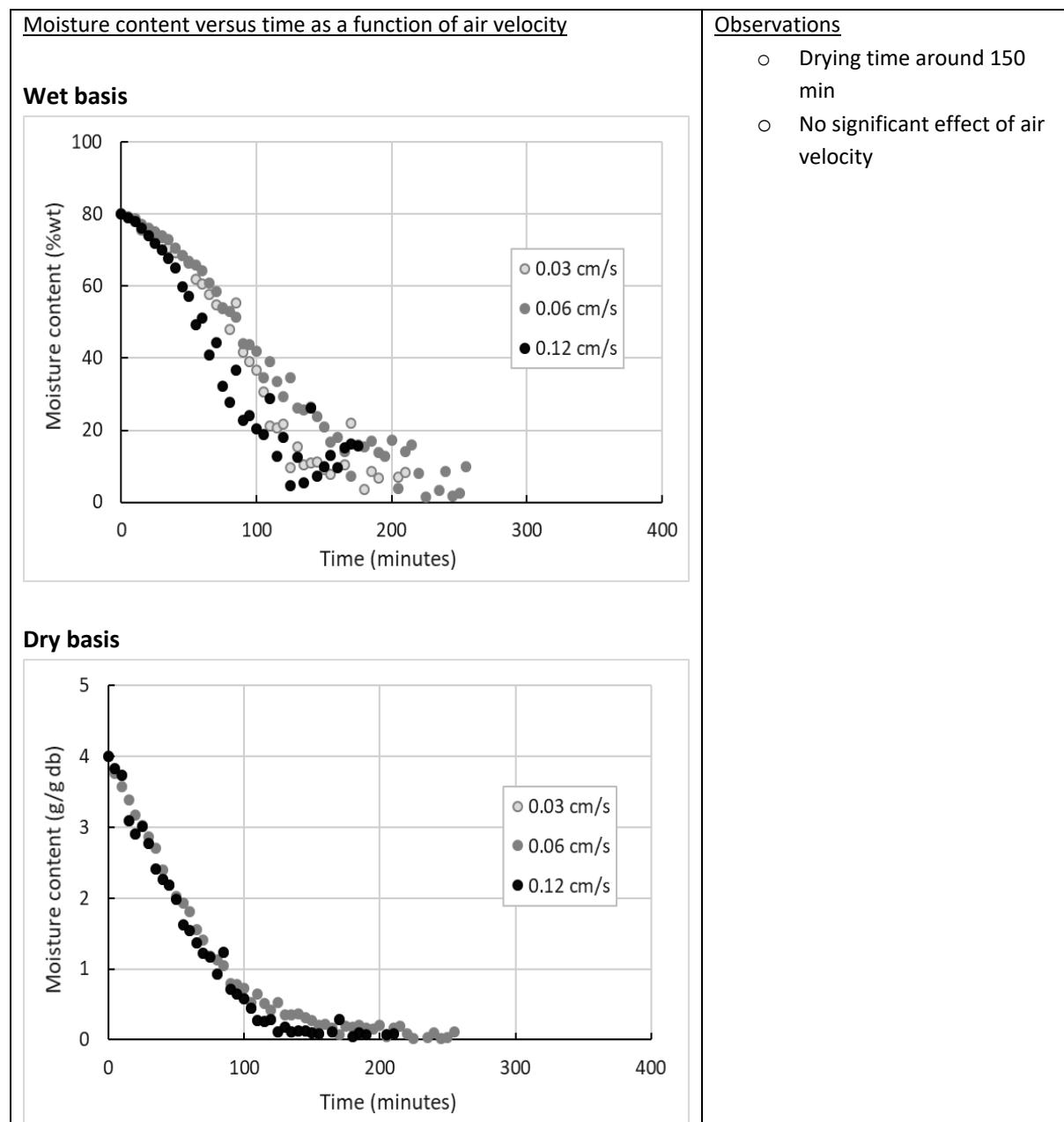


Observations

- Drying time varying between 100 and 200 min
- - Faster drying at increasing drying temperature and decreasing pellet diameter

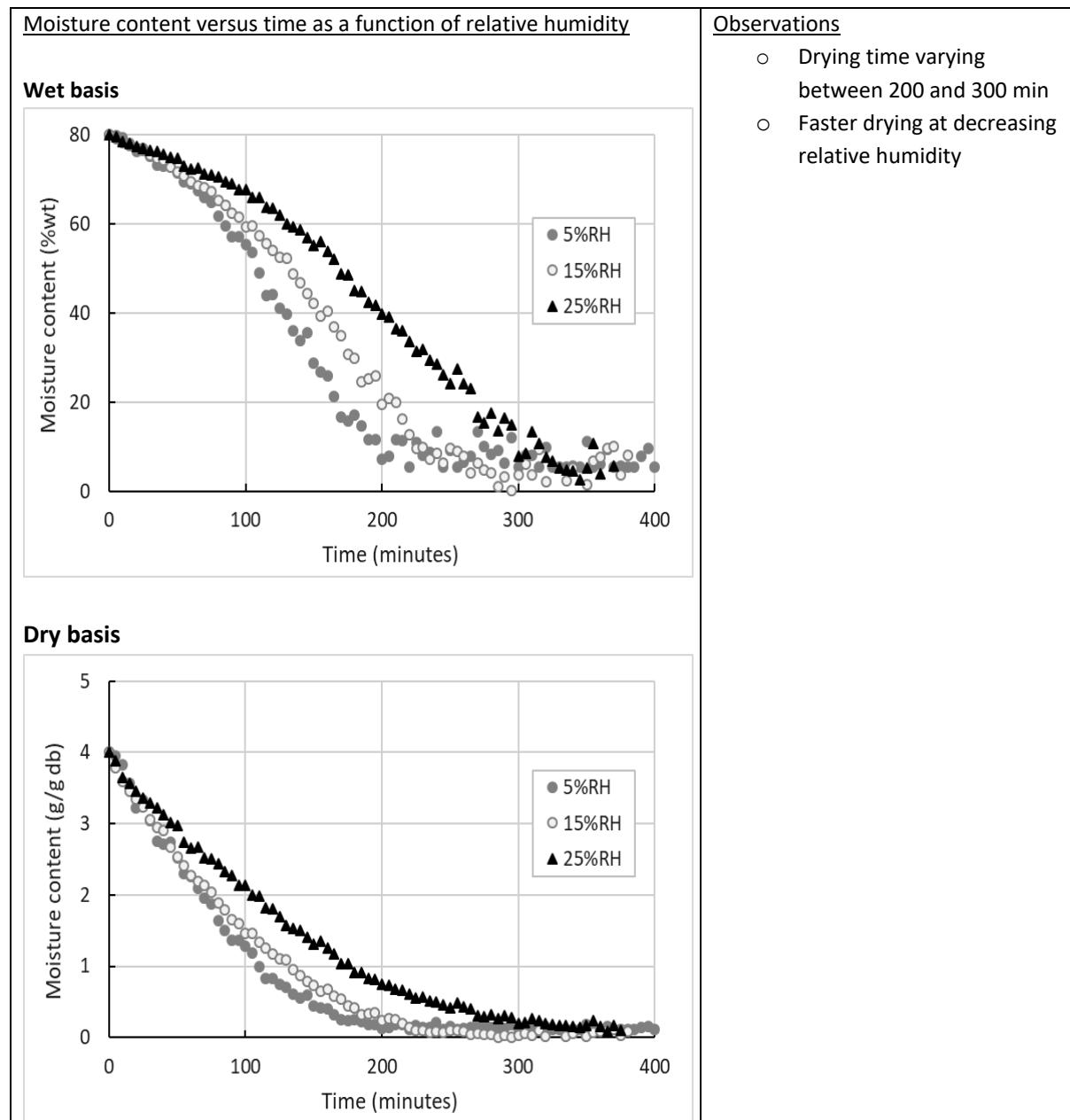
Dry basis





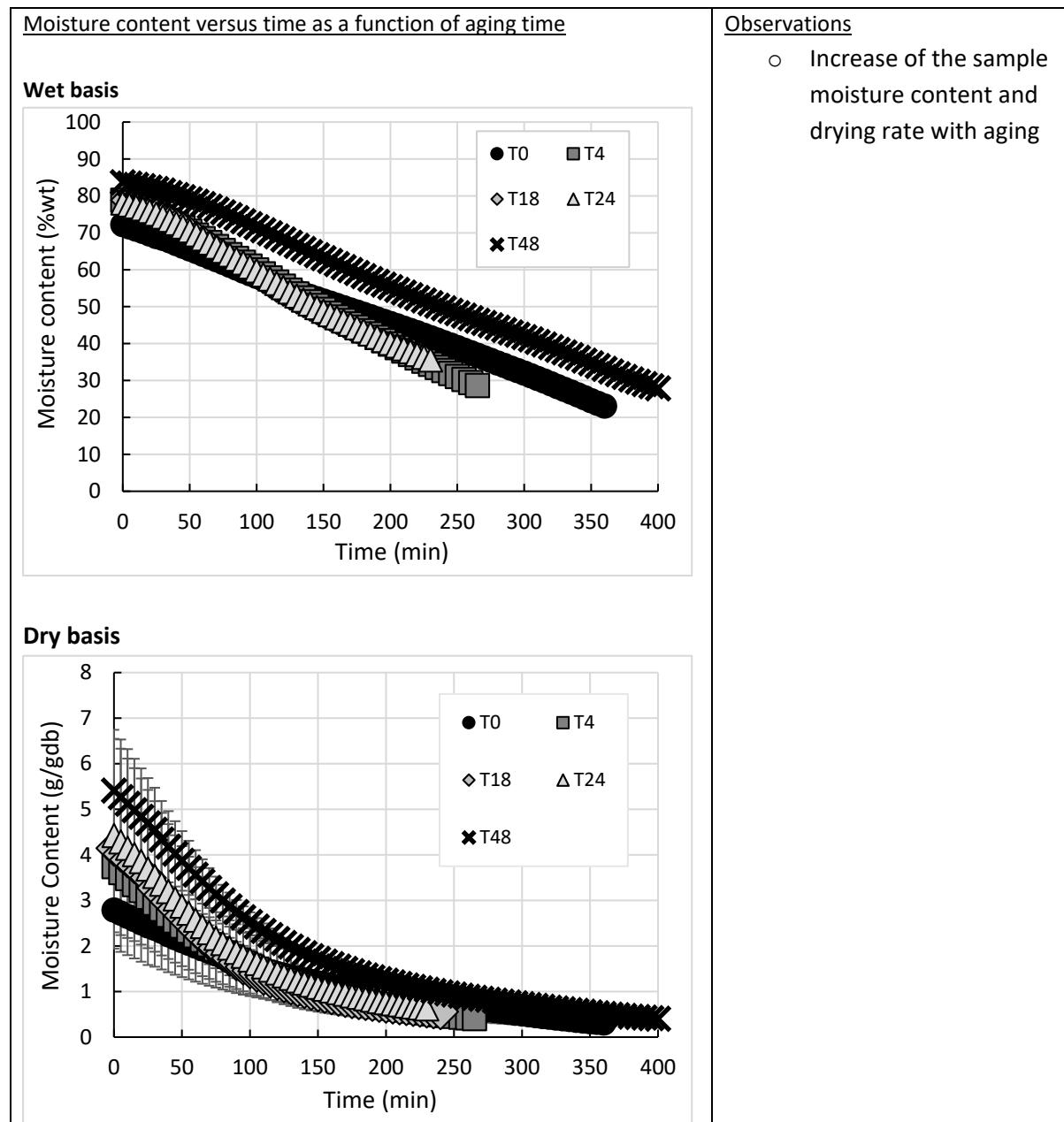
<u>General information</u>	
Type of data	Kinetics of convective drying
Place of experimentation	Pollution Research Group, University of KwaZulu-Natal (South Africa)
Dates of the experiments	2014 - 2015
<u>Feedstock</u>	
Type of faecal material	Faecal sludge from ventilated improved pit latrine (VIP)
Location of collection	Durban, South Africa
Age before collection	Up to 5 years
Moisture content	~ 80%wt
Total solids content	~ 20%wt
Volatile solids content	~ 50%db
Ash content	~ 50%db
Presence of trash?	Yes
Pre-treatment	Screening to remove the large pieces of trash
<u>Experimental Procedure</u>	
Drying experimental setup	Custom-design convective drying rig
Drying time	Batch until complete drying
Operating conditions	<ul style="list-style-type: none"> ○ Air temperature: 40, 60 and 80°C ○ Air humidity: 0, 15 and 25% ○ Air velocity: 0.03, 0.06 and 0.12 cm/s
Sample form in the dryer	Thin layer on a petri dish of 70 mm diameter and 4 mm height
Analysed parameters	Moisture content
Employed method	Thermogravimetry (determined through the measurement of the sample mass variation) (SOP 8.7.1.1)
<u>Publications</u>	
Makununika, B. S. N. (2016). Thermal drying of faecal sludge from VIP latrines and characterisation of dried faecal material. Master thesis. University of KwaZulu-Natal, Durban, South Africa.	

Data source files	
<u>Wet basis</u> https://www.dropbox.com/s/9ohytucjwpa8ppb/Convective%20drying%20of%20VIP%20thin%20layer%20%28wb%29_2014-2015.xlsx?dl=0	
<u>Dry basis</u> https://www.dropbox.com/s/vzlykg6aah163eu/Convective%20drying%20of%20VIP%20thin%20layer%20%28db%29_2014-2015.xlsx?dl=0	
Additional Notes	
-	
Description of Data	
<p><u>Moisture content as a function of temperature and air velocity</u></p> <p>Wet basis</p> <p>Moisture content (%wt)</p> <p>Time (minutes)</p> <ul style="list-style-type: none"> □ 40°C-0.03 cm/s ○ 40°C-0.06 cm/s ■ 60°C-0.03 cm/s ● 60°C-0.06 cm/s × 60°C-0.12 cm/s ■ 80°C-0.03 cm/s ● 80°C-0.06 cm/s <p>Dry basis</p> <p>Moisture content (g/g db)</p> <p>Time (minutes)</p> <ul style="list-style-type: none"> □ 40°C-0.03 cm/s ○ 40°C-0.06 cm/s ■ 60°C-0.03 cm/s ● 60°C-0.06 cm/s × 60°C-0.12 cm/s ■ 80°C-0.03 cm/s ● 80°C-0.06 cm/s 	<p><u>Observations</u></p> <ul style="list-style-type: none"> ○ Drying time varying between 150 and 300 min ○ Faster drying at increasing drying temperature ○ Slight faster drying at increasing air velocity



<u>General information</u>	
Type of data	Kinetics of convective drying
Place of experimentation	Duke University, Center for WaSH-AID, Durham, MC
Dates of the experiments	2018 - 2019
<u>Feedstock</u>	
Type of faecal material	Fresh faeces
Location of collection	Durham, NC
Age before collection	A few days
Moisture content	~ 80%wt
Total solids content	~20%wt
Volatile solids content	Not measured
Ash content	Not measured
Presence of trash?	No
Pre-treatment	Aging (sample placed in container with urine and flush water for 4, 18, 24 and 48 h)
<u>Experimental Procedure</u>	
Drying experimental setup	Custom-design convective drying rig
Drying time	Until stabilisation of the sample mass
Operating conditions	<ul style="list-style-type: none"> ○ Air temperature: 40, 60 and 80°C ○ Air humidity: 5% ○ Air velocity: 0.03 cm/s
Sample form in the dryer	10 - 50 g of 9 mm thick sample in a 100 mm diameter petri dish
Analysed parameters	Moisture content
Employed method	Thermogravimetry (determined through the measurement of the sample mass variation)
<u>Publications</u>	
-	

Data source files																																																																																																																																																																									
https://www.dropbox.com/s/rzksa0gr6n5beez/Human%20Faeces%20convective%20drying%20kinetics%20and%20effects%20of%20conditioning%20data_Duke%20University%20%282018-2019%29%20.xlsx?dl=0																																																																																																																																																																									
Additional Notes																																																																																																																																																																									
<ul style="list-style-type: none"> ○ Fresh faeces collected from voluntary and anonymous donations 																																																																																																																																																																									
Description of Data																																																																																																																																																																									
<p><u>Moisture content as a function of temperature (samples without aging)</u></p> <p>Wet basis</p> <table border="1"> <caption>Estimated data for Wet Basis Moisture Content</caption> <thead> <tr> <th>Time (min)</th> <th>F 40 C (%wt)</th> <th>F 60 C (%wt)</th> <th>F 80 C (%wt)</th> </tr> </thead> <tbody> <tr><td>0</td><td>85</td><td>85</td><td>85</td></tr> <tr><td>100</td><td>75</td><td>70</td><td>65</td></tr> <tr><td>200</td><td>65</td><td>55</td><td>45</td></tr> <tr><td>300</td><td>55</td><td>45</td><td>35</td></tr> <tr><td>400</td><td>45</td><td>35</td><td>25</td></tr> <tr><td>500</td><td>40</td><td>30</td><td>-</td></tr> <tr><td>600</td><td>35</td><td>25</td><td>-</td></tr> <tr><td>700</td><td>30</td><td>20</td><td>-</td></tr> <tr><td>800</td><td>25</td><td>15</td><td>-</td></tr> <tr><td>900</td><td>20</td><td>10</td><td>-</td></tr> <tr><td>1000</td><td>18</td><td>-</td><td>-</td></tr> <tr><td>1100</td><td>16</td><td>-</td><td>-</td></tr> <tr><td>1200</td><td>14</td><td>-</td><td>-</td></tr> <tr><td>1300</td><td>12</td><td>-</td><td>-</td></tr> <tr><td>1400</td><td>10</td><td>-</td><td>-</td></tr> <tr><td>1500</td><td>8</td><td>-</td><td>-</td></tr> <tr><td>1600</td><td>7</td><td>-</td><td>-</td></tr> <tr><td>1700</td><td>6</td><td>-</td><td>-</td></tr> <tr><td>1800</td><td>5</td><td>-</td><td>-</td></tr> <tr><td>1900</td><td>4</td><td>-</td><td>-</td></tr> </tbody> </table> <p>Dry basis</p> <table border="1"> <caption>Estimated data for Dry Basis Moisture Content</caption> <thead> <tr> <th>Time (min)</th> <th>F 40 C (g/g db)</th> <th>F 60 C (g/g db)</th> <th>F 80 C (g/g db)</th> </tr> </thead> <tbody> <tr><td>0</td><td>4.0</td><td>3.5</td><td>6.0</td></tr> <tr><td>100</td><td>3.0</td><td>2.5</td><td>4.5</td></tr> <tr><td>200</td><td>2.5</td><td>2.0</td><td>3.5</td></tr> <tr><td>300</td><td>2.0</td><td>1.5</td><td>2.5</td></tr> <tr><td>400</td><td>1.5</td><td>1.0</td><td>2.0</td></tr> <tr><td>500</td><td>1.2</td><td>0.8</td><td>1.5</td></tr> <tr><td>600</td><td>1.0</td><td>0.6</td><td>1.2</td></tr> <tr><td>700</td><td>0.8</td><td>0.5</td><td>1.0</td></tr> <tr><td>800</td><td>0.6</td><td>0.4</td><td>0.8</td></tr> <tr><td>900</td><td>0.5</td><td>0.3</td><td>0.6</td></tr> <tr><td>1000</td><td>0.4</td><td>0.2</td><td>0.5</td></tr> <tr><td>1100</td><td>0.3</td><td>0.15</td><td>0.4</td></tr> <tr><td>1200</td><td>0.25</td><td>0.1</td><td>0.3</td></tr> <tr><td>1300</td><td>0.2</td><td>0.08</td><td>0.25</td></tr> <tr><td>1400</td><td>0.18</td><td>0.07</td><td>0.2</td></tr> <tr><td>1500</td><td>0.15</td><td>0.06</td><td>0.18</td></tr> <tr><td>1600</td><td>0.12</td><td>0.05</td><td>0.15</td></tr> <tr><td>1700</td><td>0.1</td><td>0.04</td><td>0.12</td></tr> <tr><td>1800</td><td>0.08</td><td>0.03</td><td>0.1</td></tr> <tr><td>1900</td><td>0.06</td><td>0.02</td><td>0.08</td></tr> </tbody> </table>	Time (min)	F 40 C (%wt)	F 60 C (%wt)	F 80 C (%wt)	0	85	85	85	100	75	70	65	200	65	55	45	300	55	45	35	400	45	35	25	500	40	30	-	600	35	25	-	700	30	20	-	800	25	15	-	900	20	10	-	1000	18	-	-	1100	16	-	-	1200	14	-	-	1300	12	-	-	1400	10	-	-	1500	8	-	-	1600	7	-	-	1700	6	-	-	1800	5	-	-	1900	4	-	-	Time (min)	F 40 C (g/g db)	F 60 C (g/g db)	F 80 C (g/g db)	0	4.0	3.5	6.0	100	3.0	2.5	4.5	200	2.5	2.0	3.5	300	2.0	1.5	2.5	400	1.5	1.0	2.0	500	1.2	0.8	1.5	600	1.0	0.6	1.2	700	0.8	0.5	1.0	800	0.6	0.4	0.8	900	0.5	0.3	0.6	1000	0.4	0.2	0.5	1100	0.3	0.15	0.4	1200	0.25	0.1	0.3	1300	0.2	0.08	0.25	1400	0.18	0.07	0.2	1500	0.15	0.06	0.18	1600	0.12	0.05	0.15	1700	0.1	0.04	0.12	1800	0.08	0.03	0.1	1900	0.06	0.02	0.08	<p>Observations</p> <ul style="list-style-type: none"> ○ Faster drying at increasing drying temperature
Time (min)	F 40 C (%wt)	F 60 C (%wt)	F 80 C (%wt)																																																																																																																																																																						
0	85	85	85																																																																																																																																																																						
100	75	70	65																																																																																																																																																																						
200	65	55	45																																																																																																																																																																						
300	55	45	35																																																																																																																																																																						
400	45	35	25																																																																																																																																																																						
500	40	30	-																																																																																																																																																																						
600	35	25	-																																																																																																																																																																						
700	30	20	-																																																																																																																																																																						
800	25	15	-																																																																																																																																																																						
900	20	10	-																																																																																																																																																																						
1000	18	-	-																																																																																																																																																																						
1100	16	-	-																																																																																																																																																																						
1200	14	-	-																																																																																																																																																																						
1300	12	-	-																																																																																																																																																																						
1400	10	-	-																																																																																																																																																																						
1500	8	-	-																																																																																																																																																																						
1600	7	-	-																																																																																																																																																																						
1700	6	-	-																																																																																																																																																																						
1800	5	-	-																																																																																																																																																																						
1900	4	-	-																																																																																																																																																																						
Time (min)	F 40 C (g/g db)	F 60 C (g/g db)	F 80 C (g/g db)																																																																																																																																																																						
0	4.0	3.5	6.0																																																																																																																																																																						
100	3.0	2.5	4.5																																																																																																																																																																						
200	2.5	2.0	3.5																																																																																																																																																																						
300	2.0	1.5	2.5																																																																																																																																																																						
400	1.5	1.0	2.0																																																																																																																																																																						
500	1.2	0.8	1.5																																																																																																																																																																						
600	1.0	0.6	1.2																																																																																																																																																																						
700	0.8	0.5	1.0																																																																																																																																																																						
800	0.6	0.4	0.8																																																																																																																																																																						
900	0.5	0.3	0.6																																																																																																																																																																						
1000	0.4	0.2	0.5																																																																																																																																																																						
1100	0.3	0.15	0.4																																																																																																																																																																						
1200	0.25	0.1	0.3																																																																																																																																																																						
1300	0.2	0.08	0.25																																																																																																																																																																						
1400	0.18	0.07	0.2																																																																																																																																																																						
1500	0.15	0.06	0.18																																																																																																																																																																						
1600	0.12	0.05	0.15																																																																																																																																																																						
1700	0.1	0.04	0.12																																																																																																																																																																						
1800	0.08	0.03	0.1																																																																																																																																																																						
1900	0.06	0.02	0.08																																																																																																																																																																						



<u>General information</u>	
Type of data	Kinetics of convective drying
Place of experimentation	RTI International, Research Triangle Park, North Carolina (USA)
Dates of the experiments	2016 - 2017
<u>Feedstock</u>	
Type of faecal material	Fresh faeces
Location of collection	North Carolina, USA
Age before collection	A few days
Moisture content	~ 80%wt
Total solids content	~ 20%wt
Volatile solids content	N/A
Ash content	N/A
Presence of trash?	No
Pre-treatment	None
<u>Experimental Procedure</u>	
Drying experimental setup	Convection toaster oven
Drying time	Until stabilisation of the sample mass
Operating conditions	<ul style="list-style-type: none"> ○ Air temperature: 105, 120 and 150°C ○ Relative humidity: ambient ○ Air velocity: none
Sample form in the dryer	9 mm thick sample in a 100 m diameter petri dish
Analysed parameters	Moisture content
Employed method	Thermogravimetry (determined through the measurement of the sample mass variation)
<u>Publications</u>	
Hawkins BT, Sellgren KL, Cellini E, Klem EJD, Rogers T, Lynch B, Piascik JR, Stoner BR. Remediation of suspended solids and turbidity by improved settling tank design in a small-scale, free-standing toilet system using recycled blackwater. Water and Environment Journal, 2018.	

Sellgren KL, Gregory CW, Hunt MI, Raut AS, Hawkins BT, Parker CB, Klem EJD, Piascik JR, Stoner BR. Development of an electrochemical process for blackwater disinfection in a free-standing, additive-free toilet, RTI Press, 2017

Data source files

https://www.dropbox.com/s/tgg4sehv3xjlhq/RTI%20International%20data_fresh%20faeces%20convective%20drying%20kinetics%20and%20shrinkage%20%282016-2017%29.xlsx?dl=0

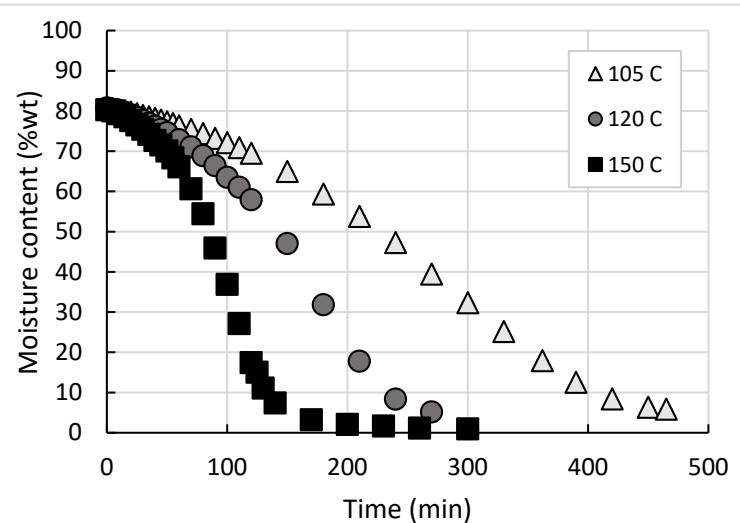
Additional Notes

- Fresh faeces collected from voluntary and anonymous donations

Description of Data

Moisture content as a function of temperature

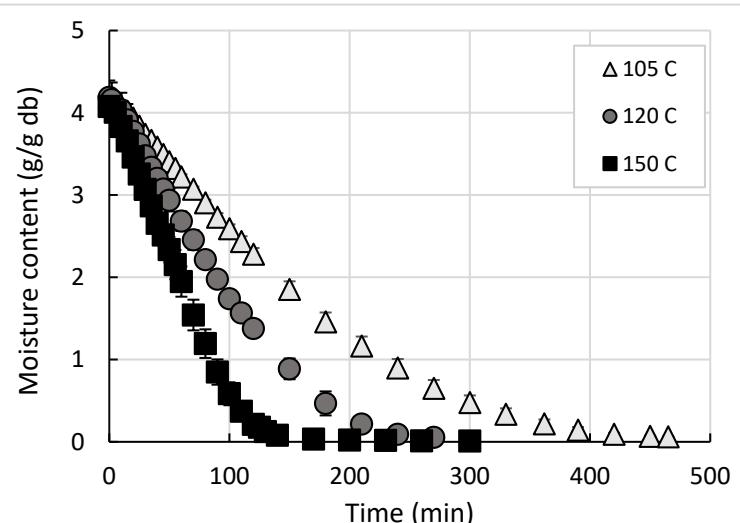
Wet basis



Observations

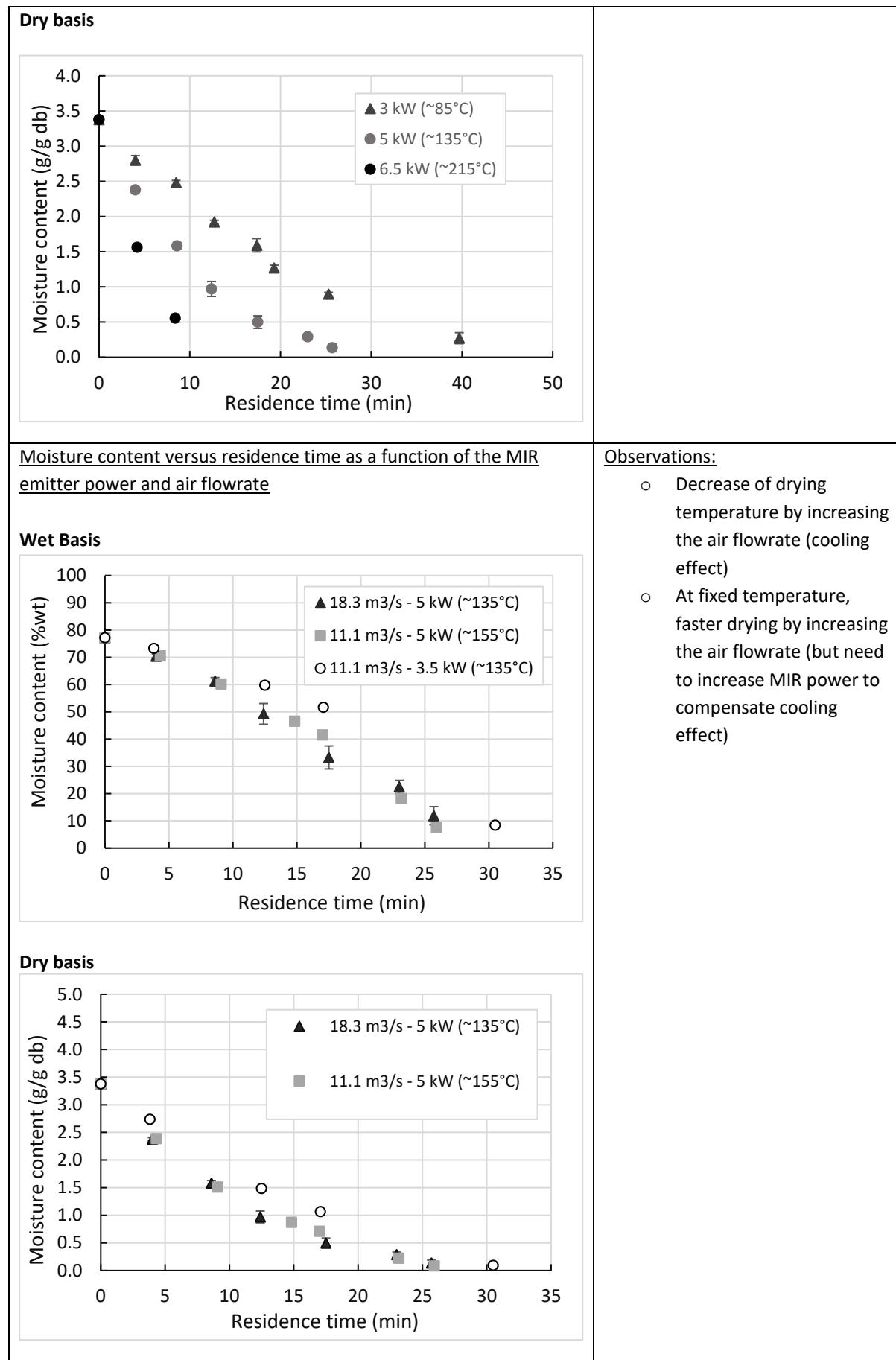
- Faster drying at increasing drying temperature
- Crust formed on surface of fecal material at all temperatures

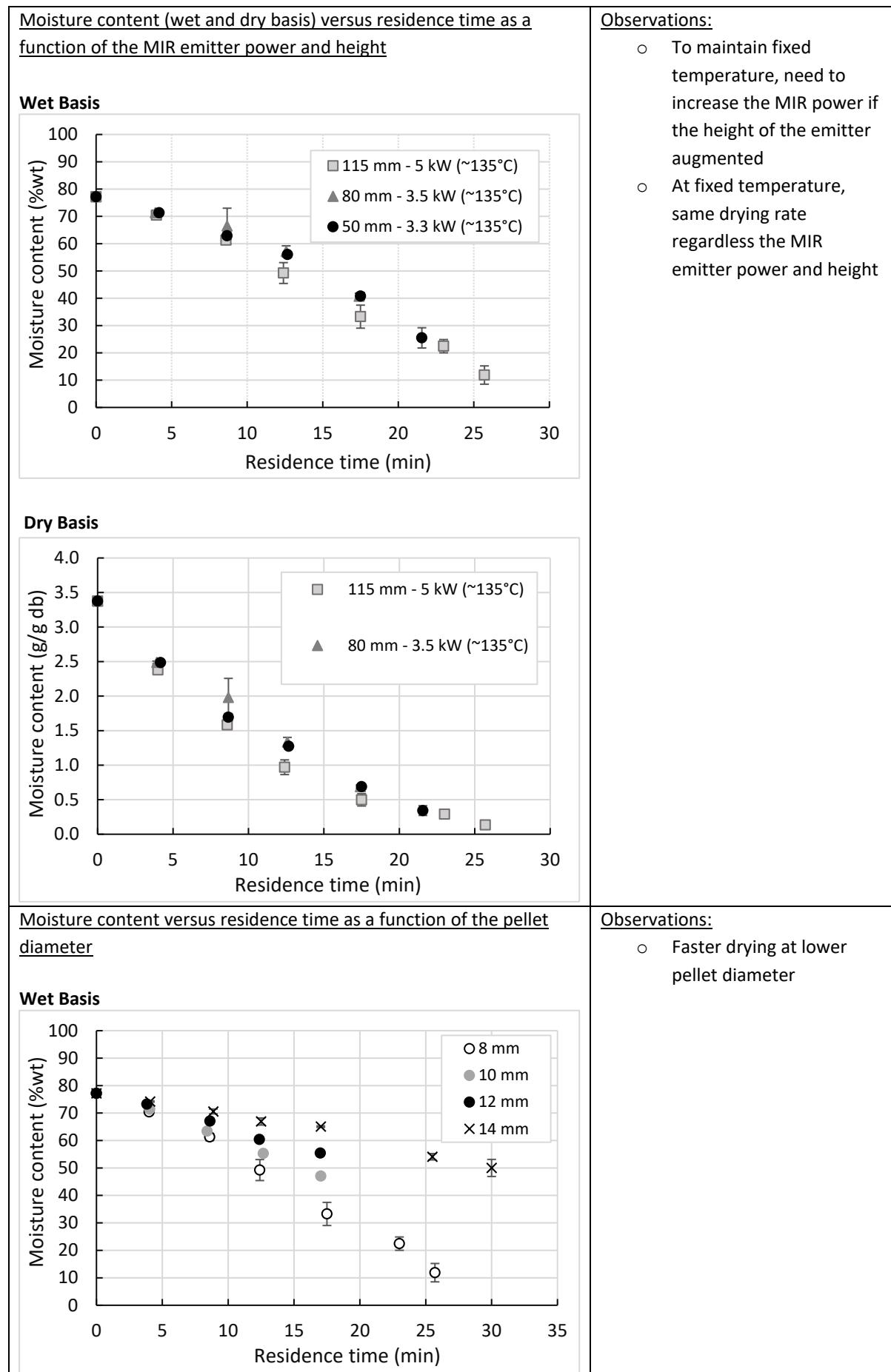
Dry basis

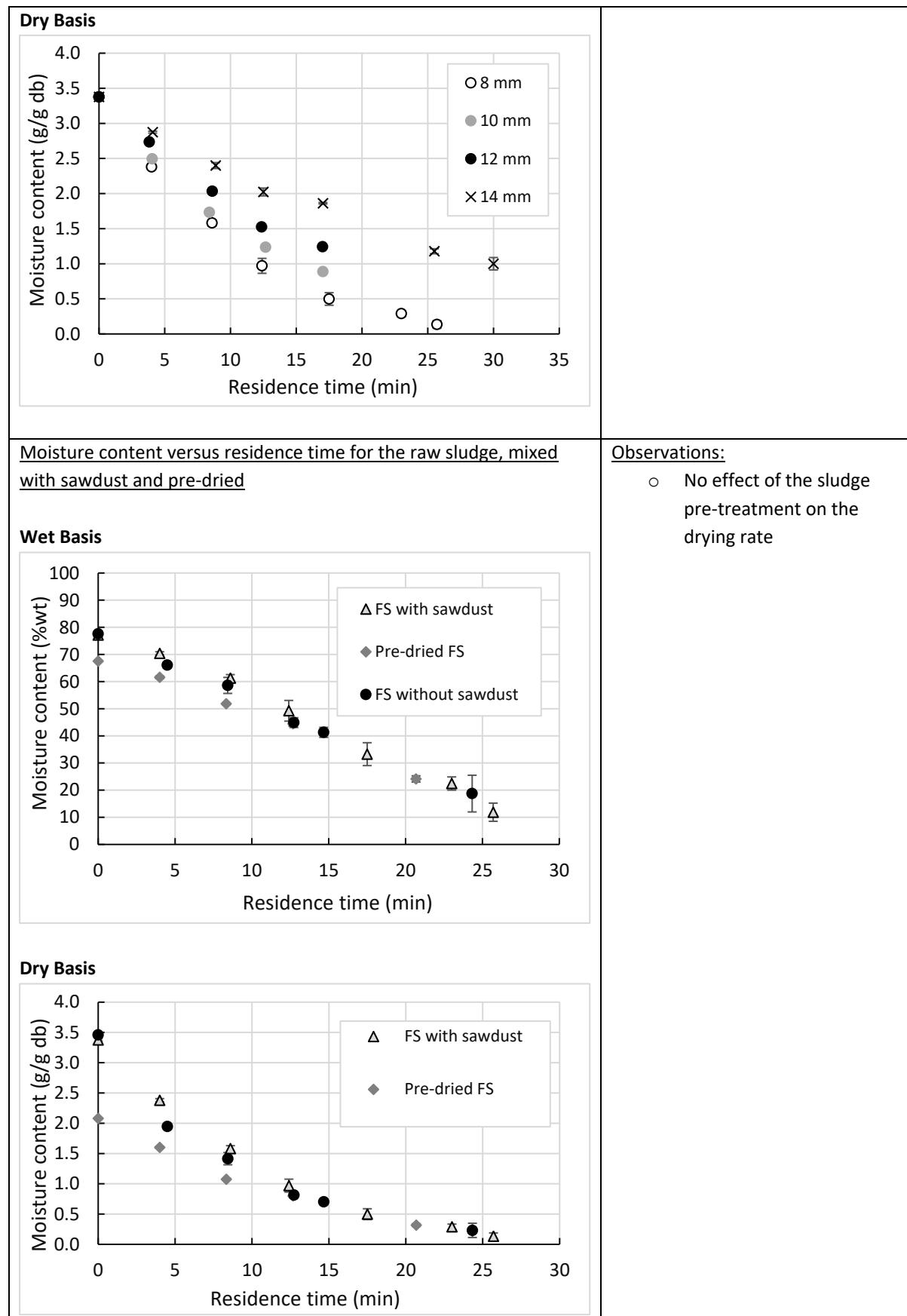


<u>General information</u>	
Type of data	Kinetics of infrared drying
Place of experimentation	Pollution Research Group, University of KwaZulu-Natal (South Africa)
Dates of the experiments	2014 - 2015
<u>Feedstock</u>	
Type of faecal material	Faecal sludge from ventilated improved pit latrines (VIP)
Location of collection	Durban, South Africa
Age before collection	Up to 5 years
Moisture content	~ 80% wt
Total solids content	~ 20% wt
Volatile solids content	~ 70% db
Ash content	~ 30% db
Presence of trash?	Yes
Pre-treatment	<ul style="list-style-type: none"> ○ Screening to remove the large pieces of trash ○ Addition of 3%wt of sawdust for pellets formation
<u>Experimental Procedure</u>	
Drying experimental setup	Laboratory-scale medium infrared (MIR) dryer ('LaDePa')
Drying time	0, 4, 9, 13, 17, 25, 40 min
Operating conditions	<ul style="list-style-type: none"> ○ MIR emitters power: 3.0, 3.3, 3.5, 5.0 and 6.5 kW ○ Distance between the emitters and the sample: 50, 80 and 115 mm ○ Air stream flowrate: 11.1 and 18.3 m³/min ○ Air humidity: ambient (70-80%)
Sample form in the dryer	Pellets of 8, 10, 12 and 14 mm diameter
Analysed parameters	Moisture Content
Employed methods	Weighing the sample before and after oven drying at 105°C for 24 h (SOP 8.7.1.1)

<u>Publications</u>																																					
Mirara, S.W. (2017). Drying and Pasteurisation of VIP Latrine Faecal Sludge using a Bench Scale Medium Infrared Machine. Master thesis. University of KwaZulu-Natal, Durban, South Africa.																																					
Septien, S., Singh, A., Mirara, S. W., Teba, L., Velkushanova, K., & Buckley, C. A. (2018). 'LaDePa' process for the drying and pasteurization of faecal sludge from VIP latrines using infrared radiation. South African journal of chemical engineering, 25, 147-158.																																					
Septien, S., Mirara, S., Singh, A., Velkushanova, K., & Buckley, C. (2018). Characterisation of On-Site Sanitation Material and Products: VIP Latrines and Pour-Flush Toilets. WRC project final report. South Africa.																																					
<u>Data source files</u>																																					
https://www.dropbox.com/s/e6i0axdeejiacq3/Infrared%20drying%20of%20VIP%20pellets_2014-2015.xlsx?dl=0																																					
<u>Additional Notes</u>																																					
<ul style="list-style-type: none"> ○ Some experiments using faecal sludge without sawdust addition and pre-dried sludge to approximately 70%wt moisture content 																																					
<u>Description of Data</u>																																					
<u>Moisture content versus residence time as a function of the MIR emitter power</u> <p>Wet basis</p> <table border="1"> <caption>Approximate data points from the scatter plot</caption> <thead> <tr> <th>Residence time (min)</th> <th>3 kW (~85°C) (%wt)</th> <th>5 kW (~135°C) (%wt)</th> <th>6.5 kW (~215°C) (%wt)</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>80</td> <td>80</td> <td>78</td> </tr> <tr> <td>5</td> <td>72</td> <td>70</td> <td>62</td> </tr> <tr> <td>10</td> <td>72</td> <td>62</td> <td>38</td> </tr> <tr> <td>15</td> <td>65</td> <td>50</td> <td>-</td> </tr> <tr> <td>20</td> <td>58</td> <td>32</td> <td>-</td> </tr> <tr> <td>25</td> <td>48</td> <td>22</td> <td>-</td> </tr> <tr> <td>30</td> <td>-</td> <td>12</td> <td>-</td> </tr> <tr> <td>40</td> <td>22</td> <td>-</td> <td>-</td> </tr> </tbody> </table>	Residence time (min)	3 kW (~85°C) (%wt)	5 kW (~135°C) (%wt)	6.5 kW (~215°C) (%wt)	0	80	80	78	5	72	70	62	10	72	62	38	15	65	50	-	20	58	32	-	25	48	22	-	30	-	12	-	40	22	-	-	<u>Observations:</u> <ul style="list-style-type: none"> ○ Faster drying at higher MIR power
Residence time (min)	3 kW (~85°C) (%wt)	5 kW (~135°C) (%wt)	6.5 kW (~215°C) (%wt)																																		
0	80	80	78																																		
5	72	70	62																																		
10	72	62	38																																		
15	65	50	-																																		
20	58	32	-																																		
25	48	22	-																																		
30	-	12	-																																		
40	22	-	-																																		





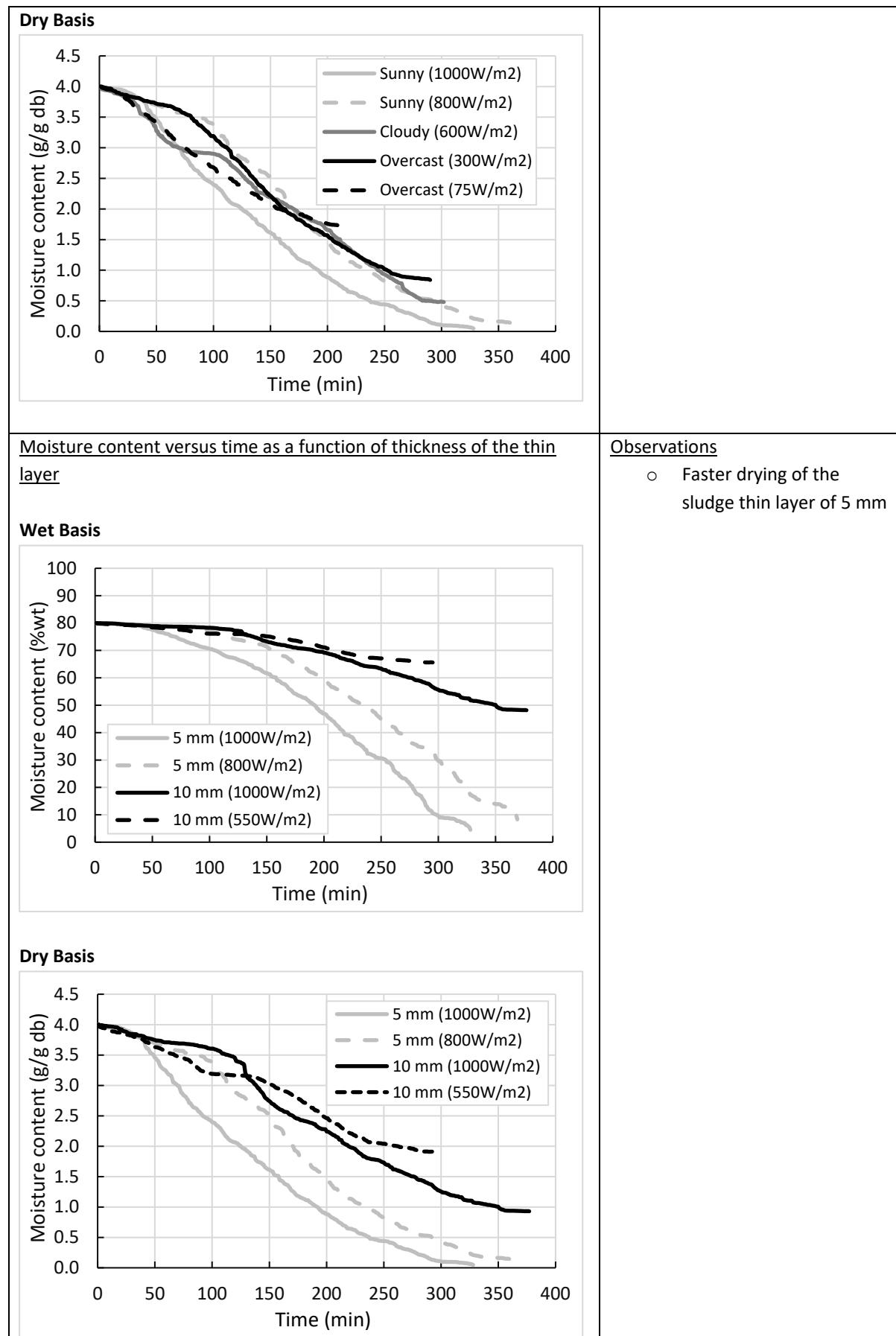


<u>General information</u>	
Type of data	Kinetics of solar thermal drying
Place of experimentation	Pollution Research Group, University of KwaZulu-Natal (South Africa)
Dates of the experiments	2019-2020
<u>Feedstock</u>	
Type of faecal material	Faecal sludge from urine diversion dry toilet (UDDT)
Location of collection	Durban, South Africa
Age before collection	Up to 3 years
Moisture content	~ 70%wt
Total solids content	~ 30%wt
Volatile solids content	Not measured
Ash content	Not measured
Presence of trash?	Small amounts of trash
Pre-treatment	Trash removal
<u>Experimental Procedure</u>	
Drying experimental setup	Custom-design solar thermal drying rig
Drying time	5 hours
Operating conditions	<ul style="list-style-type: none"> ○ Irradiance: ~ 1000 W/m² (sunny conditions) ○ Air flowrate: 0.5 m³/min (corresponding to an air velocity of 0.5 m/s) ○ Air temperature: ambient (~20°C), 40 and 80°C ○ Air humidity: ~10%
Sample form	~ 90 g of sample as a thin layer of 5 mm thickness and 110 mm diameter
Analysed parameters	Moisture content
Employed method	Thermogravimetry (determined through the measurement of the sample mass variation) (SOP 8.7.1.1)

<u>Publications</u>																																																																																																																																																											
-																																																																																																																																																											
<u>Data source files</u>																																																																																																																																																											
https://www.dropbox.com/s/hmthsylq3z6hq1e/2019-2020%20UD%20sludge%20solar%20drying%20at%20different%20temps.xlsx?dl=0																																																																																																																																																											
<u>Additional Notes</u>																																																																																																																																																											
<ul style="list-style-type: none"> ○ The measured average irradiance included in the results below for each experiment 																																																																																																																																																											
<u>Description of Data</u>																																																																																																																																																											
<p><u>Moisture content versus time as a function of the air temperature</u></p> <p>Wet basis</p> <p>The graph plots moisture content (%wt) on the y-axis (0 to 80) against time (min) on the x-axis (0 to 360). Six data series are shown: ambient run 1 (1020 W/m²), 40°C run 1 (1032 W/m²), 80°C run 1 (1109 W/m²), ambient run 2 (1176 W/m²), 40°C run 2 (776 W/m²), and 80°C run 2 (1172 W/m²). All series show a decreasing trend over time, with higher temperatures generally leading to faster drying.</p> <table border="1"> <caption>Approximate data points from the Wet Basis graph</caption> <thead> <tr> <th>Time (min)</th> <th>ambient, run 1 (1020 W/m²)</th> <th>40°C, run 1 (1032 W/m²)</th> <th>80°C, run 1 (1109 W/m²)</th> <th>ambient, run 2 (1176 W/m²)</th> <th>40°C, run 2 (776 W/m²)</th> <th>80°C, run 2 (1172 W/m²)</th> </tr> </thead> <tbody> <tr><td>0</td><td>75</td><td>75</td><td>75</td><td>75</td><td>75</td><td>75</td></tr> <tr><td>40</td><td>73</td><td>72</td><td>71</td><td>71</td><td>70</td><td>69</td></tr> <tr><td>80</td><td>70</td><td>69</td><td>68</td><td>68</td><td>67</td><td>66</td></tr> <tr><td>120</td><td>68</td><td>67</td><td>66</td><td>66</td><td>65</td><td>64</td></tr> <tr><td>160</td><td>66</td><td>65</td><td>64</td><td>64</td><td>63</td><td>62</td></tr> <tr><td>200</td><td>64</td><td>63</td><td>62</td><td>62</td><td>61</td><td>60</td></tr> <tr><td>240</td><td>62</td><td>61</td><td>60</td><td>60</td><td>59</td><td>58</td></tr> <tr><td>280</td><td>60</td><td>59</td><td>58</td><td>58</td><td>57</td><td>56</td></tr> <tr><td>320</td><td>58</td><td>57</td><td>56</td><td>56</td><td>55</td><td>54</td></tr> <tr><td>360</td><td>57</td><td>56</td><td>55</td><td>55</td><td>54</td><td>53</td></tr> </tbody> </table> <p>Dry basis</p> <p>The graph plots moisture content (g/g db) on the y-axis (0 to 3.5) against time (min) on the x-axis (0 to 360). The same six data series are shown. The dry basis graphs show a more rapid initial decrease in moisture content compared to the wet basis graphs.</p> <table border="1"> <caption>Approximate data points from the Dry Basis graph</caption> <thead> <tr> <th>Time (min)</th> <th>ambient, run 1 (1020 W/m²)</th> <th>40°C, run 1 (1032 W/m²)</th> <th>80°C, run 1 (1109 W/m²)</th> <th>ambient, run 2 (1176 W/m²)</th> <th>40°C, run 2 (776 W/m²)</th> <th>80°C, run 2 (1172 W/m²)</th> </tr> </thead> <tbody> <tr><td>0</td><td>3.0</td><td>3.0</td><td>3.0</td><td>3.0</td><td>3.0</td><td>3.0</td></tr> <tr><td>40</td><td>2.8</td><td>2.8</td><td>2.8</td><td>2.8</td><td>2.8</td><td>2.8</td></tr> <tr><td>80</td><td>2.7</td><td>2.7</td><td>2.7</td><td>2.7</td><td>2.7</td><td>2.7</td></tr> <tr><td>120</td><td>2.6</td><td>2.6</td><td>2.6</td><td>2.6</td><td>2.6</td><td>2.6</td></tr> <tr><td>160</td><td>2.5</td><td>2.5</td><td>2.5</td><td>2.5</td><td>2.5</td><td>2.5</td></tr> <tr><td>200</td><td>2.4</td><td>2.4</td><td>2.4</td><td>2.4</td><td>2.4</td><td>2.4</td></tr> <tr><td>240</td><td>2.3</td><td>2.3</td><td>2.3</td><td>2.3</td><td>2.3</td><td>2.3</td></tr> <tr><td>280</td><td>2.2</td><td>2.2</td><td>2.2</td><td>2.2</td><td>2.2</td><td>2.2</td></tr> <tr><td>320</td><td>2.1</td><td>2.1</td><td>2.1</td><td>2.1</td><td>2.1</td><td>2.1</td></tr> <tr><td>360</td><td>2.0</td><td>2.0</td><td>2.0</td><td>2.0</td><td>2.0</td><td>2.0</td></tr> </tbody> </table>	Time (min)	ambient, run 1 (1020 W/m²)	40°C, run 1 (1032 W/m²)	80°C, run 1 (1109 W/m²)	ambient, run 2 (1176 W/m²)	40°C, run 2 (776 W/m²)	80°C, run 2 (1172 W/m²)	0	75	75	75	75	75	75	40	73	72	71	71	70	69	80	70	69	68	68	67	66	120	68	67	66	66	65	64	160	66	65	64	64	63	62	200	64	63	62	62	61	60	240	62	61	60	60	59	58	280	60	59	58	58	57	56	320	58	57	56	56	55	54	360	57	56	55	55	54	53	Time (min)	ambient, run 1 (1020 W/m²)	40°C, run 1 (1032 W/m²)	80°C, run 1 (1109 W/m²)	ambient, run 2 (1176 W/m²)	40°C, run 2 (776 W/m²)	80°C, run 2 (1172 W/m²)	0	3.0	3.0	3.0	3.0	3.0	3.0	40	2.8	2.8	2.8	2.8	2.8	2.8	80	2.7	2.7	2.7	2.7	2.7	2.7	120	2.6	2.6	2.6	2.6	2.6	2.6	160	2.5	2.5	2.5	2.5	2.5	2.5	200	2.4	2.4	2.4	2.4	2.4	2.4	240	2.3	2.3	2.3	2.3	2.3	2.3	280	2.2	2.2	2.2	2.2	2.2	2.2	320	2.1	2.1	2.1	2.1	2.1	2.1	360	2.0	2.0	2.0	2.0	2.0	2.0	<p>Observations:</p> <ul style="list-style-type: none"> ○ Similar drying rate between the different air temperatures
Time (min)	ambient, run 1 (1020 W/m²)	40°C, run 1 (1032 W/m²)	80°C, run 1 (1109 W/m²)	ambient, run 2 (1176 W/m²)	40°C, run 2 (776 W/m²)	80°C, run 2 (1172 W/m²)																																																																																																																																																					
0	75	75	75	75	75	75																																																																																																																																																					
40	73	72	71	71	70	69																																																																																																																																																					
80	70	69	68	68	67	66																																																																																																																																																					
120	68	67	66	66	65	64																																																																																																																																																					
160	66	65	64	64	63	62																																																																																																																																																					
200	64	63	62	62	61	60																																																																																																																																																					
240	62	61	60	60	59	58																																																																																																																																																					
280	60	59	58	58	57	56																																																																																																																																																					
320	58	57	56	56	55	54																																																																																																																																																					
360	57	56	55	55	54	53																																																																																																																																																					
Time (min)	ambient, run 1 (1020 W/m²)	40°C, run 1 (1032 W/m²)	80°C, run 1 (1109 W/m²)	ambient, run 2 (1176 W/m²)	40°C, run 2 (776 W/m²)	80°C, run 2 (1172 W/m²)																																																																																																																																																					
0	3.0	3.0	3.0	3.0	3.0	3.0																																																																																																																																																					
40	2.8	2.8	2.8	2.8	2.8	2.8																																																																																																																																																					
80	2.7	2.7	2.7	2.7	2.7	2.7																																																																																																																																																					
120	2.6	2.6	2.6	2.6	2.6	2.6																																																																																																																																																					
160	2.5	2.5	2.5	2.5	2.5	2.5																																																																																																																																																					
200	2.4	2.4	2.4	2.4	2.4	2.4																																																																																																																																																					
240	2.3	2.3	2.3	2.3	2.3	2.3																																																																																																																																																					
280	2.2	2.2	2.2	2.2	2.2	2.2																																																																																																																																																					
320	2.1	2.1	2.1	2.1	2.1	2.1																																																																																																																																																					
360	2.0	2.0	2.0	2.0	2.0	2.0																																																																																																																																																					

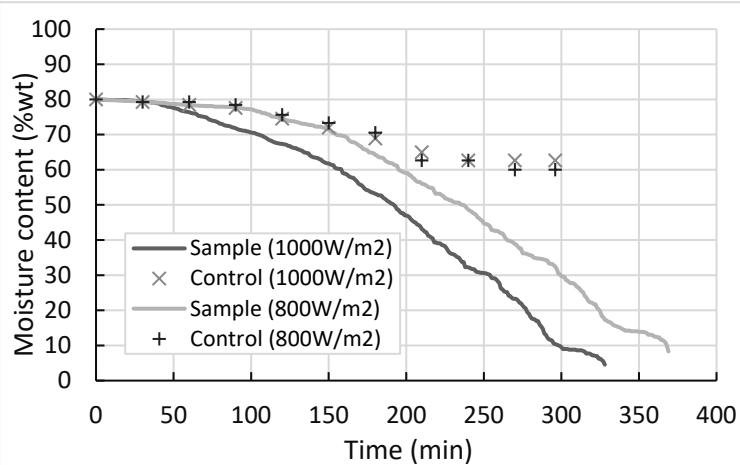
<u>General information</u>	
Type of data	Kinetics of solar thermal drying
Place of experimentation	Pollution Research Group, University of KwaZulu-Natal (South Africa)
Dates of the experiments	2017 - 2018
<u>Feedstock</u>	
Type of faecal material	Faecal sludge from ventilated improved pit latrine (VIP)
Location of collection	Durban, South Africa
Age before collection	Up to 5 years
Moisture content	~ 80%wt
Total solids content	~ 20%wt
Volatile solids content	~ 50%db
Ash content	~ 50%db
Presence of trash?	Yes
Pre-treatment	Screening to remove the trash
<u>Experimental Procedure</u>	
Drying experimental setup	Custom-design solar thermal drying rig
Drying time	3 to 5 hours
Operating conditions	<ul style="list-style-type: none"> ○ Irradiance: from 75 to 1000 W/m² (from overcast to sunny conditions) ○ Air flowrate: 0.5 m³/min (corresponding to an air velocity of 0.5 m/s) ○ Air temperature: ambient (~20°C) ○ Air humidity: ~10%
Sample form in the dryer	Thin layer of 5 and 10 mm thickness and 60 mm diameter
Analysed parameters	Moisture content
Employed methods	Thermogravimetry (determined through the measurement of the sample mass variation) (SOP 8.7.1.1)

<u>Publications</u>																																																							
Septien, S., Mugauri, T.R., Singh, A., & Inambao, F. (2019). Drying of Faecal Sludge using Solar Thermal Energy. WRC project final report.																																																							
Mugauri, T.R. (2019). Drying of Faecal Sludge from Ventilated-Improved Pit Latrines (VIP Latrines) using Solar Thermal Energy. Master thesis. University of KwaZulu-Natal, Durban, South Africa.																																																							
Septien, S., Mugauri, T.R., Singh, A., & Inambao, F. (2018). Solar drying of faecal sludge from pit latrines in a bench-scale device. 41 st WEDC conference proceedings, Nakuru, Kenya.																																																							
Septien, S., Mugauri, T.R., Singh, A., & Inambao, F. (2018). Solar Drying of Faecal Sludge from On-Site Sanitation Facilities. 5 th Southern Africa Solar Energy Conference proceedings, Durban, South Africa.																																																							
<u>Data source files</u>																																																							
https://www.dropbox.com/s/n2qp26y3zilt1ev/Solar%20thermal%20drying%20of%20VIP_2017-2018.xlsx?dl=0																																																							
<u>Additional Notes</u>																																																							
<ul style="list-style-type: none"> ○ Control experiment: sample placed at the open-air ○ The measured average irradiance included in the results below for each experiment 																																																							
<u>Description of Data</u>																																																							
<u>Moisture content versus time as a function of the weather conditions</u> Wet Basis <table border="1"> <caption>Approximate data points from the moisture content graph</caption> <thead> <tr> <th>Time (min)</th> <th>Sunny (1000W/m²) (%wt)</th> <th>Sunny (800W/m²) (%wt)</th> <th>Cloudy (600W/m²) (%wt)</th> <th>Overcast (300W/m²) (%wt)</th> <th>Overcast (75W/m²) (%wt)</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>80</td> <td>80</td> <td>80</td> <td>80</td> <td>80</td> </tr> <tr> <td>50</td> <td>78</td> <td>76</td> <td>75</td> <td>75</td> <td>75</td> </tr> <tr> <td>100</td> <td>75</td> <td>72</td> <td>70</td> <td>70</td> <td>70</td> </tr> <tr> <td>150</td> <td>70</td> <td>65</td> <td>62</td> <td>62</td> <td>62</td> </tr> <tr> <td>200</td> <td>65</td> <td>58</td> <td>55</td> <td>55</td> <td>55</td> </tr> <tr> <td>250</td> <td>58</td> <td>48</td> <td>45</td> <td>45</td> <td>45</td> </tr> <tr> <td>300</td> <td>50</td> <td>35</td> <td>32</td> <td>32</td> <td>32</td> </tr> <tr> <td>350</td> <td>42</td> <td>20</td> <td>15</td> <td>15</td> <td>15</td> </tr> </tbody> </table>	Time (min)	Sunny (1000W/m²) (%wt)	Sunny (800W/m²) (%wt)	Cloudy (600W/m²) (%wt)	Overcast (300W/m²) (%wt)	Overcast (75W/m²) (%wt)	0	80	80	80	80	80	50	78	76	75	75	75	100	75	72	70	70	70	150	70	65	62	62	62	200	65	58	55	55	55	250	58	48	45	45	45	300	50	35	32	32	32	350	42	20	15	15	15	<u>Observations</u> <ul style="list-style-type: none"> ○ Faster drying at sunny conditions (1000 W/m²)
Time (min)	Sunny (1000W/m²) (%wt)	Sunny (800W/m²) (%wt)	Cloudy (600W/m²) (%wt)	Overcast (300W/m²) (%wt)	Overcast (75W/m²) (%wt)																																																		
0	80	80	80	80	80																																																		
50	78	76	75	75	75																																																		
100	75	72	70	70	70																																																		
150	70	65	62	62	62																																																		
200	65	58	55	55	55																																																		
250	58	48	45	45	45																																																		
300	50	35	32	32	32																																																		
350	42	20	15	15	15																																																		



Moisture content versus time inside the solar drier and the control (sample placed at the open air) during sunny conditions

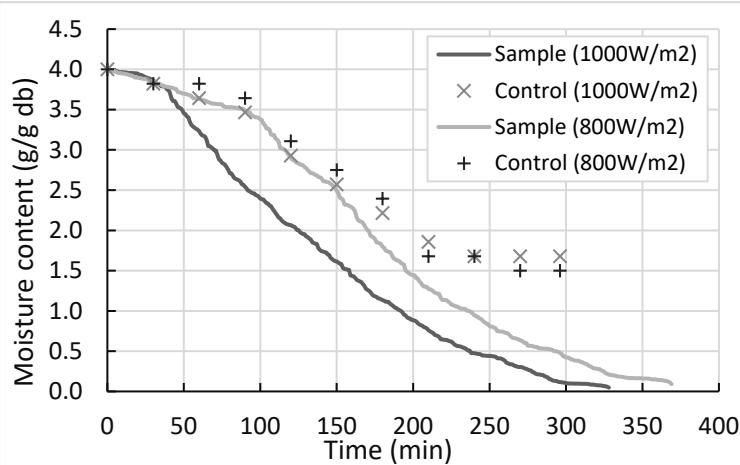
Wet Basis



Observations

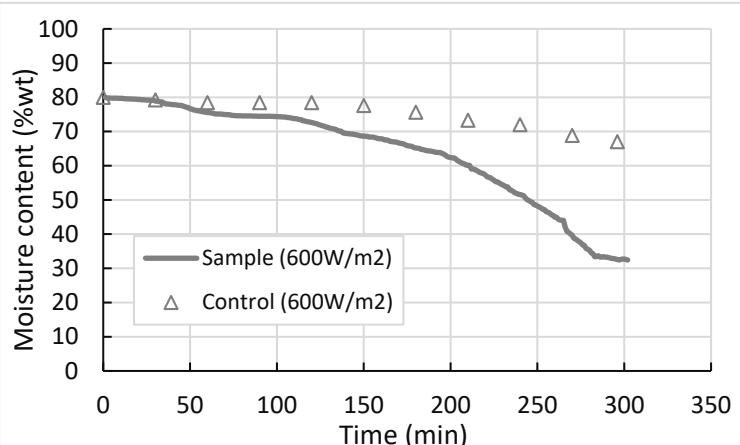
- Faster drying of the sample inside the solar dryer

Dry Basis



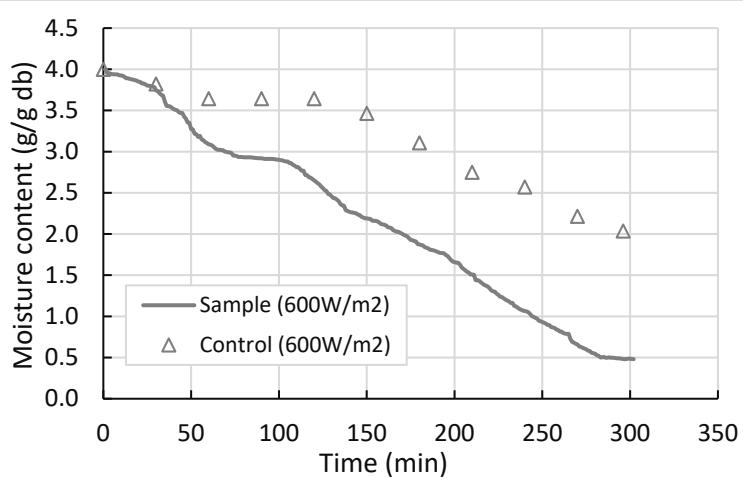
Moisture content versus time inside the solar drier and the control (sample placed at the open air) during cloudy conditions

Wet Basis

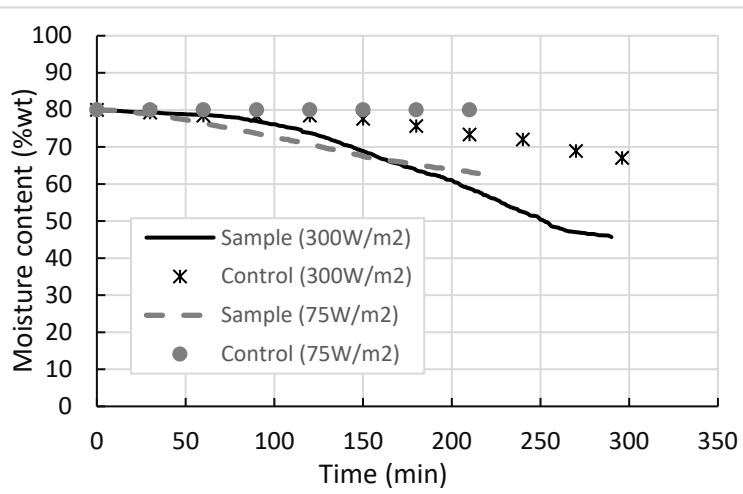
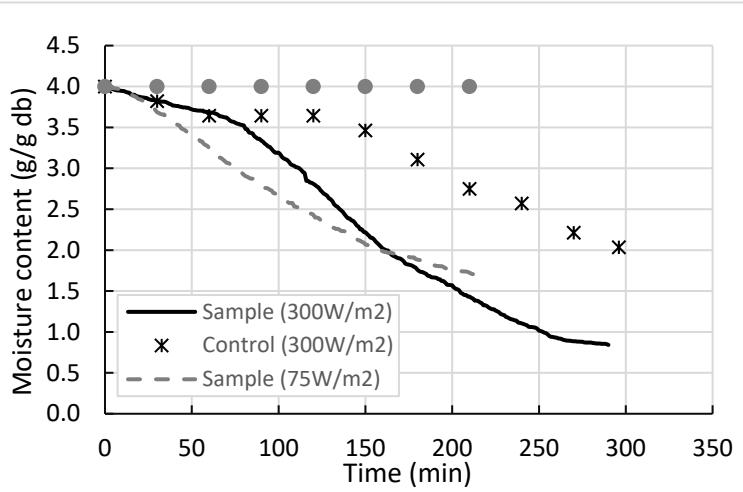


Observations

- Faster drying of the sample inside the solar dryer

Dry Basis

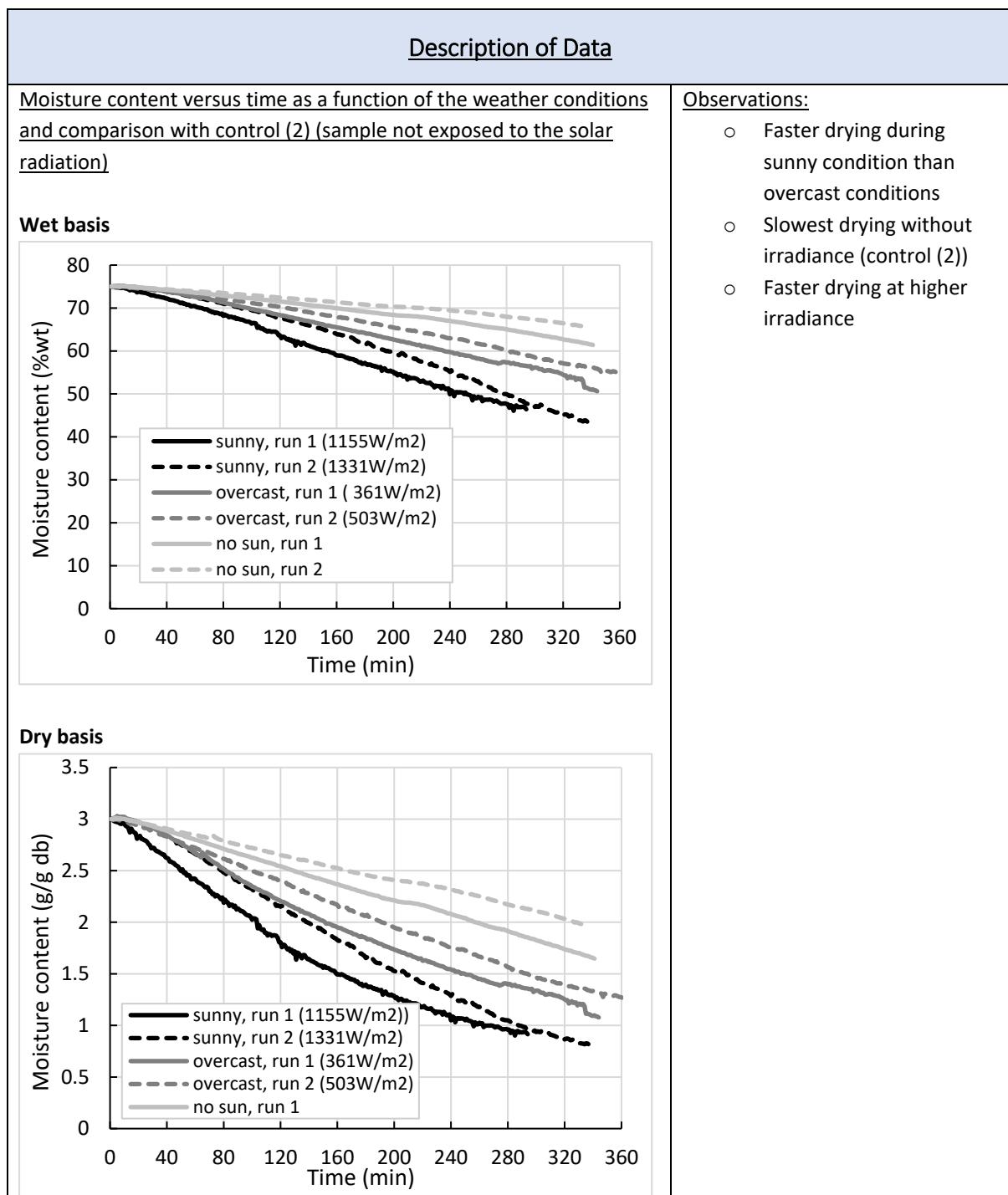
Moisture content versus time inside the solar drier and the control (sample placed at the open air) during overcast conditions

Wet Basis**Dry Basis****Observations**

- Faster drying of the sample inside the solar dryer

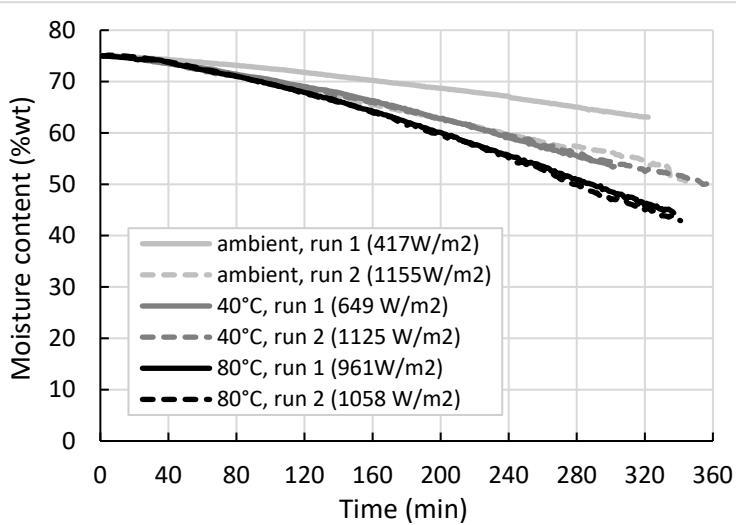
<u>General information</u>	
Type of data	Kinetics of solar thermal drying
Place of experimentation	Pollution Research Group, University of KwaZulu-Natal (South Africa)
Dates of the experiments	2019 - 2020
<u>Feedstock</u>	
Type of faecal material	Faecal sludge from ventilated improved pit latrine (VIP)
Location of collection	Durban, South Africa
Age before collection	Up to 5 years
Moisture content	~ 75%wt
Total solids content	~ 25%wt
Volatile solids content	Not measured
Ash content	Not measured
Presence of trash?	Small amounts of trash
Pre-treatment	Screening to remove the trash
<u>Experimental Procedure</u>	
Drying experimental setup	Custom-design solar thermal drying rig
Drying time	5 hours
Operating conditions	<ul style="list-style-type: none"> ○ Irradiance: 300 – 1300 W/m² (from overcast to sunny conditions) ○ Air flowrate: 0.5 and 1 m³/min (corresponding to an air velocity of 0.5 and 1 m/s) ○ Air temperature: ambient (~20°C), 40 and 80°C ○ Air humidity: ~10%
Sample form	~ 90 and 170 g of sample as a thin layer of 5 and 10 mm thickness respectively, and 110 mm diameter
Analysed parameters	Moisture content
Employed method	Thermogravimetry (determined through the measurement of the sample mass variation) (SOP 8.7.1.1)

<u>Publications</u>
-
<u>Data source files</u>
Sunny and overcast weather conditions https://www.dropbox.com/s/z5hfymnuljctwsc/2019-2020%20VIP%20solar%20drying%20based%20on%20weather%20conditions.xlsx?dl=0
Different temperatures at air velocity of 0.5 m/s https://www.dropbox.com/s/7qksuoct2p05q3k/2019-2020%20Solar%20drying%20of%20VIP%205mm%20at%200.5m%20per%20sec%20.xlsx?dl=0
Different temperatures at air velocity of 1.0 m/s https://www.dropbox.com/s/kvpjzpjob8zml5/2019-2020%20Solar%20drying%20of%20VIP%205mm%20at%201m%20per%20sec.xlsx?dl=0
Ambient temperature and varying air velocities https://www.dropbox.com/s/ngrboytch6am0p8/2019-2020%20VIP%20solar%20drying%20at%20varied%20air%20velocities%20%28ambient%20temp%29_UKZN.xlsx?dl=0
Open drying https://www.dropbox.com/s/reqvrb7s4ik4ofg/2019-2020%20VIP%20Open%20drying%20tests.xlsx?dl=0
<u>Additional Notes</u>
<ul style="list-style-type: none">○ Control experiments: (1) sample placed at the open-air and (2) drying chamber covered by an opaque sheet to block the solar radiation to penetrate within it○ The measured average irradiance included in the results below for each experiment



Moisture content versus time as a function of the air temperature at an air velocity of 0.5 m/s

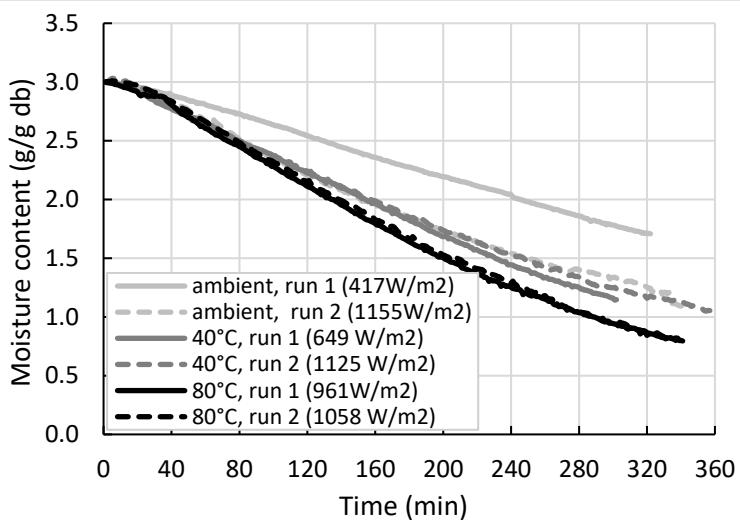
Wet basis



Observations:

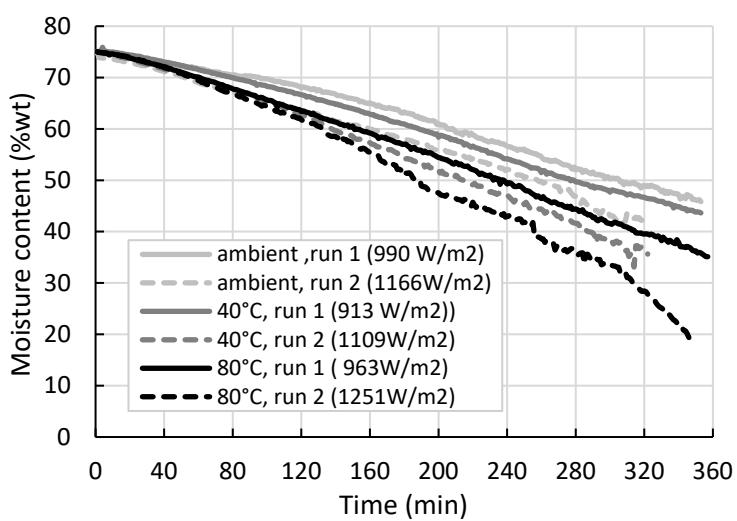
- Faster drying at 80°C
- No significant difference between ambient temperature and 40°C

Dry basis



Moisture content versus time as a function of the air temperature at an air velocity of 1 m/s

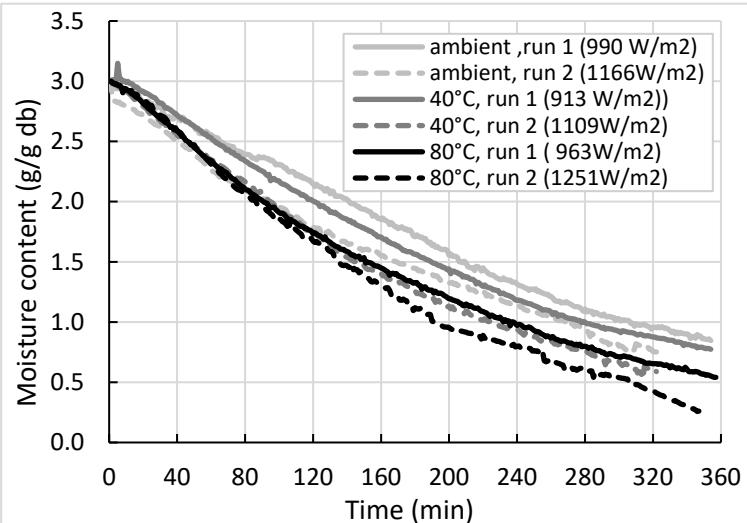
Wet basis

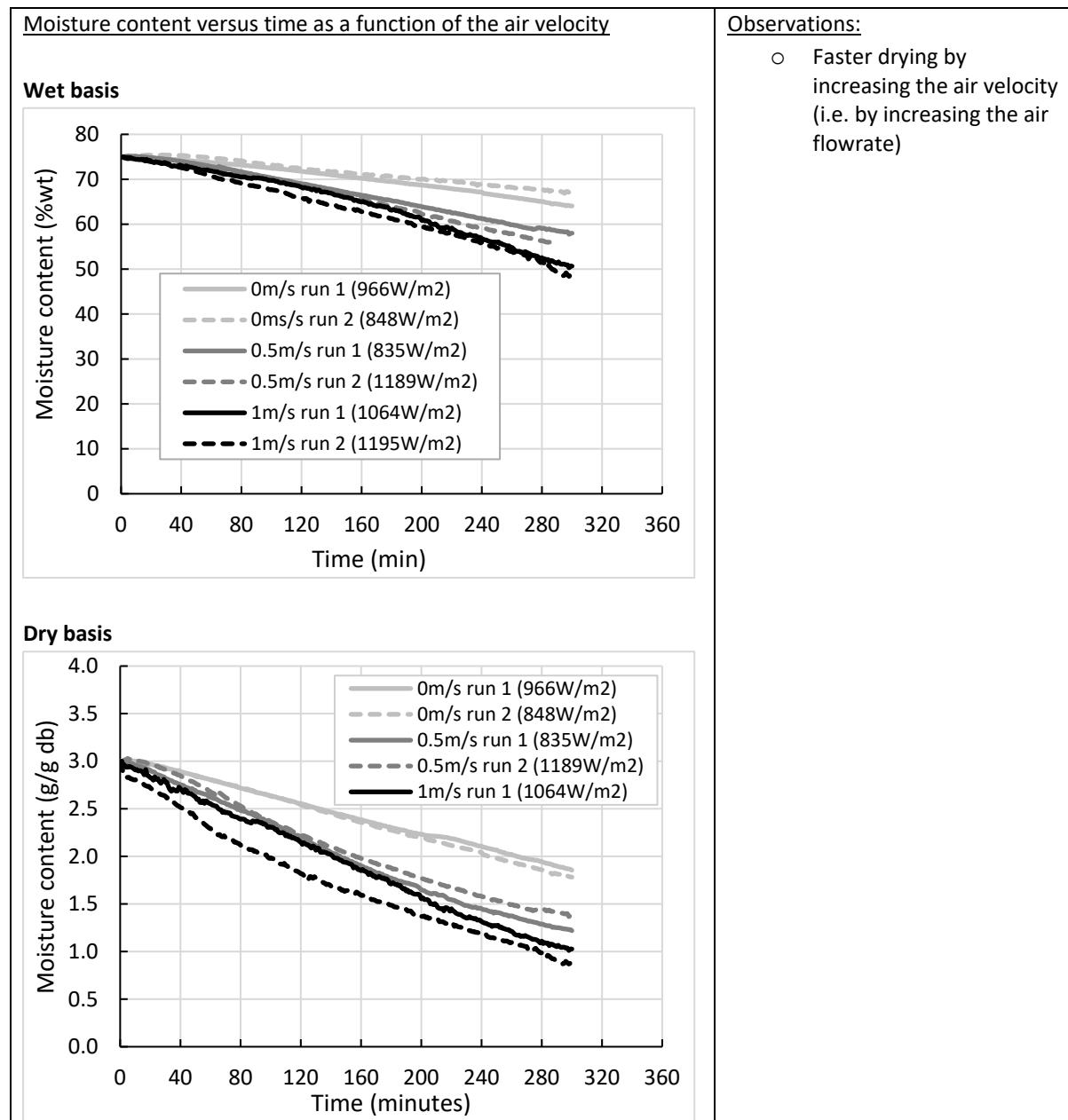


Observations:

- Faster drying at 80°C than at ambient conditions, with 40°C as intermediate

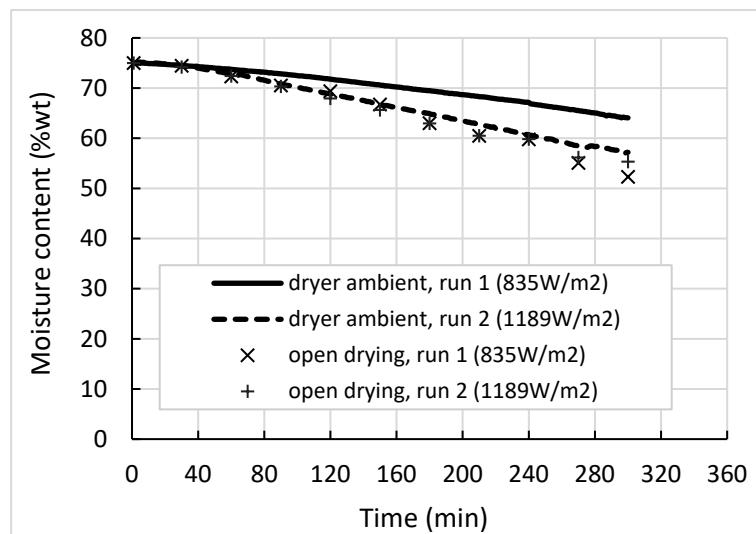
Dry basis





Moisture content versus time inside the solar drier and the control (sample placed at the open air) during sunny conditions

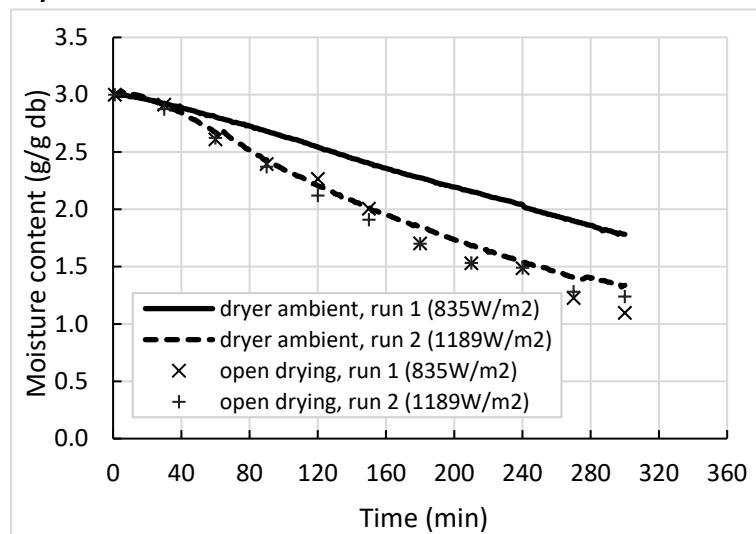
Wet basis



Observations:

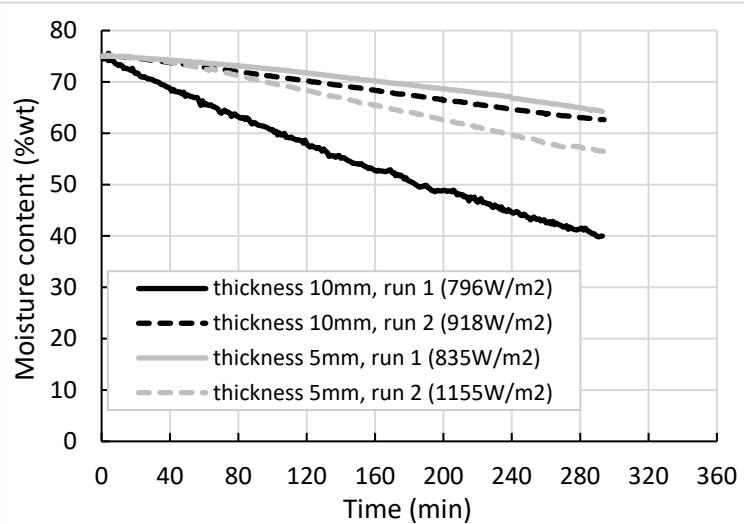
- Similar drying rate between the sample inside the drying chamber and the sample placed at the open air (control (1)) during the experiment with an average irradiance of 1189 W/m²
- Faster drying for the open-air sample compared to the sample inside the drying chamber during the experiment with an average irradiance of 835 W/m² (probably due to the windy conditions on that day)

Dry basis



Moisture content versus time as a function of the sample thickness

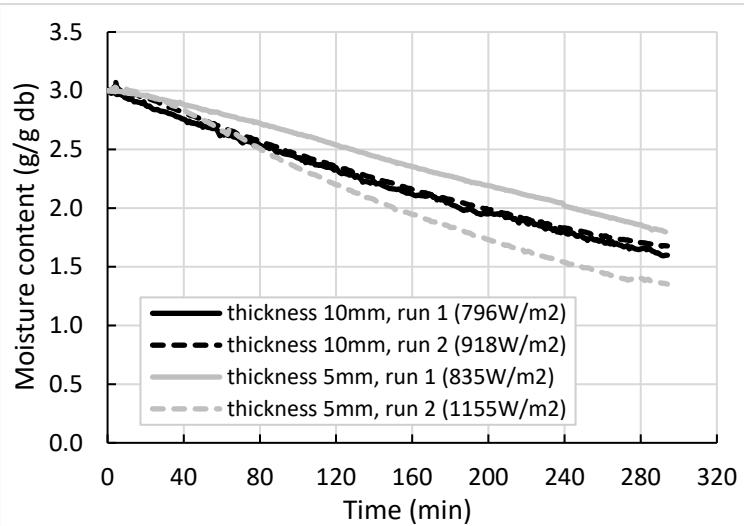
Wet basis



Observations:

- No effect of the sludge thickness on the drying rate

Dry basis



<u>General information</u>	
Type of data	Isothermal kinetics in a thermogravimetric analyser
Place of experimentation	Pollution Research Group, University of KwaZulu-Natal (South Africa)
Dates of the experiments	2018 - 2019
<u>Feedstock</u>	
Type of faecal material	Faecal sludge from anaerobic baffled reactor (ABR) from a decentralised wastewater treatment plant (DEWAT)
Location of collection	Durban, South Africa
Age before collection	Unknown
Moisture content	~ 90%wt
Total solids content	~ 10%wt
Volatile solids content	~ 75%db
Ash content	~ 25%db
Presence of trash?	Yes (mainly small pieces of paper after pre-screening during pit emptying)
Pre-treatment	Screening to remove trash
<u>Experimental Procedure</u>	
Drying experimental setup	Thermogravimetry - differential thermal analyser <i>SHIMADU DTG-60A</i>
Drying time	Until stabilisation of the sample mass
Operating conditions	<ul style="list-style-type: none"> ○ Temperature: 50, 100, 150 and 200°C ○ Heating rate: 50°C/min ○ Air flowrate: 50 mL/min
Sample form in the dryer	~ 70 mg sample on aluminium crucible of 6 mm diameter and 5 mm height
Analysed parameters	Moisture content
Employed method	Thermogravimetry (determined through the measurement of the sample mass variation) (SOP 8.7.1.1)
<u>Publications</u>	
-	

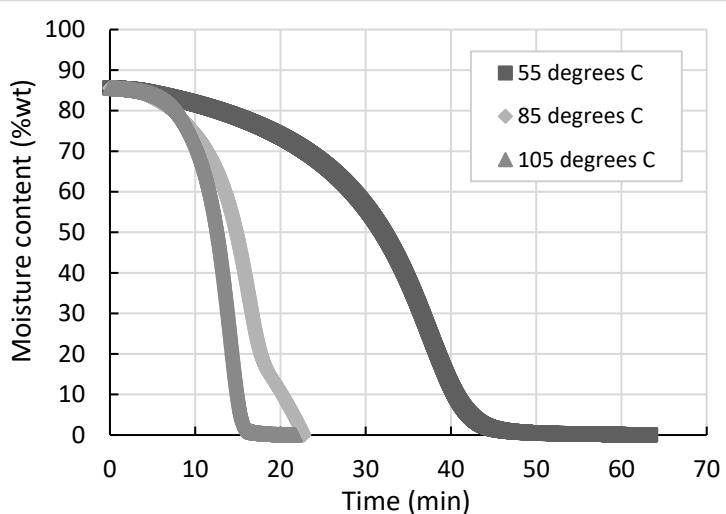
Data source files																																																																																																					
https://www.dropbox.com/s/otzyeo7ze8rex9f/2018-2019%20ABR%20isothermal%20Test_PRG.xlsx?dl=0																																																																																																					
Additional Notes																																																																																																					
-																																																																																																					
Description of Data																																																																																																					
<p>Moisture content versus time as a function of temperature</p> <p>Wet basis</p> <table border="1"> <caption>Estimated data for Wet Basis graph</caption> <thead> <tr> <th>Time (min)</th> <th>50°C (%wt)</th> <th>100°C (%wt)</th> <th>150°C (%wt)</th> <th>200°C (%wt)</th> </tr> </thead> <tbody> <tr><td>0</td><td>85</td><td>85</td><td>85</td><td>85</td></tr> <tr><td>5</td><td>75</td><td>70</td><td>65</td><td>60</td></tr> <tr><td>10</td><td>65</td><td>55</td><td>45</td><td>35</td></tr> <tr><td>15</td><td>55</td><td>40</td><td>30</td><td>20</td></tr> <tr><td>20</td><td>45</td><td>30</td><td>20</td><td>10</td></tr> <tr><td>30</td><td>35</td><td>20</td><td>10</td><td>5</td></tr> <tr><td>45</td><td>25</td><td>10</td><td>5</td><td>2</td></tr> <tr><td>60</td><td>15</td><td>5</td><td>2</td><td>1</td></tr> <tr><td>75</td><td>5</td><td>2</td><td>1</td><td>0.5</td></tr> </tbody> </table> <p>Dry basis</p> <table border="1"> <caption>Estimated data for Dry Basis graph</caption> <thead> <tr> <th>Time (min)</th> <th>50°C (g/g db)</th> <th>100°C (g/g db)</th> <th>150°C (g/g db)</th> <th>200°C (g/g db)</th> </tr> </thead> <tbody> <tr><td>0</td><td>5.5</td><td>5.5</td><td>5.5</td><td>5.5</td></tr> <tr><td>5</td><td>4.5</td><td>4.0</td><td>3.5</td><td>3.0</td></tr> <tr><td>10</td><td>3.5</td><td>2.5</td><td>2.0</td><td>1.5</td></tr> <tr><td>15</td><td>2.5</td><td>1.5</td><td>1.0</td><td>0.5</td></tr> <tr><td>20</td><td>1.5</td><td>0.5</td><td>0.2</td><td>0.1</td></tr> <tr><td>30</td><td>1.0</td><td>0.2</td><td>0.1</td><td>0.05</td></tr> <tr><td>45</td><td>0.5</td><td>0.1</td><td>0.05</td><td>0.02</td></tr> <tr><td>60</td><td>0.2</td><td>0.05</td><td>0.02</td><td>0.01</td></tr> <tr><td>75</td><td>0.1</td><td>0.02</td><td>0.01</td><td>0.005</td></tr> </tbody> </table>	Time (min)	50°C (%wt)	100°C (%wt)	150°C (%wt)	200°C (%wt)	0	85	85	85	85	5	75	70	65	60	10	65	55	45	35	15	55	40	30	20	20	45	30	20	10	30	35	20	10	5	45	25	10	5	2	60	15	5	2	1	75	5	2	1	0.5	Time (min)	50°C (g/g db)	100°C (g/g db)	150°C (g/g db)	200°C (g/g db)	0	5.5	5.5	5.5	5.5	5	4.5	4.0	3.5	3.0	10	3.5	2.5	2.0	1.5	15	2.5	1.5	1.0	0.5	20	1.5	0.5	0.2	0.1	30	1.0	0.2	0.1	0.05	45	0.5	0.1	0.05	0.02	60	0.2	0.05	0.02	0.01	75	0.1	0.02	0.01	0.005	<p>Observations:</p> <ul style="list-style-type: none"> ○ Faster drying by increasing temperature ○ Strong influence of temperature on the drying rate below 150°C ○ Weak effect of temperature above 150°C
Time (min)	50°C (%wt)	100°C (%wt)	150°C (%wt)	200°C (%wt)																																																																																																	
0	85	85	85	85																																																																																																	
5	75	70	65	60																																																																																																	
10	65	55	45	35																																																																																																	
15	55	40	30	20																																																																																																	
20	45	30	20	10																																																																																																	
30	35	20	10	5																																																																																																	
45	25	10	5	2																																																																																																	
60	15	5	2	1																																																																																																	
75	5	2	1	0.5																																																																																																	
Time (min)	50°C (g/g db)	100°C (g/g db)	150°C (g/g db)	200°C (g/g db)																																																																																																	
0	5.5	5.5	5.5	5.5																																																																																																	
5	4.5	4.0	3.5	3.0																																																																																																	
10	3.5	2.5	2.0	1.5																																																																																																	
15	2.5	1.5	1.0	0.5																																																																																																	
20	1.5	0.5	0.2	0.1																																																																																																	
30	1.0	0.2	0.1	0.05																																																																																																	
45	0.5	0.1	0.05	0.02																																																																																																	
60	0.2	0.05	0.02	0.01																																																																																																	
75	0.1	0.02	0.01	0.005																																																																																																	

<u>General information</u>	
Type of data	Isothermal kinetics in a thermogravimetry analyser
Place of experimentation	Bioenergy Lab, Cranfield Energy & Power, Cranfield University (United Kingdom)
Dates of the experiments	2018 - 2019
<u>Feedstock</u>	
Type of faecal material	Faecal sludge from anaerobic baffled reactor (ABR) from a decentralised wastewater treatment plant (DEWAT)
Location of collection	Durban, South Africa
Age before collection	Unknown
Moisture content	~ 85%wt
Total solids content	~ 15%wt
Volatile solids content	Not measured
Ash content	Not measured
Presence of trash?	Yes (mainly small pieces of paper after pre-screening during pit emptying)
Pre-treatment	Screening to remove trash
<u>Experimental Procedure</u>	
Drying experimental setup	Thermogravimetric analyser <i>PerkinElmer TGA 8000™</i>
Drying time	Until mass stabilisation
Operating conditions	<ul style="list-style-type: none"> ○ Temperature: 55, 85, 105, 155 and 205°C ○ Heating rate: 10 and 100°C/min ○ Flow rate: 4 mL/min
Sample in the drier	~ 40 mg sample on a 3 mm diameter aluminium crucible
Analysed parameters	Moisture content
Employed method	Thermogravimetry (determined through the measurement of the sample mass variation)
<u>Publications</u>	
Somorin T, Getahun S, Septien S et al. Isothermal drying characteristics and kinetics of human faecal sludges [version 1; peer review: awaiting peer review]. Gates Open Res 2020, 4:67	

Data source files																																																																																																	
https://www.dropbox.com/s/6kwot2hnlj2c2o1/Cranfield%20University_ABR%20sludge%20TGA%20isothermal%20kinetics%20%282018-2019%29.xlsx?dl=0																																																																																																	
Additional Notes																																																																																																	
<ul style="list-style-type: none"> ○ Faecal sludge couriered from South Africa 																																																																																																	
Description of Data																																																																																																	
<p><u>Moisture content versus time as a function of temperature at a heating rate of 100°C/min</u></p> <p>Wet basis</p> <table border="1"> <caption>Estimated data for Wet Basis Graph</caption> <thead> <tr> <th>Time (min)</th> <th>55°C (%wt)</th> <th>85°C (%wt)</th> <th>105°C (%wt)</th> <th>155°C (%wt)</th> <th>205°C (%wt)</th> </tr> </thead> <tbody> <tr><td>0</td><td>90</td><td>90</td><td>90</td><td>90</td><td>90</td></tr> <tr><td>5</td><td>80</td><td>75</td><td>70</td><td>65</td><td>60</td></tr> <tr><td>10</td><td>50</td><td>35</td><td>30</td><td>25</td><td>20</td></tr> <tr><td>20</td><td>25</td><td>15</td><td>10</td><td>8</td><td>6</td></tr> <tr><td>30</td><td>10</td><td>5</td><td>3</td><td>2</td><td>1</td></tr> <tr><td>40</td><td>5</td><td>2</td><td>1</td><td>0.5</td><td>0.2</td></tr> <tr><td>60</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td></tr> </tbody> </table> <p>Dry basis</p> <table border="1"> <caption>Estimated data for Dry Basis Graph</caption> <thead> <tr> <th>Time (min)</th> <th>55°C (g/g db)</th> <th>85°C (g/g db)</th> <th>105°C (g/g db)</th> <th>155°C (g/g db)</th> <th>205°C (g/g db)</th> </tr> </thead> <tbody> <tr><td>0</td><td>7.5</td><td>7.5</td><td>7.5</td><td>7.5</td><td>7.5</td></tr> <tr><td>5</td><td>6.5</td><td>6.0</td><td>5.5</td><td>5.0</td><td>4.5</td></tr> <tr><td>10</td><td>3.5</td><td>2.5</td><td>2.0</td><td>1.5</td><td>1.0</td></tr> <tr><td>20</td><td>1.5</td><td>1.0</td><td>0.8</td><td>0.6</td><td>0.4</td></tr> <tr><td>30</td><td>0.5</td><td>0.3</td><td>0.2</td><td>0.1</td><td>0.05</td></tr> <tr><td>40</td><td>0.2</td><td>0.1</td><td>0.08</td><td>0.05</td><td>0.02</td></tr> <tr><td>60</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td></tr> </tbody> </table>	Time (min)	55°C (%wt)	85°C (%wt)	105°C (%wt)	155°C (%wt)	205°C (%wt)	0	90	90	90	90	90	5	80	75	70	65	60	10	50	35	30	25	20	20	25	15	10	8	6	30	10	5	3	2	1	40	5	2	1	0.5	0.2	60	0	0	0	0	0	Time (min)	55°C (g/g db)	85°C (g/g db)	105°C (g/g db)	155°C (g/g db)	205°C (g/g db)	0	7.5	7.5	7.5	7.5	7.5	5	6.5	6.0	5.5	5.0	4.5	10	3.5	2.5	2.0	1.5	1.0	20	1.5	1.0	0.8	0.6	0.4	30	0.5	0.3	0.2	0.1	0.05	40	0.2	0.1	0.08	0.05	0.02	60	0	0	0	0	0	<p><u>Observations:</u></p> <ul style="list-style-type: none"> ○ Faster drying by increasing temperature ○ Considerable influence of temperature on the drying rate below 155°C ○ Weak effect of temperature above 155°C
Time (min)	55°C (%wt)	85°C (%wt)	105°C (%wt)	155°C (%wt)	205°C (%wt)																																																																																												
0	90	90	90	90	90																																																																																												
5	80	75	70	65	60																																																																																												
10	50	35	30	25	20																																																																																												
20	25	15	10	8	6																																																																																												
30	10	5	3	2	1																																																																																												
40	5	2	1	0.5	0.2																																																																																												
60	0	0	0	0	0																																																																																												
Time (min)	55°C (g/g db)	85°C (g/g db)	105°C (g/g db)	155°C (g/g db)	205°C (g/g db)																																																																																												
0	7.5	7.5	7.5	7.5	7.5																																																																																												
5	6.5	6.0	5.5	5.0	4.5																																																																																												
10	3.5	2.5	2.0	1.5	1.0																																																																																												
20	1.5	1.0	0.8	0.6	0.4																																																																																												
30	0.5	0.3	0.2	0.1	0.05																																																																																												
40	0.2	0.1	0.08	0.05	0.02																																																																																												
60	0	0	0	0	0																																																																																												

Moisture content versus time as a function of temperature at a heating rate of $10^{\circ}\text{C}/\text{min}$

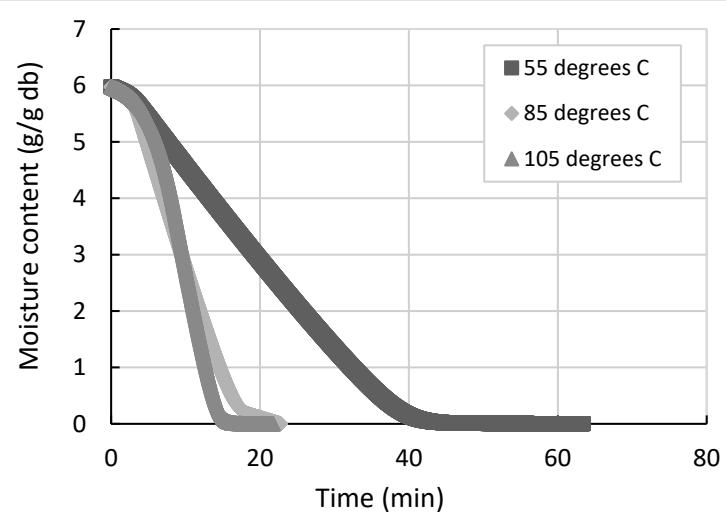
Wet basis



Observations:

- Faster drying by increasing temperature

Dry basis



<u>General information</u>	
Type of data	Isothermal kinetics in a thermogravimetric analyser
Place of experimentation	Material Engineering Department (SPECIFIC), Swansea University Prifysgol Abertawe
Dates of the experiments	2018 - 2020
<u>Feedstock</u>	
Type of faecal material	Faecal sludge from anaerobic baffled reactor (ABR) from a decentralised wastewater treatment plant (DEWAT)
Location of collection	Durban, South Africa
Age before collection	Unknown
Moisture content	~ 85%wt
Total solids content	~ 15%wt
Volatile solids content	Not measured
Ash content	Not measured
Presence of trash?	Yes (mainly small pieces of paper after pre-screening during pit emptying)
Pre-treatment	Screening to remove trash
<u>Experimental Procedure</u>	
Drying experimental setup	Thermogravimetric analyser - simultaneous thermal analysis <i>Perkin Elmer STA 6000</i>
Drying time	~ 40 - 80 min
Operating conditions	<ul style="list-style-type: none"> ○ Set temperature: 55, 85, 105, 155 and 205°C ○ Heating rate: 10°C/min ○ Carrier gas: nitrogen ○ Flow rate: 30 mL/min
Sample form in the dryer	~ 40 mg in a crucible
Analysed parameters	Moisture content
Employed method	Thermogravimetry (determined through the measurement of the sample mass variation)
<u>Publications</u>	
-	

Data source files**Wet basis**

https://www.dropbox.com/s/r2jsoyod36pte3a/Swansea%20University_Sludge%20TGA%20Isothermal%20kinetics_wet%20basis%20%282018-2020%29.xlsx?dl=0

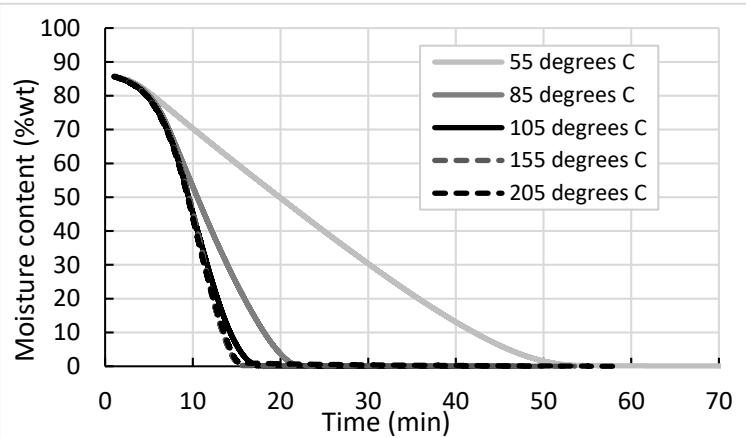
Dry basis

https://www.dropbox.com/s/w1zkkuuu7z21hyj/Swansea%20University_Sludge%20TGA%20Isothermal%20Kinetics_dry%20basis%20%282018-2020%29.xlsx?dl=0

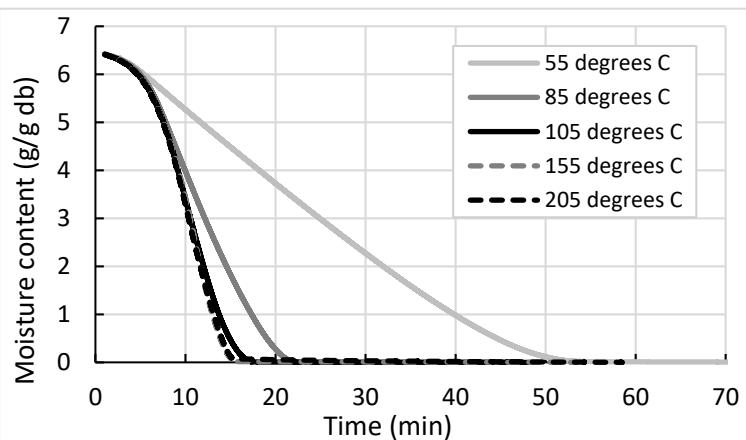
https://www.dropbox.com/s/w1zkkuuu7z21hyj/Swansea%20University_Sludge%20TGA%20Isothermal%20Kinetics_dry%20basis%20%282018-2020%29.xlsx?dl=0

Additional Notes

- Samples couriered from South Africa
- Considerable drying of the sample before reaching the set temperature at 105, 155 and 205°C

Description of DataMoisture content versus time as a function of temperature**Wet basis**Observations

- Faster drying by increasing the temperature from 55 to 105°C
- Drying achieved before 20 minutes at temperatures above 85°C
- Same drying rate between 155 and 205°C (probably because major part of the drying occurred during the heating stage before reaching the final temperature)

Dry basis

<u>General information</u>	
Type of data	Isothermal kinetics in a thermogravimetric analyser
Place of experimentation	Pollution Research Group, University of KwaZulu-Natal (South Africa)
Dates of the experiments	2018 - 2019
<u>Feedstock</u>	
Type of faecal material	Faecal sludge from urine diversion dry toilets (UDDT)
Location of collection	Durban, South Africa
Age before collection	Up to 3 years
Moisture content	~ 75%wt
Total solids content	~ 25%wt
Volatile solids content	~ 55%db
Ash content	~ 45%db
Presence of trash?	Yes (mainly stones, hair and plastics)
Pre-treatment	Screening to remove the trash
<u>Experimental Procedure</u>	
Drying experimental setup	Thermogravimetry - differential thermal analyser <i>SHIMADU DTG-60A</i>
Drying time	Until stabilisation of the sample mass
Operating conditions	<ul style="list-style-type: none"> ○ Temperature: 50, 100, 150 and 200°C ○ Heating rate: 50°C/min ○ Air flowrate: 50 mL/min
Sample form in the dryer	~ 70 mg sample on aluminium crucible of 6 mm diameter and 5 mm height
Analysed parameters	Moisture content
Employed method	Thermogravimetry (determined through the measurement of the sample mass variation) (SOP 8.7.1.1)
<u>Publications</u>	

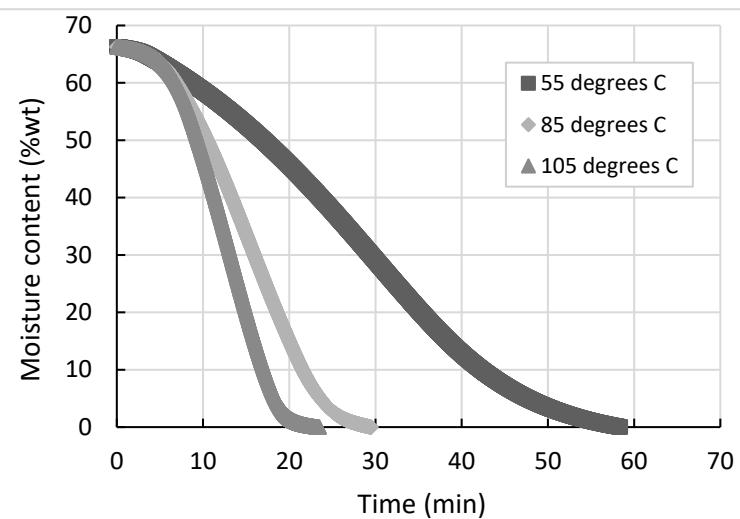
<u>Data source files</u>																																																																																																					
https://www.dropbox.com/s/2k2bhqr8kqjcaws/2018-2019%20UDDT%20isothermal%20tests_PRG.xlsx?dl=0																																																																																																					
<u>Additional Notes</u>																																																																																																					
-																																																																																																					
<u>Description of Data</u>																																																																																																					
<p>Moisture content versus time as a function of temperature</p> <p>Wet basis</p> <table border="1"> <caption>Estimated data for Wet Basis graph</caption> <thead> <tr> <th>Time (min)</th> <th>50°C (%wt)</th> <th>100°C (%wt)</th> <th>150°C (%wt)</th> <th>200°C (%wt)</th> </tr> </thead> <tbody> <tr><td>0</td><td>75</td><td>75</td><td>75</td><td>75</td></tr> <tr><td>10</td><td>65</td><td>60</td><td>55</td><td>50</td></tr> <tr><td>20</td><td>55</td><td>45</td><td>40</td><td>35</td></tr> <tr><td>30</td><td>45</td><td>35</td><td>30</td><td>25</td></tr> <tr><td>45</td><td>35</td><td>25</td><td>20</td><td>15</td></tr> <tr><td>60</td><td>25</td><td>15</td><td>10</td><td>8</td></tr> <tr><td>90</td><td>10</td><td>5</td><td>3</td><td>2</td></tr> <tr><td>120</td><td>5</td><td>2</td><td>1</td><td>1</td></tr> <tr><td>150</td><td>2</td><td>1</td><td>1</td><td>1</td></tr> </tbody> </table> <p>Dry basis</p> <table border="1"> <caption>Estimated data for Dry Basis graph</caption> <thead> <tr> <th>Time (min)</th> <th>50°C (g/g db)</th> <th>100°C (g/g db)</th> <th>150°C (g/g db)</th> <th>200°C (g/g db)</th> </tr> </thead> <tbody> <tr><td>0</td><td>2.8</td><td>2.8</td><td>2.8</td><td>2.8</td></tr> <tr><td>10</td><td>2.2</td><td>1.8</td><td>1.5</td><td>1.2</td></tr> <tr><td>20</td><td>1.8</td><td>1.2</td><td>0.9</td><td>0.7</td></tr> <tr><td>30</td><td>1.5</td><td>0.8</td><td>0.5</td><td>0.3</td></tr> <tr><td>45</td><td>1.0</td><td>0.5</td><td>0.3</td><td>0.2</td></tr> <tr><td>60</td><td>0.6</td><td>0.3</td><td>0.15</td><td>0.1</td></tr> <tr><td>90</td><td>0.15</td><td>0.05</td><td>0.02</td><td>0.01</td></tr> <tr><td>120</td><td>0.05</td><td>0.01</td><td>0.005</td><td>0.005</td></tr> <tr><td>150</td><td>0.01</td><td>0.005</td><td>0.005</td><td>0.005</td></tr> </tbody> </table>	Time (min)	50°C (%wt)	100°C (%wt)	150°C (%wt)	200°C (%wt)	0	75	75	75	75	10	65	60	55	50	20	55	45	40	35	30	45	35	30	25	45	35	25	20	15	60	25	15	10	8	90	10	5	3	2	120	5	2	1	1	150	2	1	1	1	Time (min)	50°C (g/g db)	100°C (g/g db)	150°C (g/g db)	200°C (g/g db)	0	2.8	2.8	2.8	2.8	10	2.2	1.8	1.5	1.2	20	1.8	1.2	0.9	0.7	30	1.5	0.8	0.5	0.3	45	1.0	0.5	0.3	0.2	60	0.6	0.3	0.15	0.1	90	0.15	0.05	0.02	0.01	120	0.05	0.01	0.005	0.005	150	0.01	0.005	0.005	0.005	<p>Observations:</p> <ul style="list-style-type: none"> ○ Faster drying by increasing temperature ○ Strong influence of temperature on the drying rate below 150°C ○ Weak effect of temperature above 150°C
Time (min)	50°C (%wt)	100°C (%wt)	150°C (%wt)	200°C (%wt)																																																																																																	
0	75	75	75	75																																																																																																	
10	65	60	55	50																																																																																																	
20	55	45	40	35																																																																																																	
30	45	35	30	25																																																																																																	
45	35	25	20	15																																																																																																	
60	25	15	10	8																																																																																																	
90	10	5	3	2																																																																																																	
120	5	2	1	1																																																																																																	
150	2	1	1	1																																																																																																	
Time (min)	50°C (g/g db)	100°C (g/g db)	150°C (g/g db)	200°C (g/g db)																																																																																																	
0	2.8	2.8	2.8	2.8																																																																																																	
10	2.2	1.8	1.5	1.2																																																																																																	
20	1.8	1.2	0.9	0.7																																																																																																	
30	1.5	0.8	0.5	0.3																																																																																																	
45	1.0	0.5	0.3	0.2																																																																																																	
60	0.6	0.3	0.15	0.1																																																																																																	
90	0.15	0.05	0.02	0.01																																																																																																	
120	0.05	0.01	0.005	0.005																																																																																																	
150	0.01	0.005	0.005	0.005																																																																																																	

<u>General information</u>	
Type of data	Isothermal kinetics in a thermogravimetry analyser
Place of experimentation	Bioenergy Lab, Cranfield Energy & Power, Cranfield University (United Kingdom)
Dates of the experiments	2018 - 2019
<u>Feedstock</u>	
Type of faecal material	Faecal sludge from urine diversion dry toilets (UDDT)
Location of collection	Durban, South Africa
Age before collection	Up to 3 years
Moisture content	~ 50%wt
Total solids content	~ 50%wt
Volatile solids content	Not measured
Ash content	Not measured
Presence of trash?	Yes (mainly stones, hair and plastics)
Pre-treatment	Screening to remove the trash
<u>Experimental Procedure</u>	
Drying experimental setup	Thermogravimetric analyser <i>PerkinElmer TGA 8000™</i>
Drying time	Until mass stabilisation
Operating conditions	<ul style="list-style-type: none"> ○ Temperature: 55, 85, 105, 155 and 205°C ○ Heating rate: 100°C/min ○ Flow rate: 4 mL/min
Sample form	~ 40 mg sample on a 3 mm diameter aluminium crucible
Analysed parameters	Moisture content
Employed method	Thermogravimetry (determined through the measurement of the sample mass variation)
<u>Publications</u>	
Somorin T, Getahun S, Septien S et al. Isothermal drying characteristics and kinetics of human faecal sludges [version 1; peer review: awaiting peer review]. Gates Open Res 2020, 4:67	

Data source files																																																																																																																									
https://www.dropbox.com/s/jbuwxf4hggk1vwz/Cranfield%20UDDT%20sludge_TGA%20Isothermali%20Kinetics%20%282018-2019%29.xlsx?dl=0																																																																																																																									
Additional Notes																																																																																																																									
<ul style="list-style-type: none"> ○ Samples couriered from South Africa 																																																																																																																									
Description of Data																																																																																																																									
<p>Moisture content versus time as a function of temperature</p> <p>Wet basis</p> <table border="1"> <caption>Estimated data for Wet Basis Graph</caption> <thead> <tr> <th>Time (min)</th> <th>55°C (%wt)</th> <th>85°C (%wt)</th> <th>105°C (%wt)</th> <th>155°C (%wt)</th> <th>205°C (%wt)</th> </tr> </thead> <tbody> <tr><td>0</td><td>65</td><td>65</td><td>65</td><td>65</td><td>65</td></tr> <tr><td>5</td><td>60</td><td>55</td><td>50</td><td>45</td><td>40</td></tr> <tr><td>10</td><td>5</td><td>5</td><td>5</td><td>5</td><td>5</td></tr> <tr><td>20</td><td>5</td><td>5</td><td>5</td><td>5</td><td>5</td></tr> <tr><td>30</td><td>5</td><td>5</td><td>5</td><td>5</td><td>5</td></tr> <tr><td>40</td><td>5</td><td>5</td><td>5</td><td>5</td><td>5</td></tr> <tr><td>50</td><td>5</td><td>5</td><td>5</td><td>5</td><td>5</td></tr> <tr><td>60</td><td>5</td><td>5</td><td>5</td><td>5</td><td>5</td></tr> <tr><td>70</td><td>5</td><td>5</td><td>5</td><td>5</td><td>5</td></tr> </tbody> </table> <p>Dry basis</p> <table border="1"> <caption>Estimated data for Dry Basis Graph</caption> <thead> <tr> <th>Time (min)</th> <th>55°C (g/g db)</th> <th>85°C (g/g db)</th> <th>105°C (g/g db)</th> <th>155°C (g/g db)</th> <th>205°C (g/g db)</th> </tr> </thead> <tbody> <tr><td>0</td><td>1.8</td><td>1.8</td><td>1.8</td><td>1.8</td><td>1.8</td></tr> <tr><td>5</td><td>1.0</td><td>0.9</td><td>0.8</td><td>0.7</td><td>0.6</td></tr> <tr><td>10</td><td>0.0</td><td>0.0</td><td>0.0</td><td>0.0</td><td>0.0</td></tr> <tr><td>20</td><td>0.0</td><td>0.0</td><td>0.0</td><td>0.0</td><td>0.0</td></tr> <tr><td>30</td><td>0.0</td><td>0.0</td><td>0.0</td><td>0.0</td><td>0.0</td></tr> <tr><td>40</td><td>0.0</td><td>0.0</td><td>0.0</td><td>0.0</td><td>0.0</td></tr> <tr><td>50</td><td>0.0</td><td>0.0</td><td>0.0</td><td>0.0</td><td>0.0</td></tr> <tr><td>60</td><td>0.0</td><td>0.0</td><td>0.0</td><td>0.0</td><td>0.0</td></tr> <tr><td>70</td><td>0.0</td><td>0.0</td><td>0.0</td><td>0.0</td><td>0.0</td></tr> </tbody> </table>	Time (min)	55°C (%wt)	85°C (%wt)	105°C (%wt)	155°C (%wt)	205°C (%wt)	0	65	65	65	65	65	5	60	55	50	45	40	10	5	5	5	5	5	20	5	5	5	5	5	30	5	5	5	5	5	40	5	5	5	5	5	50	5	5	5	5	5	60	5	5	5	5	5	70	5	5	5	5	5	Time (min)	55°C (g/g db)	85°C (g/g db)	105°C (g/g db)	155°C (g/g db)	205°C (g/g db)	0	1.8	1.8	1.8	1.8	1.8	5	1.0	0.9	0.8	0.7	0.6	10	0.0	0.0	0.0	0.0	0.0	20	0.0	0.0	0.0	0.0	0.0	30	0.0	0.0	0.0	0.0	0.0	40	0.0	0.0	0.0	0.0	0.0	50	0.0	0.0	0.0	0.0	0.0	60	0.0	0.0	0.0	0.0	0.0	70	0.0	0.0	0.0	0.0	0.0	<p>Observations:</p> <ul style="list-style-type: none"> ○ Faster drying by increasing temperature ○ Considerable influence of temperature on the drying rate below 155°C ○ Weak effect of temperature above 155°C
Time (min)	55°C (%wt)	85°C (%wt)	105°C (%wt)	155°C (%wt)	205°C (%wt)																																																																																																																				
0	65	65	65	65	65																																																																																																																				
5	60	55	50	45	40																																																																																																																				
10	5	5	5	5	5																																																																																																																				
20	5	5	5	5	5																																																																																																																				
30	5	5	5	5	5																																																																																																																				
40	5	5	5	5	5																																																																																																																				
50	5	5	5	5	5																																																																																																																				
60	5	5	5	5	5																																																																																																																				
70	5	5	5	5	5																																																																																																																				
Time (min)	55°C (g/g db)	85°C (g/g db)	105°C (g/g db)	155°C (g/g db)	205°C (g/g db)																																																																																																																				
0	1.8	1.8	1.8	1.8	1.8																																																																																																																				
5	1.0	0.9	0.8	0.7	0.6																																																																																																																				
10	0.0	0.0	0.0	0.0	0.0																																																																																																																				
20	0.0	0.0	0.0	0.0	0.0																																																																																																																				
30	0.0	0.0	0.0	0.0	0.0																																																																																																																				
40	0.0	0.0	0.0	0.0	0.0																																																																																																																				
50	0.0	0.0	0.0	0.0	0.0																																																																																																																				
60	0.0	0.0	0.0	0.0	0.0																																																																																																																				
70	0.0	0.0	0.0	0.0	0.0																																																																																																																				

Moisture content versus time as a function of temperature at a heating rate of $10^{\circ}\text{C}/\text{min}$

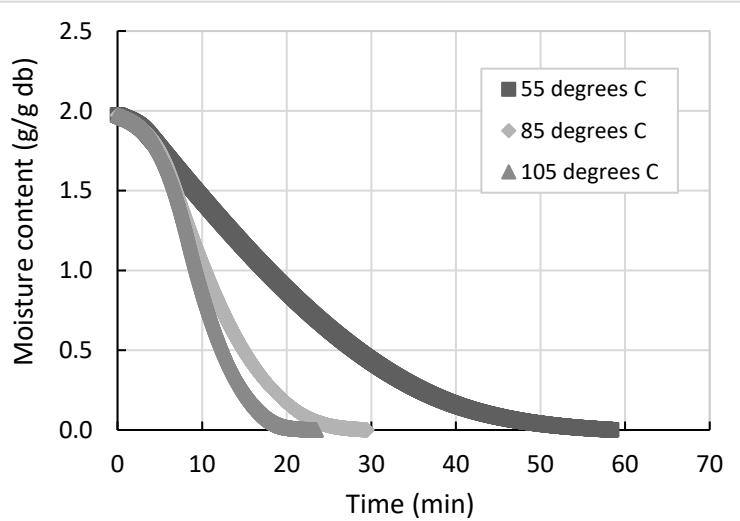
Wet basis



Observations:

- Faster drying by increasing temperature

Dry basis



<u>General information</u>	
Type of data	Isothermal kinetics in a thermogravimetric analyser
Place of experimentation	Material Engineering Department (SPECIFIC), Swansea University Prifysgol Abertawe
Dates of the experiments	2018 - 2020
<u>Feedstock</u>	
Type of faecal material	Faecal sludge from urine diversion dry toilets (UDDT)
Location of collection	Durban, South Africa
Age before collection	Up to 3 years
Moisture content	~ 70%wt
Total solids content	~ 30%wt
Volatile solids content	Not measured
Ash content	Not measured
Presence of trash?	Yes (mainly stones, hair and plastics)
Pre-treatment	Screening to remove the trash
<u>Experimental Procedure</u>	
Drying experimental setup	Thermogravimetric analyser - simultaneous thermal analysis <i>Perkin Elmer STA 6000</i>
Drying time	~ 40 - 80 min
Operating conditions	<ul style="list-style-type: none"> ○ Set temperature: 55, 85, 105, 155 and 205°C ○ Heating rate: 10°C/min ○ Carrier gas: nitrogen ○ Flow rate: 30 mL/min
Sample form in the dryer	~ 40 mg in a crucible
Analysed parameters	Moisture content
Employed method	Thermogravimetry (determined through the measurement of the sample mass variation)
<u>Publications</u>	
-	

<u>Data source files</u>																																																																																											
Wet basis https://www.dropbox.com/s/r2jsoyod36pte3a/Swansea%20University_Sludge%20TGA%20Isothermal%20kinetics_wet%20basis%20%282018-2020%29.xlsx?dl=0																																																																																											
Dry basis https://www.dropbox.com/s/w1zkkuuu7z21hyj/Swansea%20University_Sludge%20TGA%20Isothermal%20Kinetics_dry%20basis%20%282018-2020%29.xlsx?dl=0																																																																																											
<u>Additional Notes</u>																																																																																											
<ul style="list-style-type: none"> ○ Samples couriered from South Africa ○ Considerable drying of the sample before reaching the set temperature at 105, 155 and 205°C 																																																																																											
<u>Description of Data</u>																																																																																											
<p><u>Moisture content versus time as a function of temperature</u></p> <p>Wet basis</p> <table border="1"> <caption>Estimated data for Wet basis moisture content (%)</caption> <thead> <tr> <th>Time (min)</th> <th>55°C</th> <th>85°C</th> <th>155°C</th> <th>205°C</th> </tr> </thead> <tbody> <tr><td>0</td><td>70</td><td>70</td><td>70</td><td>70</td></tr> <tr><td>10</td><td>55</td><td>45</td><td>35</td><td>30</td></tr> <tr><td>20</td><td>40</td><td>30</td><td>20</td><td>15</td></tr> <tr><td>30</td><td>30</td><td>20</td><td>15</td><td>10</td></tr> <tr><td>40</td><td>25</td><td>15</td><td>10</td><td>5</td></tr> <tr><td>50</td><td>20</td><td>10</td><td>5</td><td>2</td></tr> <tr><td>60</td><td>15</td><td>5</td><td>2</td><td>0</td></tr> <tr><td>70</td><td>10</td><td>0</td><td>0</td><td>0</td></tr> </tbody> </table> <p>Dry basis</p> <table border="1"> <caption>Estimated data for Dry basis moisture content (g/g db)</caption> <thead> <tr> <th>Time (min)</th> <th>55°C</th> <th>85°C</th> <th>155°C</th> <th>205°C</th> </tr> </thead> <tbody> <tr><td>0</td><td>2.2</td><td>2.2</td><td>2.2</td><td>2.2</td></tr> <tr><td>10</td><td>1.5</td><td>1.0</td><td>0.8</td><td>0.6</td></tr> <tr><td>20</td><td>0.8</td><td>0.3</td><td>0.1</td><td>0.05</td></tr> <tr><td>30</td><td>0.5</td><td>0.1</td><td>0.02</td><td>0.01</td></tr> <tr><td>40</td><td>0.3</td><td>0.05</td><td>0.01</td><td>0.005</td></tr> <tr><td>50</td><td>0.2</td><td>0.02</td><td>0.005</td><td>0.002</td></tr> <tr><td>60</td><td>0.1</td><td>0.01</td><td>0.002</td><td>0.001</td></tr> <tr><td>70</td><td>0.05</td><td>0.005</td><td>0.001</td><td>0.0005</td></tr> </tbody> </table>	Time (min)	55°C	85°C	155°C	205°C	0	70	70	70	70	10	55	45	35	30	20	40	30	20	15	30	30	20	15	10	40	25	15	10	5	50	20	10	5	2	60	15	5	2	0	70	10	0	0	0	Time (min)	55°C	85°C	155°C	205°C	0	2.2	2.2	2.2	2.2	10	1.5	1.0	0.8	0.6	20	0.8	0.3	0.1	0.05	30	0.5	0.1	0.02	0.01	40	0.3	0.05	0.01	0.005	50	0.2	0.02	0.005	0.002	60	0.1	0.01	0.002	0.001	70	0.05	0.005	0.001	0.0005	<p>Observations</p> <ul style="list-style-type: none"> ○ Faster drying by increasing the temperature from 55 to 155°C ○ Drying achieved before 20 minutes at temperatures above 155°C ○ Same drying rate between 155 and 205°C (probably because major part of the drying occurred during the heating stage before reaching the final temperature)
Time (min)	55°C	85°C	155°C	205°C																																																																																							
0	70	70	70	70																																																																																							
10	55	45	35	30																																																																																							
20	40	30	20	15																																																																																							
30	30	20	15	10																																																																																							
40	25	15	10	5																																																																																							
50	20	10	5	2																																																																																							
60	15	5	2	0																																																																																							
70	10	0	0	0																																																																																							
Time (min)	55°C	85°C	155°C	205°C																																																																																							
0	2.2	2.2	2.2	2.2																																																																																							
10	1.5	1.0	0.8	0.6																																																																																							
20	0.8	0.3	0.1	0.05																																																																																							
30	0.5	0.1	0.02	0.01																																																																																							
40	0.3	0.05	0.01	0.005																																																																																							
50	0.2	0.02	0.005	0.002																																																																																							
60	0.1	0.01	0.002	0.001																																																																																							
70	0.05	0.005	0.001	0.0005																																																																																							

<u>General information</u>	
Type of data	Isothermal kinetics in a thermogravimetric analyser
Place of experimentation	Pollution Research Group, University of KwaZulu-Natal (South Africa)
Dates of the experiments	2018 - 2019
<u>Feedstock</u>	
Type of faecal material	Faecal sludge from ventilated pit latrines (VIP)
Location of collection	Durban, South Africa
Age before collection	Up to 5 years
Moisture content	~ 95%wt
Total solids content	~ 5%wt
Volatile solids content	~ 65%db
Ash content	~ 35%db
Presence of trash?	No (sludge pre-screened during pit emptying)
Pre-treatment	Mixing
<u>Experimental Procedure</u>	
Drying experimental setup	Thermogravimetry - differential thermal analyser SHIMADU DTG-60A
Drying time	Until stabilisation of the sample mass
Operating conditions	<ul style="list-style-type: none"> ○ Temperature: 50, 100, 150 and 200°C ○ Heating rate: 50°C/min ○ Air flowrate: 50 mL/min
Sample form in the dryer	~ 70 mg sample on aluminium crucible of 6 mm diameter and 5 mm height
Analysed parameters	Moisture content
Employed method	Thermogravimetry (determined through the measurement of the sample mass variation) (SOP 8.7.1.1)
<u>Publications</u>	
Getahun, S., Septien, S., Mata, J., Somorin, T., Mabbett, I., & Buckley, C. (2020). Drying characteristics of faecal sludge from different on-site sanitation facilities. <i>Journal of Environmental Management</i> , 261, 110267.	

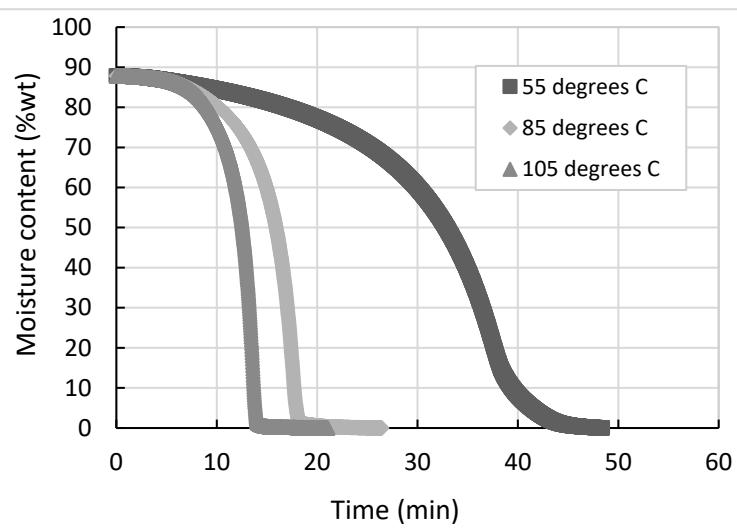
<u>Data source files</u>	
https://www.dropbox.com/s/khl5b44277bgqw2/2018-2019%20VIP%20Isothermal%20Tests_PRG.xlsx?dl=0	
<u>Additional Notes</u>	
-	
<u>Description of Data</u>	
<p><u>Moisture content versus time as a function of temperature</u></p> <p>Wet basis</p> <p>Dry basis</p>	<p>Observations:</p> <ul style="list-style-type: none"> ○ Faster drying by increasing temperature ○ Strong influence of temperature on the drying rate below 150°C ○ Weak effect of temperature above 150°C

<u>General information</u>	
Type of data	Isothermal kinetics in a thermogravimetry analyser
Place of experimentation	Bioenergy Lab, Cranfield Energy & Power, Cranfield University (United Kingdom)
Dates of the experiments	2018 - 2019
<u>Feedstock</u>	
Type of faecal material	Faecal sludge from ventilated pit latrines (VIP)
Location of collection	Durban, South Africa
Age before collection	Up to 5 years
Moisture content	~ 95%wt
Total solids content	~ 5%wt
Volatile solids content	Not measured
Ash content	Not measured
Presence of trash?	No (sludge pre-screened during pit emptying)
Pre-treatment	Mixing
<u>Experimental Procedure</u>	
Drying experimental setup	Thermogravimetric analyser <i>PerkinElmer TGA 8000™</i>
Drying time	Until mass stabilisation
Operating conditions	<ul style="list-style-type: none"> ○ Temperature: 55, 85, 105, 155 and 205°C ○ Heating rate: 100°C/min ○ Flow rate: 4 mL/min
Sample form	~ 40 mg sample on a 3 mm diameter aluminium crucible
Analysed parameters	Moisture content
Employed method	Thermogravimetry (determined through the measurement of the sample mass variation)
<u>Publications</u>	
Somorin T, Getahun S, Septien S et al. Isothermal drying characteristics and kinetics of human faecal sludges [version 1; peer review: awaiting peer review]. Gates Open Res 2020, 4:67	

Data source files																																																																																																	
https://www.dropbox.com/s/rhp4d3okk1sgaxb/Cranfield%20University%20VIP%20sludge_TGA%20isothermal%20kinetics%20%282018-2019%29.xlsx?dl=0																																																																																																	
Additional Notes																																																																																																	
<ul style="list-style-type: none"> ○ Faecal sludge couriered from South Africa 																																																																																																	
Description of Data																																																																																																	
<p>Moisture content versus time as a function of temperature</p> <p>Wet basis</p> <table border="1"> <caption>Estimated data for Wet Basis Graph</caption> <thead> <tr> <th>Time (min)</th> <th>55°C (%wt)</th> <th>85°C (%wt)</th> <th>105°C (%wt)</th> <th>155°C (%wt)</th> <th>205°C (%wt)</th> </tr> </thead> <tbody> <tr><td>0</td><td>100</td><td>100</td><td>100</td><td>100</td><td>100</td></tr> <tr><td>5</td><td>~5</td><td>~10</td><td>~15</td><td>~20</td><td>~25</td></tr> <tr><td>10</td><td>~0</td><td>~5</td><td>~10</td><td>~15</td><td>~20</td></tr> <tr><td>20</td><td>~0</td><td>~0</td><td>~0</td><td>~0</td><td>~0</td></tr> <tr><td>30</td><td>~5</td><td>~10</td><td>~15</td><td>~20</td><td>~25</td></tr> <tr><td>40</td><td>~0</td><td>~0</td><td>~0</td><td>~0</td><td>~0</td></tr> <tr><td>45</td><td>~0</td><td>~0</td><td>~0</td><td>~0</td><td>~0</td></tr> </tbody> </table> <p>Dry basis</p> <table border="1"> <caption>Estimated data for Dry Basis Graph</caption> <thead> <tr> <th>Time (min)</th> <th>55°C (g/g db)</th> <th>85°C (g/g db)</th> <th>105°C (g/g db)</th> <th>155°C (g/g db)</th> <th>205°C (g/g db)</th> </tr> </thead> <tbody> <tr><td>0</td><td>23</td><td>23</td><td>23</td><td>23</td><td>23</td></tr> <tr><td>5</td><td>~5</td><td>~10</td><td>~15</td><td>~20</td><td>~25</td></tr> <tr><td>10</td><td>~0</td><td>~0</td><td>~0</td><td>~0</td><td>~0</td></tr> <tr><td>20</td><td>~0</td><td>~0</td><td>~0</td><td>~0</td><td>~0</td></tr> <tr><td>30</td><td>~5</td><td>~10</td><td>~15</td><td>~20</td><td>~25</td></tr> <tr><td>40</td><td>~0</td><td>~0</td><td>~0</td><td>~0</td><td>~0</td></tr> <tr><td>45</td><td>~0</td><td>~0</td><td>~0</td><td>~0</td><td>~0</td></tr> </tbody> </table>	Time (min)	55°C (%wt)	85°C (%wt)	105°C (%wt)	155°C (%wt)	205°C (%wt)	0	100	100	100	100	100	5	~5	~10	~15	~20	~25	10	~0	~5	~10	~15	~20	20	~0	~0	~0	~0	~0	30	~5	~10	~15	~20	~25	40	~0	~0	~0	~0	~0	45	~0	~0	~0	~0	~0	Time (min)	55°C (g/g db)	85°C (g/g db)	105°C (g/g db)	155°C (g/g db)	205°C (g/g db)	0	23	23	23	23	23	5	~5	~10	~15	~20	~25	10	~0	~0	~0	~0	~0	20	~0	~0	~0	~0	~0	30	~5	~10	~15	~20	~25	40	~0	~0	~0	~0	~0	45	~0	~0	~0	~0	~0	<p>Observations:</p> <ul style="list-style-type: none"> ○ Faster drying by increasing temperature ○ Considerable influence of temperature on the drying rate below 155°C ○ Weak effect of temperature above 155°C
Time (min)	55°C (%wt)	85°C (%wt)	105°C (%wt)	155°C (%wt)	205°C (%wt)																																																																																												
0	100	100	100	100	100																																																																																												
5	~5	~10	~15	~20	~25																																																																																												
10	~0	~5	~10	~15	~20																																																																																												
20	~0	~0	~0	~0	~0																																																																																												
30	~5	~10	~15	~20	~25																																																																																												
40	~0	~0	~0	~0	~0																																																																																												
45	~0	~0	~0	~0	~0																																																																																												
Time (min)	55°C (g/g db)	85°C (g/g db)	105°C (g/g db)	155°C (g/g db)	205°C (g/g db)																																																																																												
0	23	23	23	23	23																																																																																												
5	~5	~10	~15	~20	~25																																																																																												
10	~0	~0	~0	~0	~0																																																																																												
20	~0	~0	~0	~0	~0																																																																																												
30	~5	~10	~15	~20	~25																																																																																												
40	~0	~0	~0	~0	~0																																																																																												
45	~0	~0	~0	~0	~0																																																																																												

Moisture content versus time as a function of temperature at a heating rate of 10°C/min

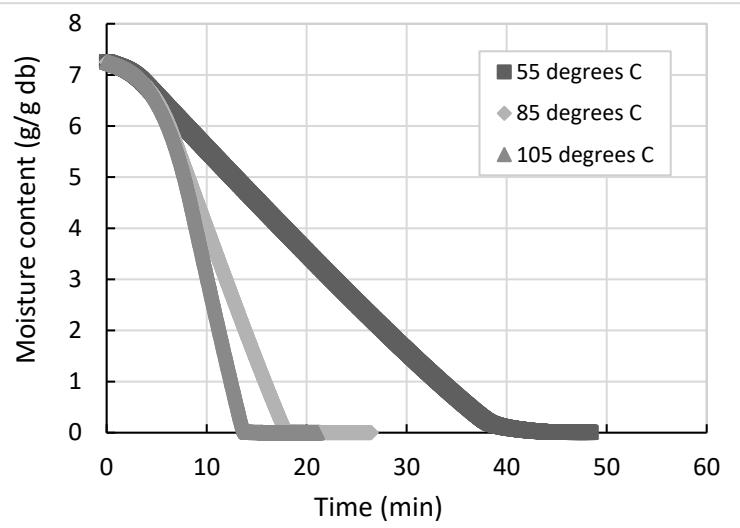
Wet basis



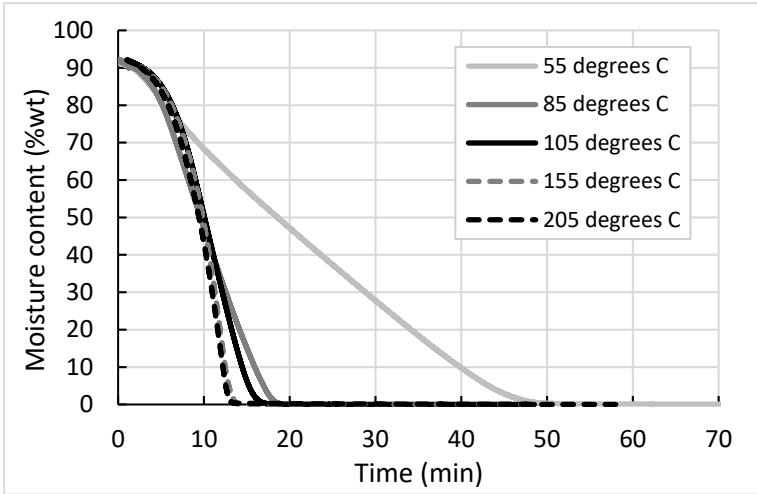
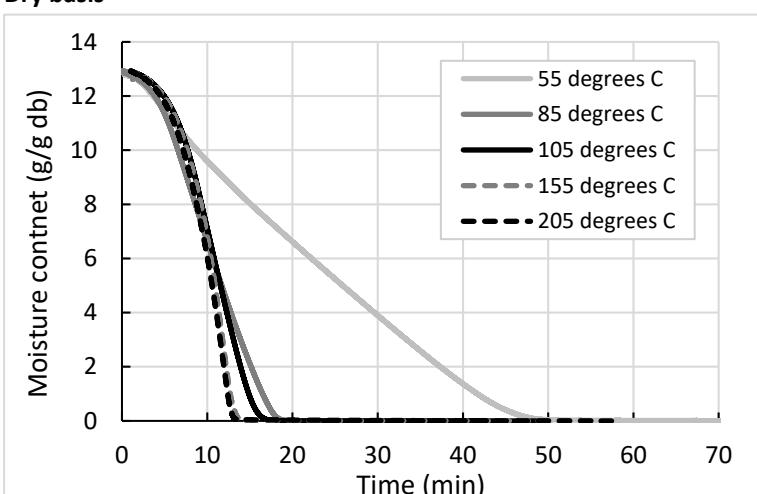
Observations:

- Faster drying by increasing temperature

Dry basis



<u>General information</u>	
Type of data	Isothermal kinetics in a thermogravimetric analyser
Place of experimentation	Materials Engineering Department (SPECIFIC), Swansea University Prifysgol Abertawe
Dates of the experiments	2018 - 2020
<u>Feedstock</u>	
Type of faecal material	Faecal sludge from ventilated pit latrines (VIP)
Location of collection	Durban, South Africa
Age before collection	Up to 5 years
Moisture content	~ 95%wt
Total solids content	~ 5%wt
Volatile solids content	Not measured
Ash content	Not measured
Presence of trash?	No (sludge pre-screened during pit emptying)
Pre-treatment	Mixing
<u>Experimental Procedure</u>	
Drying experimental setup	Thermogravimetric analyser - simultaneous thermal analysis <i>Perkin Elmer STA 6000</i>
Drying time	~ 40 - 80 min
Operating conditions	<ul style="list-style-type: none"> ○ Set temperature: 55, 85, 105, 155 and 205°C ○ Heating rate: 10°C/min ○ Carrier gas: nitrogen ○ Flow rate: 30 mL/min
Sample form in the dryer	~ 40 mg in a crucible
Analysed parameters	Moisture content
Employed method	Thermogravimetry (determined through the measurement of the sample mass variation)
<u>Publications</u>	
-	

<u>Data source files</u>																																																																																																																																					
Wet basis https://www.dropbox.com/s/r2jsoyod36pte3a/Swansea%20University_Sludge%20TGA%20Isothermal%20kinetics_wet%20basis%20%282018-2020%29.xlsx?dl=0																																																																																																																																					
Dry basis https://www.dropbox.com/s/w1zkkuuu7z21hyj/Swansea%20University_Sludge%20TGA%20Isothermal%20Kinetics_dry%20basis%20%282018-2020%29.xlsx?dl=0																																																																																																																																					
<u>Additional Notes</u>																																																																																																																																					
<ul style="list-style-type: none"> ○ Faecal sludge couriered from South Africa ○ Considerable drying of the sample before reaching the set temperature at 105, 155 and 205°C 																																																																																																																																					
<u>Description of Data</u>																																																																																																																																					
Moisture content versus time as a function of temperature Wet basis  <table border="1"> <caption>Approximate data points for Wet Basis Moisture Content</caption> <thead> <tr> <th>Time (min)</th> <th>55°C (%wt)</th> <th>85°C (%wt)</th> <th>105°C (%wt)</th> <th>155°C (%wt)</th> <th>205°C (%wt)</th> </tr> </thead> <tbody> <tr><td>0</td><td>92</td><td>92</td><td>92</td><td>92</td><td>92</td></tr> <tr><td>5</td><td>85</td><td>80</td><td>75</td><td>70</td><td>65</td></tr> <tr><td>10</td><td>72</td><td>65</td><td>58</td><td>52</td><td>45</td></tr> <tr><td>15</td><td>60</td><td>50</td><td>42</td><td>35</td><td>28</td></tr> <tr><td>20</td><td>50</td><td>40</td><td>32</td><td>25</td><td>18</td></tr> <tr><td>30</td><td>35</td><td>25</td><td>18</td><td>12</td><td>8</td></tr> <tr><td>40</td><td>25</td><td>15</td><td>10</td><td>8</td><td>5</td></tr> <tr><td>50</td><td>18</td><td>10</td><td>7</td><td>5</td><td>3</td></tr> <tr><td>60</td><td>12</td><td>8</td><td>5</td><td>3</td><td>2</td></tr> <tr><td>70</td><td>8</td><td>5</td><td>3</td><td>2</td><td>1</td></tr> </tbody> </table> Dry basis  <table border="1"> <caption>Approximate data points for Dry Basis Moisture Content</caption> <thead> <tr> <th>Time (min)</th> <th>55°C (g/g db)</th> <th>85°C (g/g db)</th> <th>105°C (g/g db)</th> <th>155°C (g/g db)</th> <th>205°C (g/g db)</th> </tr> </thead> <tbody> <tr><td>0</td><td>13</td><td>13</td><td>13</td><td>13</td><td>13</td></tr> <tr><td>5</td><td>12</td><td>11</td><td>10</td><td>9</td><td>8</td></tr> <tr><td>10</td><td>10</td><td>8</td><td>6</td><td>5</td><td>4</td></tr> <tr><td>15</td><td>8</td><td>6</td><td>4</td><td>3</td><td>2</td></tr> <tr><td>20</td><td>6</td><td>4</td><td>3</td><td>2</td><td>1</td></tr> <tr><td>30</td><td>4</td><td>3</td><td>2</td><td>1.5</td><td>1</td></tr> <tr><td>40</td><td>2.5</td><td>2</td><td>1.5</td><td>1</td><td>0.5</td></tr> <tr><td>50</td><td>1.5</td><td>1</td><td>0.8</td><td>0.5</td><td>0.2</td></tr> <tr><td>60</td><td>1</td><td>0.5</td><td>0.3</td><td>0.2</td><td>0.1</td></tr> <tr><td>70</td><td>0.5</td><td>0.2</td><td>0.1</td><td>0.1</td><td>0.05</td></tr> </tbody> </table>	Time (min)	55°C (%wt)	85°C (%wt)	105°C (%wt)	155°C (%wt)	205°C (%wt)	0	92	92	92	92	92	5	85	80	75	70	65	10	72	65	58	52	45	15	60	50	42	35	28	20	50	40	32	25	18	30	35	25	18	12	8	40	25	15	10	8	5	50	18	10	7	5	3	60	12	8	5	3	2	70	8	5	3	2	1	Time (min)	55°C (g/g db)	85°C (g/g db)	105°C (g/g db)	155°C (g/g db)	205°C (g/g db)	0	13	13	13	13	13	5	12	11	10	9	8	10	10	8	6	5	4	15	8	6	4	3	2	20	6	4	3	2	1	30	4	3	2	1.5	1	40	2.5	2	1.5	1	0.5	50	1.5	1	0.8	0.5	0.2	60	1	0.5	0.3	0.2	0.1	70	0.5	0.2	0.1	0.1	0.05	Observations <ul style="list-style-type: none"> ○ Faster drying by increasing the temperature from 55 to 155°C ○ Drying achieved before 20 minutes at temperatures above 85°C ○ Same drying rate between 155 and 205°C (probably because major part of the drying occurred during the heating stage before reaching the final temperature)
Time (min)	55°C (%wt)	85°C (%wt)	105°C (%wt)	155°C (%wt)	205°C (%wt)																																																																																																																																
0	92	92	92	92	92																																																																																																																																
5	85	80	75	70	65																																																																																																																																
10	72	65	58	52	45																																																																																																																																
15	60	50	42	35	28																																																																																																																																
20	50	40	32	25	18																																																																																																																																
30	35	25	18	12	8																																																																																																																																
40	25	15	10	8	5																																																																																																																																
50	18	10	7	5	3																																																																																																																																
60	12	8	5	3	2																																																																																																																																
70	8	5	3	2	1																																																																																																																																
Time (min)	55°C (g/g db)	85°C (g/g db)	105°C (g/g db)	155°C (g/g db)	205°C (g/g db)																																																																																																																																
0	13	13	13	13	13																																																																																																																																
5	12	11	10	9	8																																																																																																																																
10	10	8	6	5	4																																																																																																																																
15	8	6	4	3	2																																																																																																																																
20	6	4	3	2	1																																																																																																																																
30	4	3	2	1.5	1																																																																																																																																
40	2.5	2	1.5	1	0.5																																																																																																																																
50	1.5	1	0.8	0.5	0.2																																																																																																																																
60	1	0.5	0.3	0.2	0.1																																																																																																																																
70	0.5	0.2	0.1	0.1	0.05																																																																																																																																

<u>General information</u>	
Type of data	Isothermal kinetics in a thermogravimetric analyser
Place of experimentation	Pollution Research Group, University of KwaZulu-Natal (South Africa)
Dates of the experiments	2018 - 2019
<u>Feedstock</u>	
Type of faecal material	Fresh faeces
Location of collection	Durban, South Africa
Age before collection	A few days
Moisture content	~ 80%wt
Total solids content	~ 20%wt
Volatile solids content	~ 85%db
Ash content	~ 15%db
Presence of trash?	No
Pre-treatment	Mixing
<u>Experimental Procedure</u>	
Drying experimental setup	Thermogravimetry - differential thermal analyser SHIMADU DTG-60A
Drying time	Until stabilisation of the sample mass
Operating conditions	<ul style="list-style-type: none"> ○ Temperature: 50, 100, 150 and 200°C ○ Heating rate: 50°C/min ○ Air flowrate: 50 mL/min
Sample form in the dryer	~ 70 mg sample on aluminium crucible of 6 mm diameter and 5 mm height
Analysed parameters	Moisture content
Employed method	Thermogravimetry (determined through the measurement of the sample mass variation) (SOP 8.7.1.1)
<u>Publications</u>	
Getahun, S., Septien, S., Mata, J., Somorin, T., Mabbett, I., & Buckley, C. (2020). Drying characteristics of faecal sludge from different on-site sanitation facilities. <i>Journal of Environmental Management</i> , 261, 110267.	

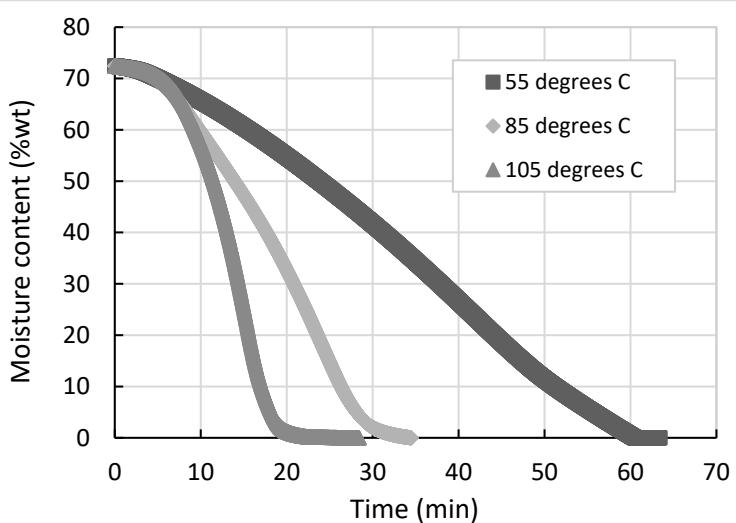
Data source files																																																																																											
https://www.dropbox.com/s/l2yq6knth6gcw1g/2019%20Fresh%20faeces_Isotherm%20Tests_PR_G.xlsx?dl=0																																																																																											
Additional Notes																																																																																											
<ul style="list-style-type: none"> ○ Fresh faeces collected from voluntary and anonymous donations from healthy young adults 																																																																																											
Description of Data																																																																																											
<p><u>Moisture content vs time as a function of temperature</u></p> <p>Wet basis</p> <table border="1"> <caption>Estimated data for Wet Basis Graph</caption> <thead> <tr> <th>Time (min)</th> <th>50°C (%wt)</th> <th>105°C (%wt)</th> <th>150°C (%wt)</th> <th>200°C (%wt)</th> </tr> </thead> <tbody> <tr><td>0</td><td>80</td><td>80</td><td>80</td><td>80</td></tr> <tr><td>5</td><td>70</td><td>65</td><td>60</td><td>55</td></tr> <tr><td>10</td><td>60</td><td>45</td><td>35</td><td>25</td></tr> <tr><td>20</td><td>45</td><td>20</td><td>10</td><td>5</td></tr> <tr><td>50</td><td>35</td><td>-</td><td>-</td><td>-</td></tr> <tr><td>100</td><td>20</td><td>-</td><td>-</td><td>-</td></tr> <tr><td>125</td><td>0</td><td>-</td><td>-</td><td>-</td></tr> </tbody> </table> <p>Dry basis</p> <table border="1"> <caption>Estimated data for Dry Basis Graph</caption> <thead> <tr> <th>Time (min)</th> <th>50°C (g/g db)</th> <th>100°C (g/g db)</th> <th>150°C (g/g db)</th> <th>200°C (g/g db)</th> </tr> </thead> <tbody> <tr><td>0</td><td>3.5</td><td>3.5</td><td>3.5</td><td>3.5</td></tr> <tr><td>5</td><td>2.5</td><td>2.2</td><td>2.0</td><td>1.8</td></tr> <tr><td>10</td><td>2.0</td><td>1.5</td><td>1.2</td><td>1.0</td></tr> <tr><td>20</td><td>1.8</td><td>1.2</td><td>0.8</td><td>0.5</td></tr> <tr><td>40</td><td>1.2</td><td>0.8</td><td>0.5</td><td>0.3</td></tr> <tr><td>60</td><td>0.8</td><td>0.5</td><td>0.3</td><td>0.2</td></tr> <tr><td>80</td><td>0.5</td><td>0.3</td><td>0.2</td><td>0.1</td></tr> <tr><td>100</td><td>0.2</td><td>0.1</td><td>0.05</td><td>0.02</td></tr> <tr><td>120</td><td>0.05</td><td>0.02</td><td>0.01</td><td>0.005</td></tr> </tbody> </table>	Time (min)	50°C (%wt)	105°C (%wt)	150°C (%wt)	200°C (%wt)	0	80	80	80	80	5	70	65	60	55	10	60	45	35	25	20	45	20	10	5	50	35	-	-	-	100	20	-	-	-	125	0	-	-	-	Time (min)	50°C (g/g db)	100°C (g/g db)	150°C (g/g db)	200°C (g/g db)	0	3.5	3.5	3.5	3.5	5	2.5	2.2	2.0	1.8	10	2.0	1.5	1.2	1.0	20	1.8	1.2	0.8	0.5	40	1.2	0.8	0.5	0.3	60	0.8	0.5	0.3	0.2	80	0.5	0.3	0.2	0.1	100	0.2	0.1	0.05	0.02	120	0.05	0.02	0.01	0.005	<p>Observations:</p> <ul style="list-style-type: none"> ○ Faster drying by increasing temperature ○ Strong influence of temperature on the drying rate below 150°C ○ Weak effect of temperature above 150°C
Time (min)	50°C (%wt)	105°C (%wt)	150°C (%wt)	200°C (%wt)																																																																																							
0	80	80	80	80																																																																																							
5	70	65	60	55																																																																																							
10	60	45	35	25																																																																																							
20	45	20	10	5																																																																																							
50	35	-	-	-																																																																																							
100	20	-	-	-																																																																																							
125	0	-	-	-																																																																																							
Time (min)	50°C (g/g db)	100°C (g/g db)	150°C (g/g db)	200°C (g/g db)																																																																																							
0	3.5	3.5	3.5	3.5																																																																																							
5	2.5	2.2	2.0	1.8																																																																																							
10	2.0	1.5	1.2	1.0																																																																																							
20	1.8	1.2	0.8	0.5																																																																																							
40	1.2	0.8	0.5	0.3																																																																																							
60	0.8	0.5	0.3	0.2																																																																																							
80	0.5	0.3	0.2	0.1																																																																																							
100	0.2	0.1	0.05	0.02																																																																																							
120	0.05	0.02	0.01	0.005																																																																																							

<u>General information</u>	
Type of data	Isothermal kinetics in a thermogravimetry analyser
Place of experimentation	Bioenergy Lab, Cranfield Energy & Power, Cranfield University (United Kingdom)
Dates of the experiments	2018 - 2019
<u>Feedstock</u>	
Type of faecal material	Fresh faeces
Location of collection	Cranfield, UK
Age before collection	A few days
Moisture content	~ 60%wt
Total solids content	~ 40%wt
Volatile solids content	Not measured
Ash content	Not measured
Presence of trash?	No
Pre-treatment	Mixing
<u>Experimental Procedure</u>	
Drying experimental setup	Thermogravimetric analyser <i>PerkinElmer TGA 8000™</i>
Drying time	Until mass stabilisation
Operating conditions	<ul style="list-style-type: none"> ○ Temperature: 55, 85, 105, 155 and 205°C ○ Heating rate: 10 and 100°C/min ○ Flow rate: 4 mL/min
Sample form	~ 40 mg sample on a 3 mm diameter aluminium crucible
Analysed parameters	Moisture content
Employed method	Thermogravimetry (determined through the measurement of the sample mass variation)
<u>Publications</u>	
Somorin T, Getahun S, Septien S et al. Isothermal drying characteristics and kinetics of human faecal sludges [version 1; peer review: awaiting peer review]. Gates Open Res 2020, 4:67	

Data source files																																																																																					
https://www.dropbox.com/s/92scdrv2psut3h/Cranfield%20Human%20Faeces_TGA%20Isotherm_a%20kinetics%20%282018-2019%29.xlsx?dl=0																																																																																					
Additional Notes																																																																																					
<ul style="list-style-type: none"> ○ Fresh faeces collected from voluntary and anonymous donations 																																																																																					
Description of Data																																																																																					
<p>Moisture content versus time as a function of temperature</p> <p>Wet basis</p> <table border="1"> <caption>Estimated data for Wet Basis graph</caption> <thead> <tr> <th>Time (min)</th> <th>55°C (%wt)</th> <th>85°C (%wt)</th> <th>105°C (%wt)</th> <th>155°C (%wt)</th> <th>205°C (%wt)</th> </tr> </thead> <tbody> <tr><td>0</td><td>75</td><td>75</td><td>75</td><td>75</td><td>75</td></tr> <tr><td>5</td><td>65</td><td>60</td><td>55</td><td>50</td><td>45</td></tr> <tr><td>10</td><td>50</td><td>40</td><td>30</td><td>25</td><td>20</td></tr> <tr><td>20</td><td>35</td><td>25</td><td>15</td><td>10</td><td>5</td></tr> <tr><td>30</td><td>25</td><td>15</td><td>5</td><td>0</td><td>0</td></tr> <tr><td>70</td><td>5</td><td>0</td><td>0</td><td>0</td><td>0</td></tr> </tbody> </table> <p>Dry basis</p> <table border="1"> <caption>Estimated data for Dry Basis graph</caption> <thead> <tr> <th>Time (min)</th> <th>55°C (g/g db)</th> <th>85°C (g/g db)</th> <th>105°C (g/g db)</th> <th>155°C (g/g db)</th> <th>205°C (g/g db)</th> </tr> </thead> <tbody> <tr><td>0</td><td>3.0</td><td>3.0</td><td>3.0</td><td>3.0</td><td>3.0</td></tr> <tr><td>5</td><td>2.5</td><td>2.0</td><td>1.5</td><td>1.0</td><td>0.5</td></tr> <tr><td>10</td><td>1.0</td><td>0.5</td><td>0.2</td><td>0.1</td><td>0.0</td></tr> <tr><td>20</td><td>0.5</td><td>0.2</td><td>0.1</td><td>0.0</td><td>0.0</td></tr> <tr><td>30</td><td>0.2</td><td>0.1</td><td>0.05</td><td>0.0</td><td>0.0</td></tr> <tr><td>70</td><td>0.1</td><td>0.05</td><td>0.02</td><td>0.0</td><td>0.0</td></tr> </tbody> </table>	Time (min)	55°C (%wt)	85°C (%wt)	105°C (%wt)	155°C (%wt)	205°C (%wt)	0	75	75	75	75	75	5	65	60	55	50	45	10	50	40	30	25	20	20	35	25	15	10	5	30	25	15	5	0	0	70	5	0	0	0	0	Time (min)	55°C (g/g db)	85°C (g/g db)	105°C (g/g db)	155°C (g/g db)	205°C (g/g db)	0	3.0	3.0	3.0	3.0	3.0	5	2.5	2.0	1.5	1.0	0.5	10	1.0	0.5	0.2	0.1	0.0	20	0.5	0.2	0.1	0.0	0.0	30	0.2	0.1	0.05	0.0	0.0	70	0.1	0.05	0.02	0.0	0.0	<p><u>Observations:</u></p> <ul style="list-style-type: none"> ○ Faster drying by increasing temperature ○ Considerable influence of temperature on the drying rate below 155°C ○ Weak effect of temperature above 155°C
Time (min)	55°C (%wt)	85°C (%wt)	105°C (%wt)	155°C (%wt)	205°C (%wt)																																																																																
0	75	75	75	75	75																																																																																
5	65	60	55	50	45																																																																																
10	50	40	30	25	20																																																																																
20	35	25	15	10	5																																																																																
30	25	15	5	0	0																																																																																
70	5	0	0	0	0																																																																																
Time (min)	55°C (g/g db)	85°C (g/g db)	105°C (g/g db)	155°C (g/g db)	205°C (g/g db)																																																																																
0	3.0	3.0	3.0	3.0	3.0																																																																																
5	2.5	2.0	1.5	1.0	0.5																																																																																
10	1.0	0.5	0.2	0.1	0.0																																																																																
20	0.5	0.2	0.1	0.0	0.0																																																																																
30	0.2	0.1	0.05	0.0	0.0																																																																																
70	0.1	0.05	0.02	0.0	0.0																																																																																

Moisture content versus time as a function of temperature at a heating rate of $10^{\circ}\text{C}/\text{min}$

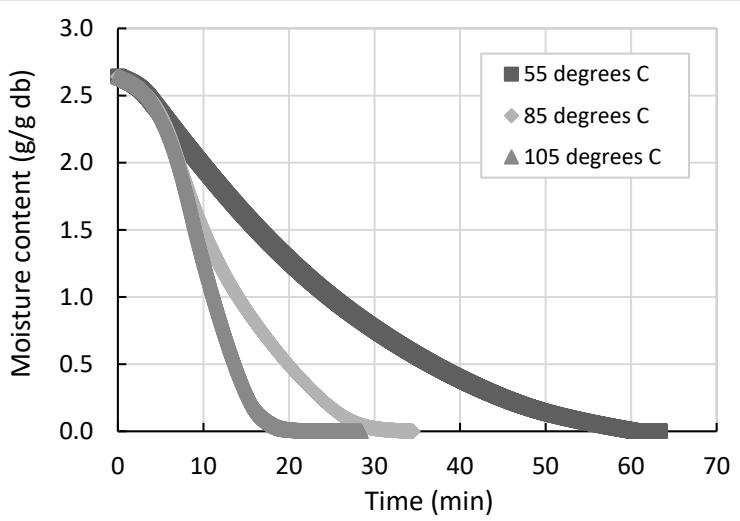
Wet basis



Observations:

- Faster drying by increasing temperature

Dry basis



<u>General information</u>	
Type of data	Isothermal kinetics in a thermogravimetric analyser
Place of experimentation	Material Engineering Department (SPECIFIC), Swansea University Prifysgol Abertawe
Dates of the experiments	2018 - 2020
<u>Feedstock</u>	
Type of faecal material	Fresh faeces
Location of collection	Cranfield, UK
Age before collection	A few days
Moisture content	~ 60%wt
Total solids content	~ 40%wt
Volatile solids content	Not measured
Ash content	Not measured
Presence of trash?	No
Pre-treatment	Mixing
<u>Experimental Procedure</u>	
Drying experimental setup	Thermogravimetric analyser - simultaneous thermal analysis <i>Perkin Elmer STA 6000</i>
Drying time	~ 40 - 80 min
Operating conditions	<ul style="list-style-type: none"> ○ Set temperature: 55, 85, 105, 155 and 205°C ○ Heating rate: 10°C/min ○ Carrier gas: nitrogen ○ Flow rate: 30 mL/min
Sample form in the dryer	~ 40 mg in a crucible
Analysed parameters	Moisture content
Employed method	Thermogravimetry (determined through the measurement of the sample mass variation)
<u>Publications</u>	
-	

<u>Data source files</u>																																																																																																																																					
Wet basis https://www.dropbox.com/s/r2jsoyod36pte3a/Swansea%20University_Sludge%20TGA%20Isothermal%20kinetics_wet%20basis%20%282018-2020%29.xlsx?dl=0																																																																																																																																					
Dry basis https://www.dropbox.com/s/w1zkkuuu7z21hyj/Swansea%20University_Sludge%20TGA%20Isothermal%20Kinetics_dry%20basis%20%282018-2020%29.xlsx?dl=0																																																																																																																																					
<u>Additional Notes</u>																																																																																																																																					
<ul style="list-style-type: none"> ○ Fresh faeces collected from voluntary and anonymous donations ○ Considerable drying of the sample before reaching the set temperature at 105, 155 and 205°C 																																																																																																																																					
<u>Description of Data</u>																																																																																																																																					
<p><u>Moisture content as a function of time</u></p> <p>Wet basis</p> <table border="1"> <caption>Estimated data for Wet basis moisture content (%)</caption> <thead> <tr> <th>Time (min)</th> <th>55°C</th> <th>85°C</th> <th>105°C</th> <th>155°C</th> <th>205°C</th> </tr> </thead> <tbody> <tr><td>0</td><td>75</td><td>75</td><td>75</td><td>75</td><td>75</td></tr> <tr><td>5</td><td>65</td><td>65</td><td>65</td><td>65</td><td>65</td></tr> <tr><td>10</td><td>50</td><td>45</td><td>40</td><td>35</td><td>30</td></tr> <tr><td>15</td><td>35</td><td>25</td><td>20</td><td>15</td><td>10</td></tr> <tr><td>20</td><td>25</td><td>15</td><td>10</td><td>5</td><td>2</td></tr> <tr><td>30</td><td>15</td><td>10</td><td>5</td><td>2</td><td>0</td></tr> <tr><td>40</td><td>10</td><td>5</td><td>2</td><td>0</td><td>0</td></tr> <tr><td>50</td><td>5</td><td>2</td><td>0</td><td>0</td><td>0</td></tr> <tr><td>60</td><td>2</td><td>0</td><td>0</td><td>0</td><td>0</td></tr> <tr><td>70</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td></tr> </tbody> </table> <p>Dry basis</p> <table border="1"> <caption>Estimated data for Dry basis moisture content (g/g db)</caption> <thead> <tr> <th>Time (min)</th> <th>55°C</th> <th>85°C</th> <th>105°C</th> <th>155°C</th> <th>205°C</th> </tr> </thead> <tbody> <tr><td>0</td><td>2.8</td><td>2.8</td><td>2.8</td><td>2.8</td><td>2.8</td></tr> <tr><td>5</td><td>2.2</td><td>2.2</td><td>2.2</td><td>2.2</td><td>2.2</td></tr> <tr><td>10</td><td>1.5</td><td>1.2</td><td>1.0</td><td>0.8</td><td>0.6</td></tr> <tr><td>15</td><td>1.0</td><td>0.7</td><td>0.5</td><td>0.3</td><td>0.2</td></tr> <tr><td>20</td><td>0.5</td><td>0.3</td><td>0.2</td><td>0.1</td><td>0.05</td></tr> <tr><td>30</td><td>0.2</td><td>0.1</td><td>0.05</td><td>0.02</td><td>0.01</td></tr> <tr><td>40</td><td>0.1</td><td>0.05</td><td>0.02</td><td>0.01</td><td>0.005</td></tr> <tr><td>50</td><td>0.05</td><td>0.02</td><td>0.01</td><td>0.005</td><td>0.002</td></tr> <tr><td>60</td><td>0.02</td><td>0.01</td><td>0.005</td><td>0.002</td><td>0.001</td></tr> <tr><td>70</td><td>0.01</td><td>0.005</td><td>0.002</td><td>0.001</td><td>0.0005</td></tr> </tbody> </table>	Time (min)	55°C	85°C	105°C	155°C	205°C	0	75	75	75	75	75	5	65	65	65	65	65	10	50	45	40	35	30	15	35	25	20	15	10	20	25	15	10	5	2	30	15	10	5	2	0	40	10	5	2	0	0	50	5	2	0	0	0	60	2	0	0	0	0	70	0	0	0	0	0	Time (min)	55°C	85°C	105°C	155°C	205°C	0	2.8	2.8	2.8	2.8	2.8	5	2.2	2.2	2.2	2.2	2.2	10	1.5	1.2	1.0	0.8	0.6	15	1.0	0.7	0.5	0.3	0.2	20	0.5	0.3	0.2	0.1	0.05	30	0.2	0.1	0.05	0.02	0.01	40	0.1	0.05	0.02	0.01	0.005	50	0.05	0.02	0.01	0.005	0.002	60	0.02	0.01	0.005	0.002	0.001	70	0.01	0.005	0.002	0.001	0.0005	<p>Observations</p> <ul style="list-style-type: none"> ○ Faster drying by increasing the temperature from 55 to 155°C ○ Drying achieved before 20 minutes at temperatures above 105°C ○ Same drying rate between 155 and 205°C (probably because major part of the drying occurred during the heating stage before reaching the final temperature)
Time (min)	55°C	85°C	105°C	155°C	205°C																																																																																																																																
0	75	75	75	75	75																																																																																																																																
5	65	65	65	65	65																																																																																																																																
10	50	45	40	35	30																																																																																																																																
15	35	25	20	15	10																																																																																																																																
20	25	15	10	5	2																																																																																																																																
30	15	10	5	2	0																																																																																																																																
40	10	5	2	0	0																																																																																																																																
50	5	2	0	0	0																																																																																																																																
60	2	0	0	0	0																																																																																																																																
70	0	0	0	0	0																																																																																																																																
Time (min)	55°C	85°C	105°C	155°C	205°C																																																																																																																																
0	2.8	2.8	2.8	2.8	2.8																																																																																																																																
5	2.2	2.2	2.2	2.2	2.2																																																																																																																																
10	1.5	1.2	1.0	0.8	0.6																																																																																																																																
15	1.0	0.7	0.5	0.3	0.2																																																																																																																																
20	0.5	0.3	0.2	0.1	0.05																																																																																																																																
30	0.2	0.1	0.05	0.02	0.01																																																																																																																																
40	0.1	0.05	0.02	0.01	0.005																																																																																																																																
50	0.05	0.02	0.01	0.005	0.002																																																																																																																																
60	0.02	0.01	0.005	0.002	0.001																																																																																																																																
70	0.01	0.005	0.002	0.001	0.0005																																																																																																																																

<u>General information</u>	
Type of data	Non isothermal kinetics in a thermogravimetry analyser
Place of experimentation	Bioenergy Lab, Cranfield Energy & Power, Cranfield University (United Kingdom)
Dates of the experiments	2018 - 2019
<u>Feedstock</u>	
Type of faecal material	Faecal sludge from anaerobic baffled reactor (ABR) from a decentralised wastewater treatment plant (DEWAT)
Location of collection	Durban, South Africa
Age before collection	Unknown
Moisture content	~ 85%wt
Total solids content	~ 15%wt
Volatile solids content	Not measured
Ash content	Not measured
Presence of trash?	Yes (mainly small pieces of paper after pre-screening during pit emptying)
Pre-treatment	Screening to remove trash
<u>Experimental Procedure</u>	
Drying experimental setup	Thermogravimetric analyser <i>PerkinElmer TGA 8000™</i>
Drying time	~ 2, 4, 17 min
Operating conditions	<ul style="list-style-type: none"> ○ Temperature: from ambient to 200°C ○ Heating rate: 10, 50 and 100°C/min ○ Flow rate: 4 mL/min
Sample form	~ 40 mg sample on a 3 mm diameter aluminium crucible
Analysed parameters	Moisture content
Employed method	Thermogravimetry (determined through the measurement of the sample mass variation)
<u>Publications</u>	
-	

<u>Data source files</u>																																																																									
https://www.dropbox.com/s/ttir3jkp3aww6e/Cranfield%20University%20ABR%20sludge%20TGA%20Non-isothermal%20kinetics%20%282018-2019%29.xlsx?dl=0																																																																									
<u>Additional Notes</u>																																																																									
<ul style="list-style-type: none"> ○ Faecal sludge couriered from South Africa 																																																																									
<u>Description of Data</u>																																																																									
<p>Moisture content versus temperature as a function of the heating rate</p> <p>Wet basis</p> <table border="1"> <caption>Approximate data points for Wet Basis graph</caption> <thead> <tr> <th>Temperature (°C)</th> <th>10°C/min (%wt)</th> <th>50°C/min (%wt)</th> <th>100°C/min (%wt)</th> </tr> </thead> <tbody> <tr><td>30</td><td>88</td><td>88</td><td>88</td></tr> <tr><td>60</td><td>88</td><td>87</td><td>87</td></tr> <tr><td>90</td><td>87</td><td>86</td><td>86</td></tr> <tr><td>120</td><td>85</td><td>84</td><td>84</td></tr> <tr><td>130</td><td>75</td><td>82</td><td>82</td></tr> <tr><td>140</td><td>25</td><td>78</td><td>78</td></tr> <tr><td>150</td><td>5</td><td>72</td><td>72</td></tr> <tr><td>180</td><td>0</td><td>65</td><td>65</td></tr> </tbody> </table> <p>Moisture content (%wt)</p> <p>Temperature (°C)</p> <p>Dry basis</p> <table border="1"> <caption>Approximate data points for Dry Basis graph</caption> <thead> <tr> <th>Temperature (°C)</th> <th>10°C/min (g/g db)</th> <th>50°C/min (g/g db)</th> <th>100°C/min (g/g db)</th> </tr> </thead> <tbody> <tr><td>30</td><td>6.2</td><td>6.2</td><td>6.2</td></tr> <tr><td>60</td><td>5.8</td><td>6.0</td><td>6.0</td></tr> <tr><td>90</td><td>5.0</td><td>5.8</td><td>5.8</td></tr> <tr><td>120</td><td>2.5</td><td>5.5</td><td>5.5</td></tr> <tr><td>130</td><td>1.0</td><td>5.0</td><td>5.0</td></tr> <tr><td>140</td><td>0.5</td><td>4.5</td><td>4.5</td></tr> <tr><td>150</td><td>0.2</td><td>4.0</td><td>4.0</td></tr> <tr><td>180</td><td>0.1</td><td>2.8</td><td>2.8</td></tr> </tbody> </table> <p>Moisture content (g/g db)</p> <p>Temperature (°C)</p>	Temperature (°C)	10°C/min (%wt)	50°C/min (%wt)	100°C/min (%wt)	30	88	88	88	60	88	87	87	90	87	86	86	120	85	84	84	130	75	82	82	140	25	78	78	150	5	72	72	180	0	65	65	Temperature (°C)	10°C/min (g/g db)	50°C/min (g/g db)	100°C/min (g/g db)	30	6.2	6.2	6.2	60	5.8	6.0	6.0	90	5.0	5.8	5.8	120	2.5	5.5	5.5	130	1.0	5.0	5.0	140	0.5	4.5	4.5	150	0.2	4.0	4.0	180	0.1	2.8	2.8	<p>Observations:</p> <ul style="list-style-type: none"> ○ Complete drying at a constant rate of 10°C/ min ○ Incomplete drying at a constant rate of 50 and 100°C/ min (drying time too short to achieve complete dryness)
Temperature (°C)	10°C/min (%wt)	50°C/min (%wt)	100°C/min (%wt)																																																																						
30	88	88	88																																																																						
60	88	87	87																																																																						
90	87	86	86																																																																						
120	85	84	84																																																																						
130	75	82	82																																																																						
140	25	78	78																																																																						
150	5	72	72																																																																						
180	0	65	65																																																																						
Temperature (°C)	10°C/min (g/g db)	50°C/min (g/g db)	100°C/min (g/g db)																																																																						
30	6.2	6.2	6.2																																																																						
60	5.8	6.0	6.0																																																																						
90	5.0	5.8	5.8																																																																						
120	2.5	5.5	5.5																																																																						
130	1.0	5.0	5.0																																																																						
140	0.5	4.5	4.5																																																																						
150	0.2	4.0	4.0																																																																						
180	0.1	2.8	2.8																																																																						

<u>General information</u>	
Type of data	Non-isothermal kinetics in a thermogravimetry analyser
Place of experimentation	Bioenergy Lab, Cranfield Energy & Power, Cranfield University (United Kingdom)
Dates of the experiments	2018 - 2019
<u>Feedstock</u>	
Type of faecal material	Faecal sludge from urine diversion dry toilets (UDDT)
Location of collection	Durban, South Africa
Age before collection	Up to 3 years
Moisture content	~ 50%wt
Total solids content	~ 50%wt
Volatile solids content	Not measured
Ash content	Not measured
Presence of trash?	Yes (mainly stones, hair and plastics)
Pre-treatment	Screening to remove the trash
<u>Experimental Procedure</u>	
Drying experimental setup	Thermogravimetric analyser <i>PerkinElmer TGA 8000™</i>
Drying time	Until temperature ramp reaching 200°C
Operating conditions	<ul style="list-style-type: none"> ○ Temperature: from ambient to 200°C ○ Heating rate: 10, 50 and 100°C/min ○ Flow rate: 4 mL/min
Sample form	~ 40 mg sample on a 3 mm diameter aluminium crucible
Analysed parameters	Moisture content
Employed method	Thermogravimetry (determined through the measurement of the sample mass variation)
<u>Publications</u>	
-	

Data source files																																																																	
https://www.dropbox.com/s/xjecvq6j7y7xove/Cranfield%20University%20UDDT%20sludge%20GA%20Non-Isotherm%20Kinetics.xlsx?dl=0																																																																	
Additional Notes																																																																	
<ul style="list-style-type: none"> ○ Faecal sludge couriered from South Africa 																																																																	
Description of Data																																																																	
<p>Moisture content versus temperature as a function of the heating rate</p> <p>Wet basis</p> <table border="1"> <caption>Estimated data for Wet Basis graph</caption> <thead> <tr> <th>Temperature (°C)</th> <th>10°C/min (%wt)</th> <th>50°C/min (%wt)</th> <th>100°C/min (%wt)</th> </tr> </thead> <tbody> <tr><td>30</td><td>68</td><td>68</td><td>68</td></tr> <tr><td>60</td><td>65</td><td>65</td><td>65</td></tr> <tr><td>90</td><td>62</td><td>62</td><td>62</td></tr> <tr><td>120</td><td>45</td><td>60</td><td>60</td></tr> <tr><td>150</td><td>0</td><td>55</td><td>55</td></tr> <tr><td>165</td><td>0</td><td>-</td><td>-</td></tr> <tr><td>180</td><td>-</td><td>45</td><td>45</td></tr> </tbody> </table> <p>Dry basis</p> <table border="1"> <caption>Estimated data for Dry Basis graph</caption> <thead> <tr> <th>Temperature (°C)</th> <th>10°C/min (g/g db)</th> <th>50°C/min (g/g db)</th> <th>100°C/min (g/g db)</th> </tr> </thead> <tbody> <tr><td>30</td><td>2.1</td><td>2.1</td><td>2.1</td></tr> <tr><td>60</td><td>1.9</td><td>2.0</td><td>2.0</td></tr> <tr><td>90</td><td>1.7</td><td>2.0</td><td>2.0</td></tr> <tr><td>120</td><td>1.0</td><td>1.8</td><td>1.8</td></tr> <tr><td>150</td><td>0.1</td><td>1.5</td><td>1.5</td></tr> <tr><td>165</td><td>0</td><td>-</td><td>-</td></tr> <tr><td>180</td><td>-</td><td>0.8</td><td>0.8</td></tr> </tbody> </table>	Temperature (°C)	10°C/min (%wt)	50°C/min (%wt)	100°C/min (%wt)	30	68	68	68	60	65	65	65	90	62	62	62	120	45	60	60	150	0	55	55	165	0	-	-	180	-	45	45	Temperature (°C)	10°C/min (g/g db)	50°C/min (g/g db)	100°C/min (g/g db)	30	2.1	2.1	2.1	60	1.9	2.0	2.0	90	1.7	2.0	2.0	120	1.0	1.8	1.8	150	0.1	1.5	1.5	165	0	-	-	180	-	0.8	0.8	<p>Observations:</p> <ul style="list-style-type: none"> ○ Complete drying at a constant rate of 10°C/min ○ Incomplete drying at a constant rate of 50 and 100°C/min (drying time too short to achieve complete dryness)
Temperature (°C)	10°C/min (%wt)	50°C/min (%wt)	100°C/min (%wt)																																																														
30	68	68	68																																																														
60	65	65	65																																																														
90	62	62	62																																																														
120	45	60	60																																																														
150	0	55	55																																																														
165	0	-	-																																																														
180	-	45	45																																																														
Temperature (°C)	10°C/min (g/g db)	50°C/min (g/g db)	100°C/min (g/g db)																																																														
30	2.1	2.1	2.1																																																														
60	1.9	2.0	2.0																																																														
90	1.7	2.0	2.0																																																														
120	1.0	1.8	1.8																																																														
150	0.1	1.5	1.5																																																														
165	0	-	-																																																														
180	-	0.8	0.8																																																														

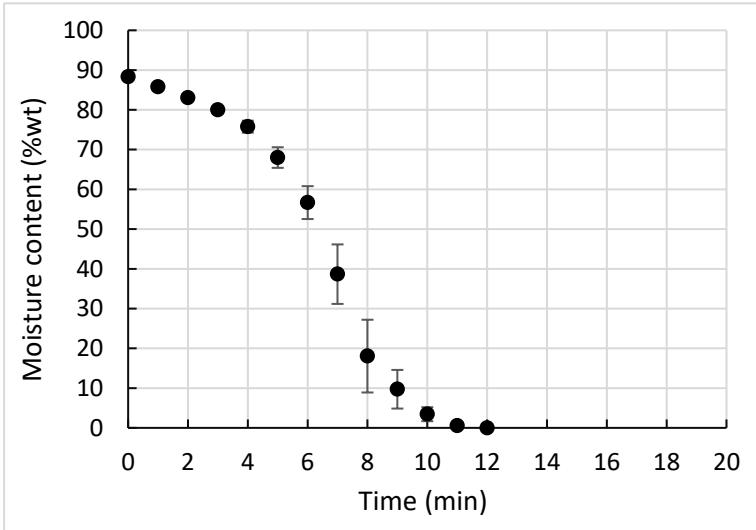
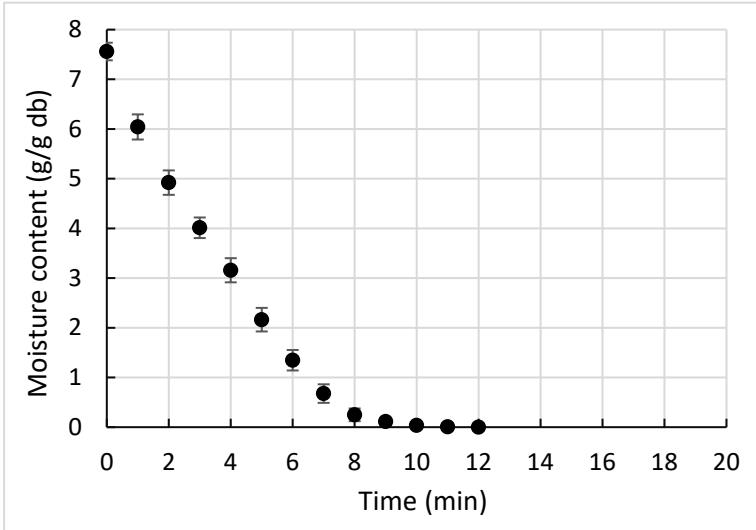
<u>General information</u>	
Type of data	Non isothermal kinetics in a thermogravimetry analyser
Place of experimentation	Bioenergy Lab, Cranfield Energy & Power, Cranfield University (United Kingdom)
Dates of the experiments	2018 - 2019
<u>Feedstock</u>	
Type of faecal material	Faecal sludge from ventilated improved pit latrines (VIP)
Location of collection	Durban, South Africa
Age before collection	Up to 5 years
Moisture content	~ 95%wt
Total solids content	~ 5%wt
Volatile solids content	Not measured
Ash content	Not measured
Presence of trash?	No (sludge pre-screened during pit emptying)
Pre-treatment	Mixing
<u>Experimental Procedure</u>	
Drying experimental setup	Thermogravimetric analyser <i>PerkinElmer TGA 8000™</i>
Drying time	~ 2, 4, 17 min
Operating conditions	<ul style="list-style-type: none"> ○ Temperature: from ambient to 200°C ○ Heating rate: 10, 50 and 100°C/min ○ Flow rate: 4 mL/min
Sample form	~ 40 mg sample on a 3 mm diameter aluminium crucible
Analysed parameters	Moisture content
Employed method	Thermogravimetry (determined through the measurement of the sample mass variation)
<u>Publications</u>	
-	

<u>Data source files</u>																																																																					
https://www.dropbox.com/s/i8wdz9vy8gw71e2/Cranfield%20University%20VIP%20sludge%20TG%20Non-isothermal%20kinetics%20%282018-2019%29.xlsx?dl=0																																																																					
<u>Additional Notes</u>																																																																					
<ul style="list-style-type: none"> ○ Faecal sludge couriered from South Africa 																																																																					
<u>Description of Data</u>																																																																					
<p>Moisture content versus temperature as a function of the heating rate</p> <p>Wet basis</p> <table border="1"> <caption>Estimated data for Wet Basis graph</caption> <thead> <tr> <th>Temperature (°C)</th> <th>10°C/min (%wt)</th> <th>50°C/min (%wt)</th> <th>100°C/min (%wt)</th> </tr> </thead> <tbody> <tr><td>30</td><td>100</td><td>100</td><td>100</td></tr> <tr><td>60</td><td>100</td><td>100</td><td>100</td></tr> <tr><td>90</td><td>100</td><td>100</td><td>100</td></tr> <tr><td>120</td><td>100</td><td>100</td><td>100</td></tr> <tr><td>130</td><td>95</td><td>95</td><td>95</td></tr> <tr><td>140</td><td>85</td><td>90</td><td>90</td></tr> <tr><td>150</td><td>5</td><td>15</td><td>15</td></tr> <tr><td>180</td><td>0</td><td>0</td><td>0</td></tr> </tbody> </table> <p>Dry basis</p> <table border="1"> <caption>Estimated data for Dry Basis graph</caption> <thead> <tr> <th>Temperature (°C)</th> <th>10°C/min (g/g db)</th> <th>50°C/min (g/g db)</th> <th>100°C/min (g/g db)</th> </tr> </thead> <tbody> <tr><td>30</td><td>22</td><td>22</td><td>22</td></tr> <tr><td>60</td><td>20</td><td>21</td><td>21</td></tr> <tr><td>90</td><td>18</td><td>20</td><td>20</td></tr> <tr><td>120</td><td>12</td><td>18</td><td>18</td></tr> <tr><td>130</td><td>5</td><td>15</td><td>15</td></tr> <tr><td>140</td><td>0</td><td>10</td><td>10</td></tr> <tr><td>150</td><td>0</td><td>0</td><td>0</td></tr> </tbody> </table>	Temperature (°C)	10°C/min (%wt)	50°C/min (%wt)	100°C/min (%wt)	30	100	100	100	60	100	100	100	90	100	100	100	120	100	100	100	130	95	95	95	140	85	90	90	150	5	15	15	180	0	0	0	Temperature (°C)	10°C/min (g/g db)	50°C/min (g/g db)	100°C/min (g/g db)	30	22	22	22	60	20	21	21	90	18	20	20	120	12	18	18	130	5	15	15	140	0	10	10	150	0	0	0	<p>Observations:</p> <ul style="list-style-type: none"> ○ Complete drying at a constant rate of 10°C/min ○ Incomplete drying at a constant rate of 50 and 100°C/min (drying time too short to achieve complete dryness)
Temperature (°C)	10°C/min (%wt)	50°C/min (%wt)	100°C/min (%wt)																																																																		
30	100	100	100																																																																		
60	100	100	100																																																																		
90	100	100	100																																																																		
120	100	100	100																																																																		
130	95	95	95																																																																		
140	85	90	90																																																																		
150	5	15	15																																																																		
180	0	0	0																																																																		
Temperature (°C)	10°C/min (g/g db)	50°C/min (g/g db)	100°C/min (g/g db)																																																																		
30	22	22	22																																																																		
60	20	21	21																																																																		
90	18	20	20																																																																		
120	12	18	18																																																																		
130	5	15	15																																																																		
140	0	10	10																																																																		
150	0	0	0																																																																		

<u>General information</u>	
Type of data	Non isothermal kinetics in a thermogravimetry analyser
Place of experimentation	Bioenergy Lab, Cranfield Energy & Power, Cranfield University (United Kingdom)
Dates of the experiments	2018 - 2019
<u>Feedstock</u>	
Type of faecal material	Fresh faeces
Location of collection	Cranfield, UK
Age before collection	A few days
Moisture content	~ 60%wt
Total solids content	~ 40%wt
Volatile solids content	Not measured
Ash content	Not measured
Presence of trash?	No
Pre-treatment	Mixing
<u>Experimental Procedure</u>	
Drying experimental setup	Thermogravimetric analyser <i>PerkinElmer TGA 8000™</i>
Drying time	~ 2, 4, 17 min
Operating conditions	<ul style="list-style-type: none"> ○ Temperature: from ambient to 200°C ○ Heating rate: 10, 50 and 100°C/min ○ Flow rate: 4 mL/min
Sample form	~ 40 mg sample on a 3 mm diameter aluminium crucible
Analysed parameters	Moisture content
Employed method	Thermogravimetry (determined through the measurement of the sample mass variation)
<u>Publications</u>	
-	

<u>Data source files</u>																																																									
https://www.dropbox.com/s/s89d7lhqk8bx5yn/Cranfield%20University%20Human%20Faeces%20OTGA%20Non-isothermal%20kinetics%20%282018-2019%29.xlsx?dl=1																																																									
<u>Additional Notes</u>																																																									
<ul style="list-style-type: none"> ○ Fresh faeces collected from voluntary and anonymous donations 																																																									
<u>Description of Data</u>																																																									
<p>Moisture content versus temperature as a function of the heating rate</p> <p>Wet basis</p> <table border="1"> <caption>Estimated data for Wet Basis graph</caption> <thead> <tr> <th>Temperature (°C)</th> <th>10°C/min (%wt)</th> <th>50°C/min (%wt)</th> <th>100°C/min (%wt)</th> </tr> </thead> <tbody> <tr><td>30</td><td>75</td><td>75</td><td>75</td></tr> <tr><td>60</td><td>74</td><td>74</td><td>74</td></tr> <tr><td>90</td><td>72</td><td>72</td><td>72</td></tr> <tr><td>120</td><td>65</td><td>68</td><td>68</td></tr> <tr><td>150</td><td>35</td><td>45</td><td>45</td></tr> <tr><td>180</td><td>5</td><td>15</td><td>15</td></tr> </tbody> </table> <p>Dry basis</p> <table border="1"> <caption>Estimated data for Dry Basis graph</caption> <thead> <tr> <th>Temperature (°C)</th> <th>10°C/min (g/g db)</th> <th>50°C/min (g/g db)</th> <th>100°C/min (g/g db)</th> </tr> </thead> <tbody> <tr><td>30</td><td>3.1</td><td>3.1</td><td>3.1</td></tr> <tr><td>60</td><td>2.8</td><td>2.9</td><td>2.9</td></tr> <tr><td>90</td><td>2.5</td><td>2.7</td><td>2.7</td></tr> <tr><td>120</td><td>1.8</td><td>2.2</td><td>2.2</td></tr> <tr><td>150</td><td>0.8</td><td>1.5</td><td>1.5</td></tr> <tr><td>180</td><td>0.1</td><td>1.3</td><td>1.3</td></tr> </tbody> </table>	Temperature (°C)	10°C/min (%wt)	50°C/min (%wt)	100°C/min (%wt)	30	75	75	75	60	74	74	74	90	72	72	72	120	65	68	68	150	35	45	45	180	5	15	15	Temperature (°C)	10°C/min (g/g db)	50°C/min (g/g db)	100°C/min (g/g db)	30	3.1	3.1	3.1	60	2.8	2.9	2.9	90	2.5	2.7	2.7	120	1.8	2.2	2.2	150	0.8	1.5	1.5	180	0.1	1.3	1.3	<p>Observations:</p> <ul style="list-style-type: none"> ○ Complete drying at a constant rate of 10°C/min ○ Incomplete drying at a constant rate of 50 and 100°C/min (drying time too short to achieve complete dryness)
Temperature (°C)	10°C/min (%wt)	50°C/min (%wt)	100°C/min (%wt)																																																						
30	75	75	75																																																						
60	74	74	74																																																						
90	72	72	72																																																						
120	65	68	68																																																						
150	35	45	45																																																						
180	5	15	15																																																						
Temperature (°C)	10°C/min (g/g db)	50°C/min (g/g db)	100°C/min (g/g db)																																																						
30	3.1	3.1	3.1																																																						
60	2.8	2.9	2.9																																																						
90	2.5	2.7	2.7																																																						
120	1.8	2.2	2.2																																																						
150	0.8	1.5	1.5																																																						
180	0.1	1.3	1.3																																																						

<u>General information</u>	
Type of data	Kinetics in a moisture analyser balance
Place of experimentation	Pollution Research Group, University of KwaZulu-Natal (South Africa)
Dates of the experiments	2018 - 2019
<u>Feedstock</u>	
Type of faecal material	Faecal sludge from anaerobic baffled reactor (ABR) from a decentralised wastewater treatment plant (DEWAT)
Location of collection	Durban, South Africa
Age before collection	Unknown
Moisture content	~ 90%wt
Total solids content	~ 10%wt
Volatile solids content	~ 75%db
Ash content	~ 25%db
Presence of trash?	Yes (mainly small pieces of paper after pre-screening during pit emptying)
Pre-treatment	Screening to remove trash
<u>Experimental Procedure</u>	
Drying experimental setup	Moisture analyser balance <i>PCE-MB Series</i>
Drying time	Until complete drying
Operating conditions	Temperature: 100°C
Sample form in the dryer	1.5 g of sample on an 90 mm diameter aluminium crucible
Analysed parameters	Moisture content
Employed methods	Direct measurement by moisture analyser balance <i>PCE-MB Series</i> (SOP 8.7.1.5)
<u>Publications</u>	
Getahun, S., Septien, S., Mata, J., Somorin, T., Mabbett, I., & Buckley, C. (2020). Drying characteristics of faecal sludge from different on-site sanitation facilities. <i>Journal of Environmental Management</i> , 261, 110267.	

Data source files																													
https://www.dropbox.com/s/ahtih6apycqwx16/2018-2019%20Drying%20kinetics%20%28moisture%20analyser%29.xlsx?dl=0																													
Additional Notes																													
-																													
Description of Data																													
Moisture content versus time Wet basis  <table border="1"><caption>Estimated data for Wet basis moisture content</caption><thead><tr><th>Time (min)</th><th>Moisture content (%wt)</th></tr></thead><tbody><tr><td>0</td><td>88</td></tr><tr><td>1</td><td>85</td></tr><tr><td>2</td><td>82</td></tr><tr><td>3</td><td>78</td></tr><tr><td>4</td><td>75</td></tr><tr><td>5</td><td>68</td></tr><tr><td>6</td><td>56</td></tr><tr><td>7</td><td>38</td></tr><tr><td>8</td><td>18</td></tr><tr><td>9</td><td>10</td></tr><tr><td>10</td><td>5</td></tr><tr><td>11</td><td>2</td></tr><tr><td>12</td><td>1</td></tr></tbody></table>	Time (min)	Moisture content (%wt)	0	88	1	85	2	82	3	78	4	75	5	68	6	56	7	38	8	18	9	10	10	5	11	2	12	1	Observations: ○ Fast drying (less than 15 minutes)
Time (min)	Moisture content (%wt)																												
0	88																												
1	85																												
2	82																												
3	78																												
4	75																												
5	68																												
6	56																												
7	38																												
8	18																												
9	10																												
10	5																												
11	2																												
12	1																												
Dry basis  <table border="1"><caption>Estimated data for Dry basis moisture content</caption><thead><tr><th>Time (min)</th><th>Moisture content (g/g db)</th></tr></thead><tbody><tr><td>0</td><td>7.5</td></tr><tr><td>1</td><td>6.0</td></tr><tr><td>2</td><td>4.8</td></tr><tr><td>3</td><td>4.0</td></tr><tr><td>4</td><td>3.2</td></tr><tr><td>5</td><td>2.2</td></tr><tr><td>6</td><td>1.4</td></tr><tr><td>7</td><td>0.7</td></tr><tr><td>8</td><td>0.3</td></tr><tr><td>9</td><td>0.1</td></tr><tr><td>10</td><td>0.05</td></tr><tr><td>11</td><td>0.02</td></tr><tr><td>12</td><td>0.01</td></tr></tbody></table>	Time (min)	Moisture content (g/g db)	0	7.5	1	6.0	2	4.8	3	4.0	4	3.2	5	2.2	6	1.4	7	0.7	8	0.3	9	0.1	10	0.05	11	0.02	12	0.01	
Time (min)	Moisture content (g/g db)																												
0	7.5																												
1	6.0																												
2	4.8																												
3	4.0																												
4	3.2																												
5	2.2																												
6	1.4																												
7	0.7																												
8	0.3																												
9	0.1																												
10	0.05																												
11	0.02																												
12	0.01																												

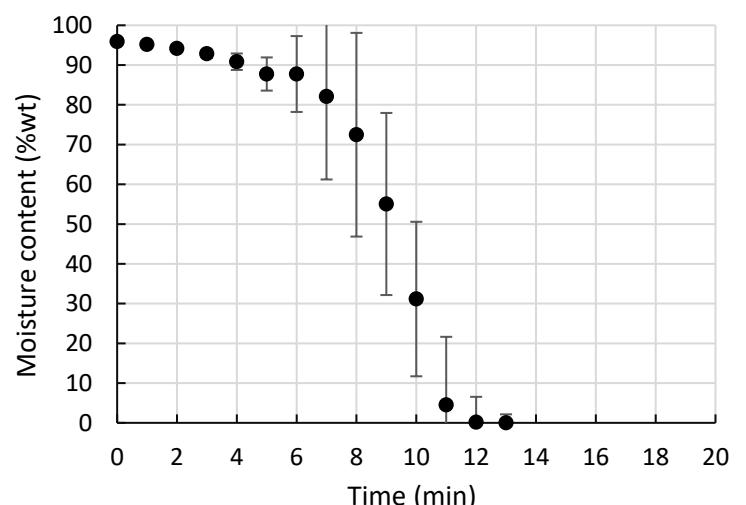
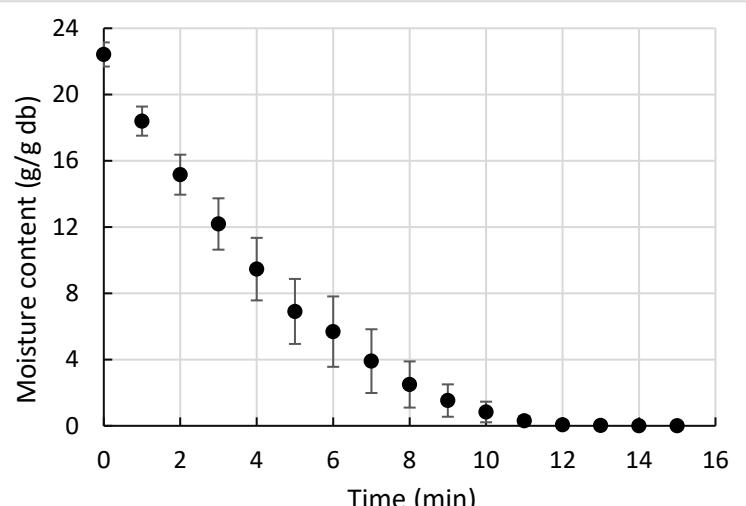
<u>General information</u>	
Type of data	Kinetics in a moisture analyser balance
Place of experimentation	Pollution Research Group, University of KwaZulu-Natal (South Africa)
Dates of the experiments	2018-2019
<u>Feedstock</u>	
Type of faecal material	Faecal sludge from urine diversion dry toilets (UDDT)
Location of collection	Durban, South Africa
Age before collection	Up to 3 years
Moisture content	~ 75%wt
Total solids content	~ 25%wt
Volatile solids content	~ 55%db
Ash content	~ 45%db
Presence of trash?	Yes (mainly stones, hair and plastics)
Pre-treatment	Screening to remove the trash
<u>Experimental Procedure</u>	
Drying experimental setup	Moisture Analyser balance <i>PCE-MB Series</i>
Drying time	Until complete drying
Operating conditions	Temperature: 100°C
Sample form in the dryer	1.5 g of sample on an 90 mm diameter aluminium crucible
Analysed parameters	Moisture content
Employed methods	Direct measurement by moisture analyser balance PCE-MB Series (SOP 8.7.1.5)
<u>Publications</u>	
Getahun, S., Septien, S., Mata, J., Somorin, T., Mabbett, I., & Buckley, C. (2020). Drying characteristics of faecal sludge from different on-site sanitation facilities. <i>Journal of Environmental Management</i> , 261, 110267.	

Data source files																																																																																
https://www.dropbox.com/s/ahtih6apycqwx16/2018-2019%20Drying%20kinetics%20%28moisture%20analyser%29.xlsx?dl=0																																																																																
Additional Notes																																																																																
-																																																																																
Description of Data																																																																																
<p><u>Moisture content versus time</u></p> <p>Wet basis</p> <table border="1"> <caption>Estimated data for Wet basis moisture content</caption> <thead> <tr> <th>Time (min)</th> <th>Moisture content (%wt)</th> </tr> </thead> <tbody> <tr><td>0</td><td>70</td></tr> <tr><td>1</td><td>62</td></tr> <tr><td>2</td><td>57</td></tr> <tr><td>3</td><td>48</td></tr> <tr><td>4</td><td>41</td></tr> <tr><td>5</td><td>32</td></tr> <tr><td>6</td><td>26</td></tr> <tr><td>7</td><td>20</td></tr> <tr><td>8</td><td>12</td></tr> <tr><td>9</td><td>9</td></tr> <tr><td>10</td><td>7</td></tr> <tr><td>11</td><td>5</td></tr> <tr><td>12</td><td>4</td></tr> <tr><td>13</td><td>3</td></tr> <tr><td>14</td><td>2</td></tr> <tr><td>15</td><td>1</td></tr> <tr><td>16</td><td>1</td></tr> <tr><td>17</td><td>1</td></tr> <tr><td>18</td><td>1</td></tr> </tbody> </table> <p>Observations:</p> <ul style="list-style-type: none"> ○ Fast drying (less than 15 minutes) <p>Dry basis</p> <table border="1"> <caption>Estimated data for Dry basis moisture content</caption> <thead> <tr> <th>Time (min)</th> <th>Moisture content (g/g db)</th> </tr> </thead> <tbody> <tr><td>0</td><td>2.3</td></tr> <tr><td>1</td><td>1.7</td></tr> <tr><td>2</td><td>1.3</td></tr> <tr><td>3</td><td>0.95</td></tr> <tr><td>4</td><td>0.7</td></tr> <tr><td>5</td><td>0.5</td></tr> <tr><td>6</td><td>0.4</td></tr> <tr><td>7</td><td>0.25</td></tr> <tr><td>8</td><td>0.15</td></tr> <tr><td>9</td><td>0.1</td></tr> <tr><td>10</td><td>0.08</td></tr> <tr><td>11</td><td>0.06</td></tr> <tr><td>12</td><td>0.05</td></tr> <tr><td>13</td><td>0.04</td></tr> <tr><td>14</td><td>0.03</td></tr> <tr><td>15</td><td>0.02</td></tr> <tr><td>16</td><td>0.01</td></tr> <tr><td>17</td><td>0.01</td></tr> <tr><td>18</td><td>0.01</td></tr> </tbody> </table>	Time (min)	Moisture content (%wt)	0	70	1	62	2	57	3	48	4	41	5	32	6	26	7	20	8	12	9	9	10	7	11	5	12	4	13	3	14	2	15	1	16	1	17	1	18	1	Time (min)	Moisture content (g/g db)	0	2.3	1	1.7	2	1.3	3	0.95	4	0.7	5	0.5	6	0.4	7	0.25	8	0.15	9	0.1	10	0.08	11	0.06	12	0.05	13	0.04	14	0.03	15	0.02	16	0.01	17	0.01	18	0.01
Time (min)	Moisture content (%wt)																																																																															
0	70																																																																															
1	62																																																																															
2	57																																																																															
3	48																																																																															
4	41																																																																															
5	32																																																																															
6	26																																																																															
7	20																																																																															
8	12																																																																															
9	9																																																																															
10	7																																																																															
11	5																																																																															
12	4																																																																															
13	3																																																																															
14	2																																																																															
15	1																																																																															
16	1																																																																															
17	1																																																																															
18	1																																																																															
Time (min)	Moisture content (g/g db)																																																																															
0	2.3																																																																															
1	1.7																																																																															
2	1.3																																																																															
3	0.95																																																																															
4	0.7																																																																															
5	0.5																																																																															
6	0.4																																																																															
7	0.25																																																																															
8	0.15																																																																															
9	0.1																																																																															
10	0.08																																																																															
11	0.06																																																																															
12	0.05																																																																															
13	0.04																																																																															
14	0.03																																																																															
15	0.02																																																																															
16	0.01																																																																															
17	0.01																																																																															
18	0.01																																																																															

<u>General information</u>	
Type of data	Kinetics in a moisture analyser balance
Place of experimentation	Pollution Research Group, University of KwaZulu-Natal (South Africa)
Dates of the experiments	2019 - 2020
<u>Feedstock</u>	
Type of faecal material	Faecal sludge from urine diversion dry toilet (UDDT)
Location of collection	Durban, South Africa
Age before collection	Up to 3 years
Moisture content	~ 70%wt
Total solids content	~ 30%wt
Volatile solids content	Not measured
Ash content	Not measured
Presence of trash?	Small amounts of trash
Pre-treatment	Trash removal
<u>Experimental Procedure</u>	
Drying experimental setup	Moisture analyser balance <i>PCE-MB Series</i>
Drying time	5 hours
Operating conditions	Temperature: 40, 60 and 80°C
Sample form	~ 3 g of faecal sludge in a crucible
Analysed parameters	Moisture content
Employed method	Thermogravimetry (determined through the measurement of the sample mass variation) in a thermal balance (SOP 8.7.1.5)
<u>Publications</u>	
-	

Data source files																																																	
https://www.dropbox.com/s/56rm46w5t144p4t/2019-2020%20FS%20drying%20tests_PRG-UKZN.xlsx?dl=0																																																	
Additional Notes																																																	
-																																																	
Description of Data																																																	
<p>Moisture content versus time as a function of temperature</p> <p>Wet basis</p> <table border="1"> <caption>Estimated data for Wet Basis Graph</caption> <thead> <tr> <th>Time (min)</th> <th>40°C (%wt)</th> <th>60°C (%wt)</th> <th>80°C (%wt)</th> </tr> </thead> <tbody> <tr><td>0</td><td>80</td><td>80</td><td>80</td></tr> <tr><td>20</td><td>60</td><td>60</td><td>60</td></tr> <tr><td>40</td><td>20</td><td>20</td><td>20</td></tr> <tr><td>60</td><td>10</td><td>10</td><td>10</td></tr> <tr><td>80</td><td>0</td><td>0</td><td>0</td></tr> </tbody> </table> <p>Dry basis</p> <table border="1"> <caption>Estimated data for Dry Basis Graph</caption> <thead> <tr> <th>Time (min)</th> <th>40°C (g/g db)</th> <th>60°C (g/g db)</th> <th>80°C (g/g db)</th> </tr> </thead> <tbody> <tr><td>0</td><td>3.6</td><td>3.6</td><td>3.6</td></tr> <tr><td>20</td><td>2.0</td><td>2.0</td><td>2.0</td></tr> <tr><td>40</td><td>0.8</td><td>0.8</td><td>0.8</td></tr> <tr><td>60</td><td>0.3</td><td>0.3</td><td>0.3</td></tr> <tr><td>80</td><td>0</td><td>0</td><td>0</td></tr> </tbody> </table>	Time (min)	40°C (%wt)	60°C (%wt)	80°C (%wt)	0	80	80	80	20	60	60	60	40	20	20	20	60	10	10	10	80	0	0	0	Time (min)	40°C (g/g db)	60°C (g/g db)	80°C (g/g db)	0	3.6	3.6	3.6	20	2.0	2.0	2.0	40	0.8	0.8	0.8	60	0.3	0.3	0.3	80	0	0	0	<p>Observations:</p> <ul style="list-style-type: none"> ○ Faster drying rate as temperature increases ○ Important difference between 40 and 60°C ○ Lower difference between 60 and 80°C
Time (min)	40°C (%wt)	60°C (%wt)	80°C (%wt)																																														
0	80	80	80																																														
20	60	60	60																																														
40	20	20	20																																														
60	10	10	10																																														
80	0	0	0																																														
Time (min)	40°C (g/g db)	60°C (g/g db)	80°C (g/g db)																																														
0	3.6	3.6	3.6																																														
20	2.0	2.0	2.0																																														
40	0.8	0.8	0.8																																														
60	0.3	0.3	0.3																																														
80	0	0	0																																														

<u>General information</u>	
Type of data	Kinetics in a moisture analyser balance
Place of experimentation	Pollution Research Group, University of KwaZulu-Natal (South Africa)
Dates of the experiments	2018 - 2019
<u>Feedstock</u>	
Type of faecal material	Faecal sludge from ventilated pit latrines (VIP)
Location of collection	Durban, South Africa
Age before collection	Up to 5 years
Moisture content	~ 95%wt
Total solids content	~ 5%wt
Volatile solids content	~ 65%db
Ash content	~ 35%db
Presence of trash?	No (sludge pre-screened during pit emptying)
Pre-treatment	Mixing
<u>Experimental Procedure</u>	
Drying experimental setup	Moisture Analyser balance <i>PCE-MB Series</i>
Drying time	Until complete drying
Operating conditions	Temperature: 100°C
Sample form in the dryer	1.5 g of sample on an 90 mm diameter aluminium crucible
Analysed parameters	Moisture content
Employed methods	Thermogravimetry (determined through the measurement of the sample mass variation) (SOP 8.7.1.1)
<u>Publications</u>	
Getahun, S., Septien, S., Mata, J., Somorin, T., Mabbett, I., & Buckley, C. (2020). Drying characteristics of faecal sludge from different on-site sanitation facilities. <i>Journal of Environmental Management</i> , 261, 110267.	

Data source files																																																																	
https://www.dropbox.com/s/ahth6apycqwx16/2018-2019%20Drying%20kinetics%20%28moisture%20analyser%29.xlsx?dl=0																																																																	
Additional Notes																																																																	
-																																																																	
Description of Data																																																																	
<u>Moisture content versus time</u> Wet basis  <table border="1"> <caption>Data points for Wet basis moisture content</caption> <thead> <tr> <th>Time (min)</th> <th>Moisture content (%wt)</th> </tr> </thead> <tbody> <tr><td>0</td><td>95</td></tr> <tr><td>1</td><td>95</td></tr> <tr><td>2</td><td>95</td></tr> <tr><td>3</td><td>92</td></tr> <tr><td>4</td><td>90</td></tr> <tr><td>5</td><td>85</td></tr> <tr><td>6</td><td>85</td></tr> <tr><td>7</td><td>82</td></tr> <tr><td>8</td><td>72</td></tr> <tr><td>9</td><td>55</td></tr> <tr><td>10</td><td>32</td></tr> <tr><td>11</td><td>5</td></tr> <tr><td>12</td><td>2</td></tr> <tr><td>13</td><td>0</td></tr> </tbody> </table> Dry basis  <table border="1"> <caption>Data points for Dry basis moisture content</caption> <thead> <tr> <th>Time (min)</th> <th>Moisture content (g/g db)</th> </tr> </thead> <tbody> <tr><td>0</td><td>23</td></tr> <tr><td>1</td><td>17</td></tr> <tr><td>2</td><td>15</td></tr> <tr><td>3</td><td>12</td></tr> <tr><td>4</td><td>9</td></tr> <tr><td>5</td><td>7</td></tr> <tr><td>6</td><td>5</td></tr> <tr><td>7</td><td>4</td></tr> <tr><td>8</td><td>3</td></tr> <tr><td>9</td><td>2</td></tr> <tr><td>10</td><td>1</td></tr> <tr><td>11</td><td>0.5</td></tr> <tr><td>12</td><td>0</td></tr> <tr><td>13</td><td>0</td></tr> <tr><td>14</td><td>0</td></tr> <tr><td>15</td><td>0</td></tr> </tbody> </table>	Time (min)	Moisture content (%wt)	0	95	1	95	2	95	3	92	4	90	5	85	6	85	7	82	8	72	9	55	10	32	11	5	12	2	13	0	Time (min)	Moisture content (g/g db)	0	23	1	17	2	15	3	12	4	9	5	7	6	5	7	4	8	3	9	2	10	1	11	0.5	12	0	13	0	14	0	15	0	<u>Observations:</u> <ul style="list-style-type: none"> ○ Fast drying (less than 15 minutes)
Time (min)	Moisture content (%wt)																																																																
0	95																																																																
1	95																																																																
2	95																																																																
3	92																																																																
4	90																																																																
5	85																																																																
6	85																																																																
7	82																																																																
8	72																																																																
9	55																																																																
10	32																																																																
11	5																																																																
12	2																																																																
13	0																																																																
Time (min)	Moisture content (g/g db)																																																																
0	23																																																																
1	17																																																																
2	15																																																																
3	12																																																																
4	9																																																																
5	7																																																																
6	5																																																																
7	4																																																																
8	3																																																																
9	2																																																																
10	1																																																																
11	0.5																																																																
12	0																																																																
13	0																																																																
14	0																																																																
15	0																																																																

<u>General information</u>	
Type of data	Kinetics in a moisture analyser balance
Place of experimentation	Pollution Research Group, University of KwaZulu-Natal (South Africa)
Dates of the experiments	2019 - 2020
<u>Feedstock</u>	
Type of faecal material	Faecal sludge from ventilated improved pit latrine toilet (VIP)
Location of collection	Durban, South Africa
Age before collection	Up to 5 years
Moisture content	~ 70%wt
Total solids content	~ 30%wt
Volatile solids content	Not measured
Ash content	Not measured
Presence of trash?	Small amounts of trash
Pre-treatment	Trash removal
<u>Experimental Procedure</u>	
Drying experimental setup	Moisture analyser balance <i>PCE-MB Series</i>
Drying time	5 hours
Operating conditions	Temperature: 40, 60 and 80°C
Sample form	~ 3 g of faecal sludge in a crucible
Analysed parameters	Moisture content
Employed method	Thermogravimetry (determined through the measurement of the sample mass variation) in a thermal balance (SOP 8.7.1.5)
<u>Publications</u>	
-	

Data source files																																																																	
https://www.dropbox.com/s/56rm46w5t144p4t/2019-2020%20FS%20drying%20tests_PRG-UKZN.xlsx?dl=0																																																																	
Additional Notes																																																																	
-																																																																	
Description of Data																																																																	
<p>Moisture content versus time as a function of temperature</p> <p>Wet basis</p> <table border="1"> <caption>Approximate data points for Wet Basis graph</caption> <thead> <tr> <th>Time (min)</th> <th>40°C (%wt)</th> <th>60°C (%wt)</th> <th>80°C (%wt)</th> </tr> </thead> <tbody> <tr><td>0</td><td>75</td><td>75</td><td>75</td></tr> <tr><td>40</td><td>0</td><td>~10</td><td>~40</td></tr> <tr><td>70</td><td>~10</td><td>0</td><td>~15</td></tr> <tr><td>100</td><td>~20</td><td>~5</td><td>~10</td></tr> <tr><td>140</td><td>~30</td><td>~2</td><td>~5</td></tr> <tr><td>180</td><td>~40</td><td>~1</td><td>~2</td></tr> <tr><td>200</td><td>~50</td><td>~1</td><td>~1</td></tr> </tbody> </table> <p>Dry basis</p> <table border="1"> <caption>Approximate data points for Dry Basis graph</caption> <thead> <tr> <th>Time (min)</th> <th>40°C (g/g db)</th> <th>60°C (g/g db)</th> <th>80°C (g/g db)</th> </tr> </thead> <tbody> <tr><td>0</td><td>3.0</td><td>3.0</td><td>3.0</td></tr> <tr><td>40</td><td>0</td><td>~0.5</td><td>~0.2</td></tr> <tr><td>70</td><td>~0.5</td><td>0</td><td>~0.1</td></tr> <tr><td>100</td><td>~1.0</td><td>~0.2</td><td>~0.1</td></tr> <tr><td>140</td><td>~1.5</td><td>~0.1</td><td>~0.1</td></tr> <tr><td>180</td><td>~2.0</td><td>~0.1</td><td>~0.1</td></tr> <tr><td>200</td><td>~2.5</td><td>~0.1</td><td>~0.1</td></tr> </tbody> </table>	Time (min)	40°C (%wt)	60°C (%wt)	80°C (%wt)	0	75	75	75	40	0	~10	~40	70	~10	0	~15	100	~20	~5	~10	140	~30	~2	~5	180	~40	~1	~2	200	~50	~1	~1	Time (min)	40°C (g/g db)	60°C (g/g db)	80°C (g/g db)	0	3.0	3.0	3.0	40	0	~0.5	~0.2	70	~0.5	0	~0.1	100	~1.0	~0.2	~0.1	140	~1.5	~0.1	~0.1	180	~2.0	~0.1	~0.1	200	~2.5	~0.1	~0.1	<p>Observations:</p> <ul style="list-style-type: none"> ○ Faster drying rate as temperature increases ○ Important difference between 40 and 60°C ○ Lower difference between 60 and 80°C
Time (min)	40°C (%wt)	60°C (%wt)	80°C (%wt)																																																														
0	75	75	75																																																														
40	0	~10	~40																																																														
70	~10	0	~15																																																														
100	~20	~5	~10																																																														
140	~30	~2	~5																																																														
180	~40	~1	~2																																																														
200	~50	~1	~1																																																														
Time (min)	40°C (g/g db)	60°C (g/g db)	80°C (g/g db)																																																														
0	3.0	3.0	3.0																																																														
40	0	~0.5	~0.2																																																														
70	~0.5	0	~0.1																																																														
100	~1.0	~0.2	~0.1																																																														
140	~1.5	~0.1	~0.1																																																														
180	~2.0	~0.1	~0.1																																																														
200	~2.5	~0.1	~0.1																																																														

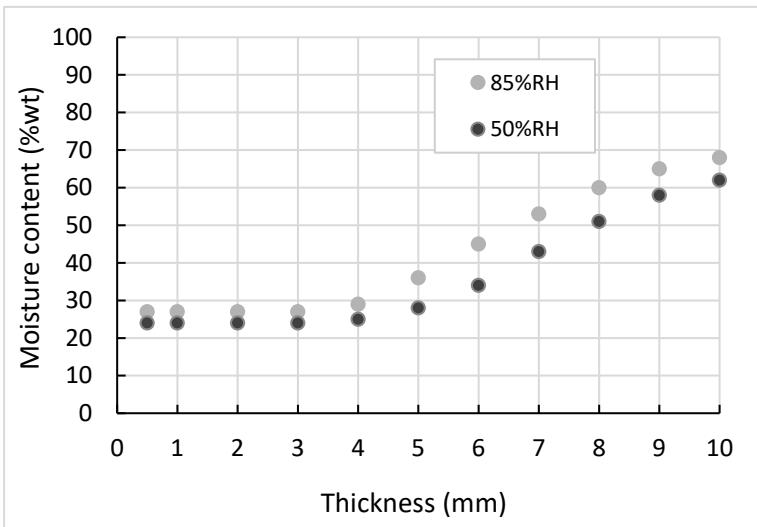
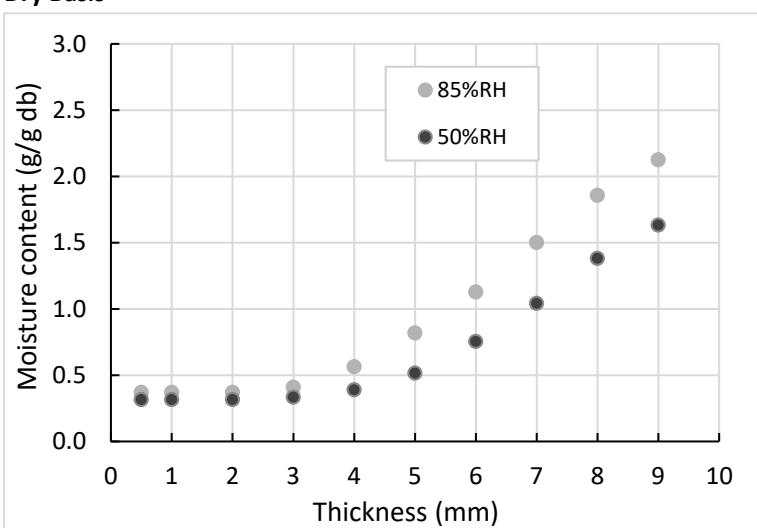
<u>General information</u>	
Type of data	Kinetics in a moisture analyser balance
Place of experimentation	Pollution Research Group, University of KwaZulu-Natal (South Africa)
Dates of the experiments	2019 - 2020
<u>Feedstock</u>	
Type of faecal material	Fresh faeces
Location of collection	Durban, South Africa
Age before collection	A few days
Moisture content	~ 80%wt
Total solids content	~ 20%wt
Volatile solids content	~ 85%db
Ash content	~ 15%db
Presence of trash?	No
Pre-treatment	Mixing
<u>Experimental Procedure</u>	
Drying experimental setup	Natural drying (in the open-air)
Drying time	16 weeks
Operating conditions	<ul style="list-style-type: none"> ○ Temperature: ambient (~ 20°C) ○ Relative humidity: ambient (~ 60%)
Sample form in the dryer	900 g of sample placed in 1 L plastic bucket
Analysed parameters	Moisture content
Employed method	Direct measurement by moisture analyser balance <i>PCE-MB Series</i> (SOP 8.7.1.5)
<u>Publications</u>	
-	

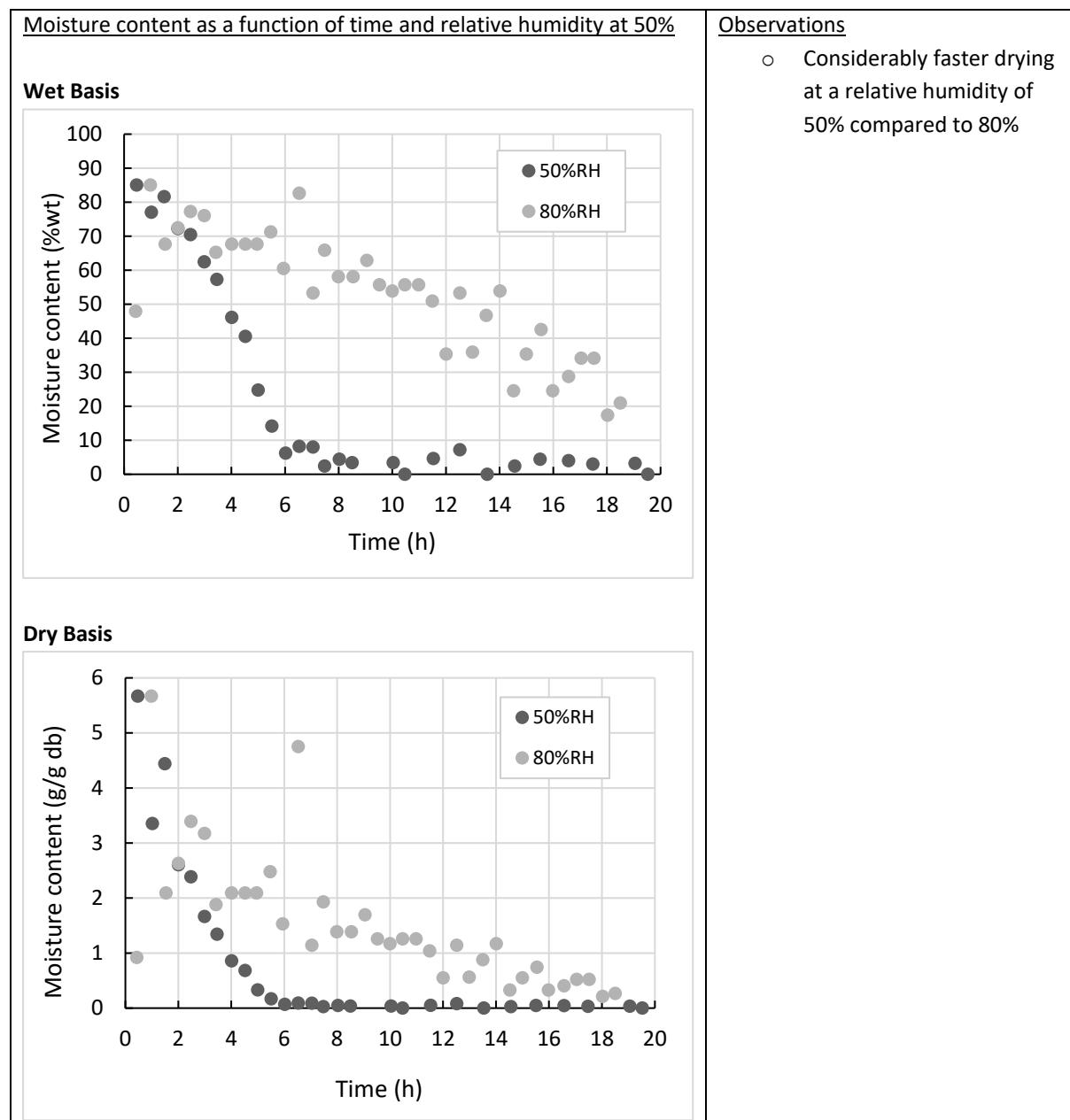
<u>Data source files</u>																																	
https://www.dropbox.com/s/3w62xnsmet4fvsy/2019-2020%20Natural%20drying%20of%20fresh%20faeces%20Batch%202%20Kinetics%20in%20a%20moisture%20analyser_UKZN%20PRG.xlsx?dl=0																																	
https://www.dropbox.com/s/d4tp25vu9ylghmh/2019-2020%20Fresh%20faeces%20Natural%20Drying%20kinetics_UKZN%20PRG.xlsx?dl=0																																	
<u>Additional Notes</u>																																	
<ul style="list-style-type: none"> ○ Fresh faeces collected from voluntary and anonymous donations ○ Containers with sample placed in a ventilated area ○ Mesh placed at the opening of the container to avoid the development of maggots ○ Samples from batch 1 analysed in a weekly basis for 16 weeks ○ Samples from batch 2 analysed at days 0, 3, 5 and 7 during one week 																																	
<u>Description of Data</u>																																	
<u>Normalized moisture content (with respect to the initial value) as a function of time for the samples from batch 1 and 2</u> <p>The graph displays the normalized moisture content over time for various samples from two batches. The y-axis represents the normalized moisture content, ranging from 0.0 to 1.0. The x-axis represents time in minutes, ranging from 0 to 35. The legend provides the initial moisture content for each sample:</p> <table border="1"> <thead> <tr> <th>Sample Description</th> <th>Initial Moisture Content (%wt)</th> </tr> </thead> <tbody> <tr> <td>Batch 1, Day 0</td> <td>79.0</td> </tr> <tr> <td>Batch 1, Week 1</td> <td>76.6</td> </tr> <tr> <td>Batch 1, Week 2</td> <td>71.3</td> </tr> <tr> <td>Batch 1, Week 3</td> <td>69.1</td> </tr> <tr> <td>Batch 1, Week 4</td> <td>63.4</td> </tr> <tr> <td>Batch 1, Week 5</td> <td>61.7</td> </tr> <tr> <td>Batch 1, Week 6</td> <td>61.9</td> </tr> <tr> <td>Batch 1, Week 7</td> <td>52.1</td> </tr> <tr> <td>Batch 1, Week 8</td> <td>56.3</td> </tr> <tr> <td>Batch 1, Week 12</td> <td>40.8</td> </tr> <tr> <td>Batch 1, Week 16</td> <td>25.9</td> </tr> <tr> <td>Batch 2, Day 0</td> <td>78.2</td> </tr> <tr> <td>Batch 2, Day 3</td> <td>77.4</td> </tr> <tr> <td>Batch 2, Day 5</td> <td>75.7</td> </tr> <tr> <td>Batch 2, Day 7</td> <td>75.8</td> </tr> </tbody> </table>	Sample Description	Initial Moisture Content (%wt)	Batch 1, Day 0	79.0	Batch 1, Week 1	76.6	Batch 1, Week 2	71.3	Batch 1, Week 3	69.1	Batch 1, Week 4	63.4	Batch 1, Week 5	61.7	Batch 1, Week 6	61.9	Batch 1, Week 7	52.1	Batch 1, Week 8	56.3	Batch 1, Week 12	40.8	Batch 1, Week 16	25.9	Batch 2, Day 0	78.2	Batch 2, Day 3	77.4	Batch 2, Day 5	75.7	Batch 2, Day 7	75.8	<u>Observations</u> <ul style="list-style-type: none"> ○ No considerable effect of the initial moisture content on the drying kinetics ○ Time for complete drying between 10 and 20 minutes
Sample Description	Initial Moisture Content (%wt)																																
Batch 1, Day 0	79.0																																
Batch 1, Week 1	76.6																																
Batch 1, Week 2	71.3																																
Batch 1, Week 3	69.1																																
Batch 1, Week 4	63.4																																
Batch 1, Week 5	61.7																																
Batch 1, Week 6	61.9																																
Batch 1, Week 7	52.1																																
Batch 1, Week 8	56.3																																
Batch 1, Week 12	40.8																																
Batch 1, Week 16	25.9																																
Batch 2, Day 0	78.2																																
Batch 2, Day 3	77.4																																
Batch 2, Day 5	75.7																																
Batch 2, Day 7	75.8																																

<u>General information</u>	
Type of data	Kinetics of natural drying
Place of experimentation	Pollution Research Group, University of KwaZulu-Natal (South Africa)
Dates of the experiments	2019 - 2020
<u>Feedstock</u>	
Type of faecal material	Fresh faeces
Location of collection	Durban, South Africa
Age before collection	A few days
Moisture content	~ 80%wt
Total solids content	~ 20%wt
Volatile solids content	~ 85%db
Ash content	~ 15%db
Presence of trash?	No
Pre-treatment	Mixing
<u>Experimental Procedure</u>	
Drying experimental setup	Natural drying (in the open-air)
Drying time	16 weeks
Operating conditions	<ul style="list-style-type: none"> ○ Temperature: ambient (~ 20°C) ○ Relative humidity: ambient (~ 60%)
Sample form in the dryer	900 g of sample placed in 1 L plastic bucket
Analysed parameters	Moisture content
Employed method	Weighing the sample before and after drying at 105°C in the laboratory oven for 24 hours (SOP 8.7.1.1)
<u>Publications</u>	
-	

<u>Data source files</u>																																																																
https://www.dropbox.com/s/xbv6su0jxsiplk/2019-2020%20Natural%20drying%20of%20fresh%20faeces%20in%20the%20open%20air_UKZN%20PRG.xlsx?dl=0																																																																
<u>Additional Notes</u>																																																																
<ul style="list-style-type: none"> ○ Fresh faeces collected from voluntary and anonymous donations ○ Containers with sample placed in a ventilated area ○ Mesh placed at the opening of the container to avoid the development of maggots ○ Samples from batch 1 analysed in a weekly basis for 16 weeks ○ Samples from batch 2 analysed at days 0, 3, 5 and 7 during one week 																																																																
<u>Description of Data</u>																																																																
<u>Moisture content as a function of storage time for the samples from batch 1 and 2</u> <p>Wet basis</p> <table border="1"> <caption>Approximate data points from the wet basis moisture content plot</caption> <thead> <tr> <th>Time (weeks)</th> <th>Batch 1 (%wt)</th> <th>Batch 2 (%wt)</th> </tr> </thead> <tbody> <tr><td>0</td><td>80</td><td>80</td></tr> <tr><td>2</td><td>70</td><td>75</td></tr> <tr><td>4</td><td>65</td><td>-</td></tr> <tr><td>5</td><td>62</td><td>-</td></tr> <tr><td>6</td><td>62</td><td>-</td></tr> <tr><td>7</td><td>52</td><td>-</td></tr> <tr><td>8</td><td>58</td><td>58</td></tr> <tr><td>12</td><td>42</td><td>-</td></tr> <tr><td>16</td><td>25</td><td>-</td></tr> </tbody> </table> <p>Dry basis</p> <table border="1"> <caption>Approximate data points from the dry basis moisture content plot</caption> <thead> <tr> <th>Time (weeks)</th> <th>Batch 1 (g/g db)</th> <th>Batch 2 (g/g db)</th> </tr> </thead> <tbody> <tr><td>0</td><td>3.8</td><td>3.6</td></tr> <tr><td>2</td><td>2.5</td><td>3.1</td></tr> <tr><td>3</td><td>2.2</td><td>-</td></tr> <tr><td>4</td><td>1.8</td><td>-</td></tr> <tr><td>5</td><td>1.6</td><td>-</td></tr> <tr><td>6</td><td>1.6</td><td>-</td></tr> <tr><td>7</td><td>1.1</td><td>-</td></tr> <tr><td>8</td><td>1.3</td><td>-</td></tr> <tr><td>12</td><td>0.7</td><td>-</td></tr> <tr><td>16</td><td>0.4</td><td>-</td></tr> </tbody> </table>	Time (weeks)	Batch 1 (%wt)	Batch 2 (%wt)	0	80	80	2	70	75	4	65	-	5	62	-	6	62	-	7	52	-	8	58	58	12	42	-	16	25	-	Time (weeks)	Batch 1 (g/g db)	Batch 2 (g/g db)	0	3.8	3.6	2	2.5	3.1	3	2.2	-	4	1.8	-	5	1.6	-	6	1.6	-	7	1.1	-	8	1.3	-	12	0.7	-	16	0.4	-	<u>Observations</u> <ul style="list-style-type: none"> ○ Decrease of moisture content from 80%wt (3.5 g/g db) to 25%wt (0.5 g/g db) after 16 weeks of natural drying
Time (weeks)	Batch 1 (%wt)	Batch 2 (%wt)																																																														
0	80	80																																																														
2	70	75																																																														
4	65	-																																																														
5	62	-																																																														
6	62	-																																																														
7	52	-																																																														
8	58	58																																																														
12	42	-																																																														
16	25	-																																																														
Time (weeks)	Batch 1 (g/g db)	Batch 2 (g/g db)																																																														
0	3.8	3.6																																																														
2	2.5	3.1																																																														
3	2.2	-																																																														
4	1.8	-																																																														
5	1.6	-																																																														
6	1.6	-																																																														
7	1.1	-																																																														
8	1.3	-																																																														
12	0.7	-																																																														
16	0.4	-																																																														

<u>General information</u>	
Type of data	Drying time
Place of experimentation	Chemical Engineering & Applied Chemistry, University of Toronto (Canada)
Dates of the experiments	2012
<u>Feedstock</u>	
Type of faecal material	Fresh faeces
Location of collection	Ontario, Canada
Age before collection	A few days
Moisture content	~ 85%wt
Total solids content	~ 15%wt
Volatile solids content	Not measured
Ash content	Not measured
Presence of trash?	No
Pre-treatment	Mixing
<u>Experimental Procedure</u>	
Drying experimental setup	Environmental chamber
Drying time	Several hours
Operating conditions	<ul style="list-style-type: none"> ○ Temperature: 28°C ○ Air flowrate: 2100 L/min (air velocities of 4.6 m/s) ○ Relative humidity: 85%
Sample form in the dryer	Thin layer of 110 x 110 x 2 mm
Analysed parameters	Moisture content
Employed methods	Gravimetric method (determined through the measurement of the sample mass variation)
<u>Publications</u>	
-	

<u>Data source files</u>																																				
https://www.dropbox.com/s/hloxql9ixp462re/2012%20Drying%20Kinetics%20of%20Human%20faeces_Toronto%20University.xlsx?dl=0																																				
<u>Additional Notes</u>																																				
Fresh faeces collected from voluntary and anonymous donations																																				
<u>Description of Data</u>																																				
<u>Moisture content after 24 hours of drying as a function of the sample thickness and relative humidity</u>	<u>Observations</u> <ul style="list-style-type: none"> ○ Decrease of final moisture content by decreasing the thickness of the sample ○ Below 3 mm thickness, same final moisture content (25-30%wt, which could be the equilibrium moisture content) 																																			
Wet Basis  <table border="1"> <caption>Approximate data points for Wet Basis plot</caption> <thead> <tr> <th>Thickness (mm)</th> <th>85%RH (%wt)</th> <th>50%RH (%wt)</th> </tr> </thead> <tbody> <tr><td>0.5</td><td>25</td><td>25</td></tr> <tr><td>1.0</td><td>26</td><td>26</td></tr> <tr><td>2.0</td><td>26</td><td>25</td></tr> <tr><td>3.0</td><td>27</td><td>25</td></tr> <tr><td>4.0</td><td>29</td><td>26</td></tr> <tr><td>5.0</td><td>35</td><td>28</td></tr> <tr><td>6.0</td><td>45</td><td>33</td></tr> <tr><td>7.0</td><td>53</td><td>43</td></tr> <tr><td>8.0</td><td>60</td><td>50</td></tr> <tr><td>9.0</td><td>64</td><td>58</td></tr> <tr><td>10.0</td><td>67</td><td>61</td></tr> </tbody> </table>	Thickness (mm)	85%RH (%wt)	50%RH (%wt)	0.5	25	25	1.0	26	26	2.0	26	25	3.0	27	25	4.0	29	26	5.0	35	28	6.0	45	33	7.0	53	43	8.0	60	50	9.0	64	58	10.0	67	61
Thickness (mm)	85%RH (%wt)	50%RH (%wt)																																		
0.5	25	25																																		
1.0	26	26																																		
2.0	26	25																																		
3.0	27	25																																		
4.0	29	26																																		
5.0	35	28																																		
6.0	45	33																																		
7.0	53	43																																		
8.0	60	50																																		
9.0	64	58																																		
10.0	67	61																																		
Dry Basis  <table border="1"> <caption>Approximate data points for Dry Basis plot</caption> <thead> <tr> <th>Thickness (mm)</th> <th>85%RH (g/g db)</th> <th>50%RH (g/g db)</th> </tr> </thead> <tbody> <tr><td>0.5</td><td>0.35</td><td>0.35</td></tr> <tr><td>1.0</td><td>0.38</td><td>0.38</td></tr> <tr><td>2.0</td><td>0.40</td><td>0.35</td></tr> <tr><td>3.0</td><td>0.45</td><td>0.35</td></tr> <tr><td>4.0</td><td>0.55</td><td>0.40</td></tr> <tr><td>5.0</td><td>0.80</td><td>0.50</td></tr> <tr><td>6.0</td><td>1.15</td><td>0.75</td></tr> <tr><td>7.0</td><td>1.50</td><td>1.05</td></tr> <tr><td>8.0</td><td>1.85</td><td>1.35</td></tr> <tr><td>9.0</td><td>2.10</td><td>1.60</td></tr> </tbody> </table>	Thickness (mm)	85%RH (g/g db)	50%RH (g/g db)	0.5	0.35	0.35	1.0	0.38	0.38	2.0	0.40	0.35	3.0	0.45	0.35	4.0	0.55	0.40	5.0	0.80	0.50	6.0	1.15	0.75	7.0	1.50	1.05	8.0	1.85	1.35	9.0	2.10	1.60			
Thickness (mm)	85%RH (g/g db)	50%RH (g/g db)																																		
0.5	0.35	0.35																																		
1.0	0.38	0.38																																		
2.0	0.40	0.35																																		
3.0	0.45	0.35																																		
4.0	0.55	0.40																																		
5.0	0.80	0.50																																		
6.0	1.15	0.75																																		
7.0	1.50	1.05																																		
8.0	1.85	1.35																																		
9.0	2.10	1.60																																		



<u>General information</u>	
Type of data	Drying time
Place of experimentation	Chemical Engineering & Applied Chemistry, University of Toronto (Canada)
Dates of the experiments	2012
<u>Feedstock</u>	
Type of faecal material	Fresh faeces
Location of collection	Ontario, Canada
Age before collection	A few days
Moisture content	~ 85%wt
Total solids content	~ 15%wt
Volatile solids content	Not measured
Ash content	Not measured
Presence of trash?	No
Pre-treatment	Mixing
<u>Experimental Procedure</u>	
Drying experimental setup	Oven
Drying time	Until achieving 55%wt moisture content
Operating conditions	<ul style="list-style-type: none"> ○ Temperature: 28°C ○ Air flowrate: 900 – 2100 L/min (air velocities of 1.9 – 4.6 m/s) ○ Relative humidity: 50 and 85%
Sample form in the dryer	Thin layer of 1 to 8 mm thickness
Analysed parameters	Drying time
Employed methods	Measurement of time
<u>Publications</u>	
-	

<u>Data source files</u>																														
https://www.dropbox.com/s/hloxql9ixp462re/2012%20Drying%20Kinetics%20of%20Human%20faeces_Toronto%20University.xlsx?dl=0																														
<u>Additional Notes</u>																														
Fresh faeces collected from voluntary and anonymous donations																														
<u>Description of Data</u>																														
<u>Drying time to reduce the moisture content from 83 (initial value) to 55%wt (final value) as a function of the sample thickness and relative humidity</u>	<u>Observations</u> <ul style="list-style-type: none"> ○ Increase of drying time by increasing the thickness of the sample 																													
<p>The scatter plot illustrates the relationship between sample thickness and drying time under different relative humidity (RH) conditions. The x-axis represents Thickness (mm) ranging from 0 to 9, and the y-axis represents Time (h) ranging from 0 to 24. Two data series are plotted: 85%RH (light grey circles) and 55%RH (dark grey circles). At any given thickness, the 85%RH data points are consistently higher than the 55%RH points, indicating longer drying times at the same thickness under higher RH. Additionally, the drying time increases with sample thickness for both RH levels.</p> <table border="1"> <caption>Estimated data points from the scatter plot</caption> <thead> <tr> <th>Thickness (mm)</th> <th>85%RH (Time h)</th> <th>55%RH (Time h)</th> </tr> </thead> <tbody> <tr><td>0</td><td>0</td><td>0</td></tr> <tr><td>1</td><td>0.5</td><td>0.5</td></tr> <tr><td>2</td><td>1.5</td><td>1.5</td></tr> <tr><td>3</td><td>4.0</td><td>3.0</td></tr> <tr><td>4</td><td>7.0</td><td>5.0</td></tr> <tr><td>5</td><td>12.0</td><td>8.0</td></tr> <tr><td>6</td><td>17.0</td><td>12.0</td></tr> <tr><td>7</td><td>23.0</td><td>16.0</td></tr> <tr><td>8</td><td>21.0</td><td>-</td></tr> </tbody> </table>	Thickness (mm)	85%RH (Time h)	55%RH (Time h)	0	0	0	1	0.5	0.5	2	1.5	1.5	3	4.0	3.0	4	7.0	5.0	5	12.0	8.0	6	17.0	12.0	7	23.0	16.0	8	21.0	-
Thickness (mm)	85%RH (Time h)	55%RH (Time h)																												
0	0	0																												
1	0.5	0.5																												
2	1.5	1.5																												
3	4.0	3.0																												
4	7.0	5.0																												
5	12.0	8.0																												
6	17.0	12.0																												
7	23.0	16.0																												
8	21.0	-																												