General information	
Type of data	Ascaris eggs viability during infrared drying
Place of experimentation	Pollution Research Group, University of KwaZulu-Natal (South Africa)
Dates of the experiments	2014 - 2015
Feedstock	
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	~ 70%db
Ash content	~ 30%db
Presence of trash?	Yes
Pre-treatment	○ Screening to remove the large pieces of trash ○ Addition of 3%wt of sawdust for pellets formation
Experimental Procedure	
Drying experimental setup	Laboratory-scale medium infrared (MIR) dryer ('LaDePa')
Drying time	4, 8, 17, 25 min
Operating conditions	○ MIR emitters power: 3, 5 and 6.5 kW ○ Distance between the emitters and the sample: 115 mm ○ Air stream flowrate: 10.4 m^3/min ○ Air humidity: ambient (70-80%)
Sample form in the dryer	Pellets of 8 and 14 mm diameter
Analysed parameters	Viability of Ascaris eggs development
Employed method	Extraction of Ascaris eggs from the sludge and count of viable eggs in the microscope (SOP 8.9.3.1)
Publications	
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.	

Mirara, S.W. (2017). *Drying and pasteurization of VIP latrine faecal sludge using a bench-scale medium infrared machine*. Msc thesis, University of KwaZulu-Natal, South Africa.
Mirara, S.W., Singh, A., Septien, S., Velkushanova, K., Buckley. C.A (2015). *Characterisation of On-site Sanitation Material and Products: VIP latrines and pour-flush toilets. Volume 2: LaDePa* (final report K5/2137). Water Research Commission, South Africa.

Data source files

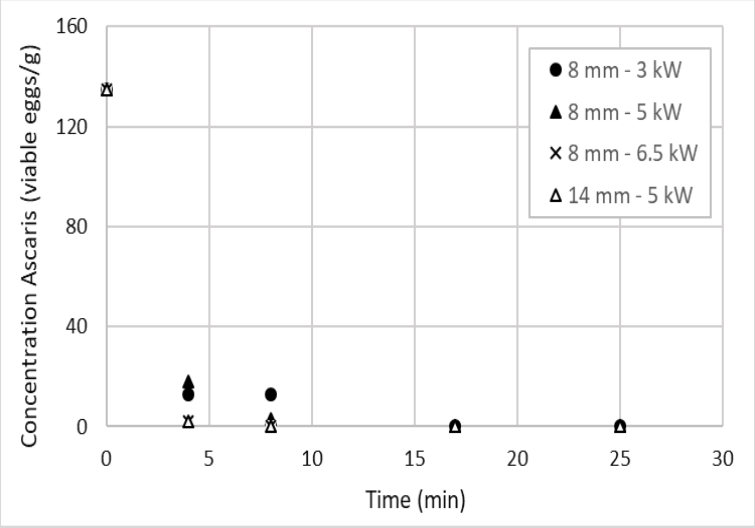
https://www.dropbox.com/s/x8dytnm2jkwibot/2014-2015%20Deactivation%20of%20VIP%20sludge%20%28Ascaris%20eggs%20viability%29.xlsx?dl=0

Additional Notes

- Temperature measured in the drying zone: ~ 90, 140 and 220°C at 3, 5 and 6.5 kW respectively

Description of Data

Ascaris egg viability versus drying time as a function of the MIR emitter power and pellet diameter



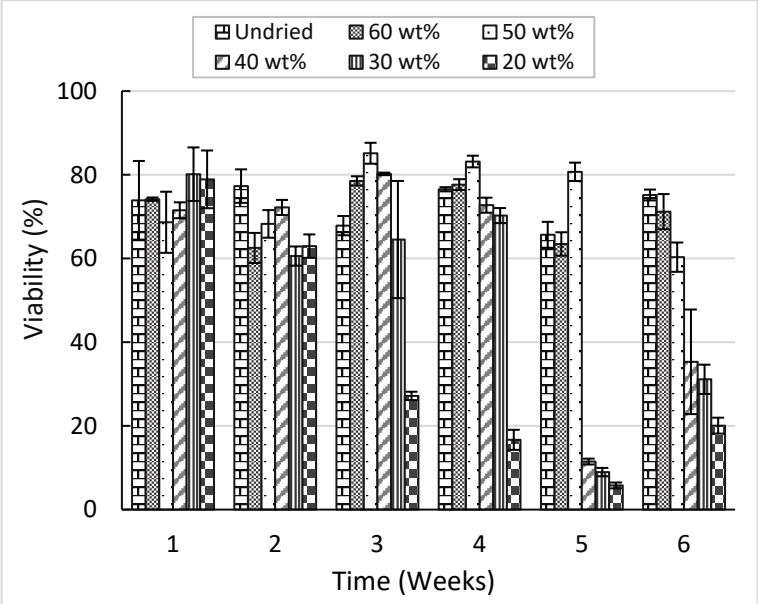
Observations

- Decrease of the viability as a function of the drying time
- Full deactivation above 17 min for all conditions
- Note: high damage observed for the viable Ascaris after processing (so, uncertain if possible development)

General information	
Type of data	Ascaris eggs viability with sludge dryness
Place of experimentation	Pollution Research Group, University of KwaZulu-Natal (South Africa)
Dates of the experiments	2017 - 2018
Feedstock	
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	~ 80%wt
Total solids content	~ 20%wt
Volatile solids content	~ 60%db
Ash content	~ 40%db
Presence of trash?	Yes (mainly hair extensions, plastic, and rocks)
Pre-treatment	Screening to remove trash
Experimental Procedure	
Drying experimental setup	Oven
Drying time	Until achieving 20, 30, 40, 50 and 60%wt moisture content
Operating conditions	105°C
Sample form in the dryer	Sludge trays
Analysed parameters	Viability of Ascaris eggs development
Employed methods	Extraction of Ascaris eggs from the sludge and count of viable eggs in the microscope (SOP 8.9.3.1)
Publications	
Naidoo, D., Archer, C. E., Septien, S., Appleton, C. C., & Buckley, C. A. (2020). Inactivation of Ascaris for thermal treatment and drying applications in faecal sludge. *Journal of Water, Sanitation and Hygiene for Development*, 10(2), 209-218.	

Data source files
https://www.dropbox.com/s/q6s7z1mohhfjxuu/2017%20-%202018%20UDDT%20Disinfection%20dryness%20%28Ascaris%20eggs%20viability%29.xlsx?dl=0
Additional Notes
○ Spiking the sludge with approximately 400 Ascaris eggs after drying and thereafter incubation for a period of time from 1 to 12 weeks ○ Weekly analysis ○ Fungi apparition in the sludge from week 7, so results discarded from there
Description of Data

Ascaris eggs viability versus time as a function of the moisture content of the sludge



Observations:

- Clear decrease of the viability of Ascaris eggs development with time below a moisture content of 40%wt
- Stronger decrease of the viability with time at lower moisture content

General information	
Type of data	Ascaris eggs viability with sludge dryness
Place of experimentation	Pollution Research Group, University of KwaZulu-Natal (South Africa)
Dates of the experiments	2017-2018
Feedstock	
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	~ 90%wt
Total solids content	~ 10%wt
Volatile solids content	~ 65%db
Ash content	~ 35%db
Presence of trash?	No (sludge pre-screened during pit emptying)
Pre-treatment	Mixing
Experimental Procedure	
Drying experimental setup	Oven
Drying time	Until achieving 20, 30, 40, 50 and 60%wt moisture content
Operating conditions	105°C
Sample form in the dryer	Sludge trays
Analysed parameters	Viability of Ascaris eggs development
Employed methods	Extraction of Ascaris eggs from the sludge and count of viable eggs in the microscope (SOP 8.9.3.1)
Publications	
Naidoo, D., Archer, C. E., Septien, S., Appleton, C. C., & Buckley, C. A. (2020). Inactivation of Ascaris for thermal treatment and drying applications in faecal sludge. *Journal of Water, Sanitation and Hygiene for Development*, 10(2), 209-218.	

Data source files

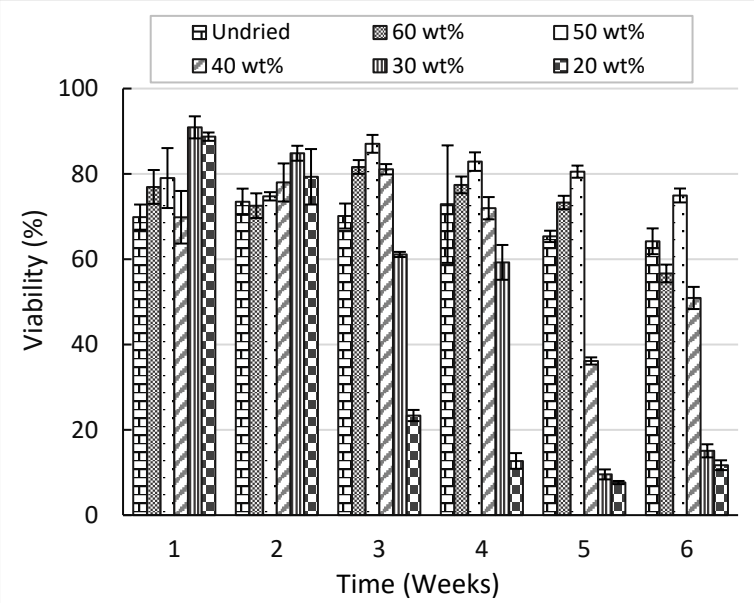
https://www.dropbox.com/s/y8qtun0jzhbxjld/2017%20-%202018%20VIP%20Disinfection%20dryness%20%28Ascaris%20eggs%20viability%29.xlsx?dl=0

Additional Notes

- Spiking the sludge with approximately 400 Ascaris eggs after drying and thereafter incubation for a period of time from 1 to 12 weeks
- Weekly analysis
- Fungi apparition in the sludge from week 7, so results discarded from there

Description of Data

Ascaris eggs viability versus time as a function of the moisture content of the sludge



Observations:

- Clear decrease of the viability of Ascaris eggs development with time below a moisture content of 40%wt
- Stronger decrease of the viability with time at lower moisture content

General information	
Type of data	Ascaris eggs deactivation with temperature
Place of experimentation	Pollution Research Group, University of KwaZulu-Natal (South Africa)
Dates of the experiments	2017 - 2018
Feedstock	
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	~ 80%wt
Total solids content	~ 20%wt
Volatile solids content	~ 60%db
Ash content	~ 40%db
Presence of trash?	Yes (mainly hair extensions, plastic, and rocks)
Pre-treatment	Screening to remove trash
Experimental Procedure	
Drying experimental setup	N.A.
Drying time	N.A.
Operating conditions	N.A.
Sample form in the dryer	N.A.
Analysed parameters	Viability of Ascaris eggs development
Employed methods	Extraction of Ascaris eggs from the sludge and count of viable eggs in the microscope (SOP 8.9.3.1)
Publications	
Naidoo, D., Archer, C. E., Septien, S., Appleton, C. C., & Buckley, C. A. (2020). Inactivation of Ascaris for thermal treatment and drying applications in faecal sludge. *Journal of Water, Sanitation and Hygiene for Development*, 10(2), 209-218.	

Data source files

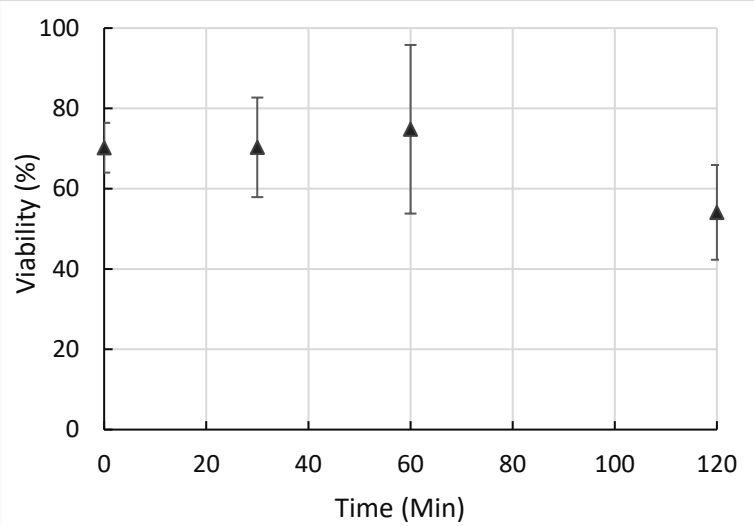
https://www.dropbox.com/s/78ftqqal40pwfb2/2017%20-%202018%20UDDT%20Thermal%20Disinfection%20%28Ascaris%20eggs%20viability%29.xlsx?dl=0

Additional Notes

- Sludge heated in a controlled temperature water bath at 40°C during 30, 60 and 120 min; at 60°C during 0.5, 2 and 5 min; and at 60°C during 5, 10 and 60 s
- Sludge place inside an aluminium crucible (70 x 40 mm) and covered in order to avoid moisture loss (interest in only the effect of temperature)

Description of Data

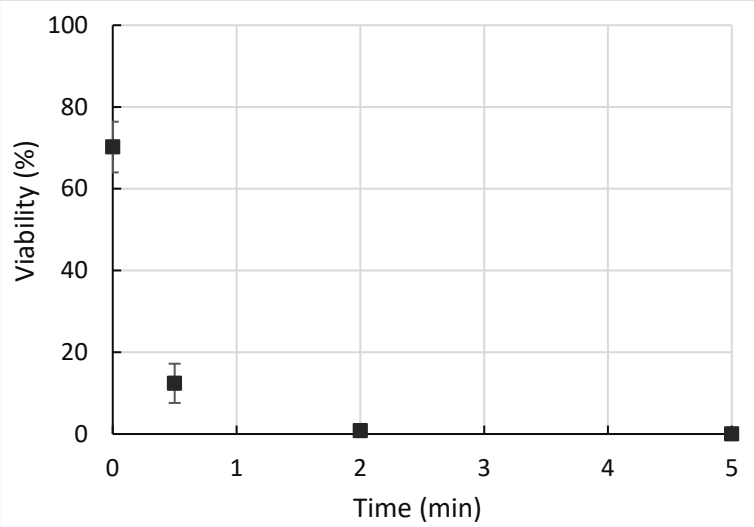
Viability of Ascaris eggs development versus time at 40°C



Observations:

- Low inactivation after 120 minutes

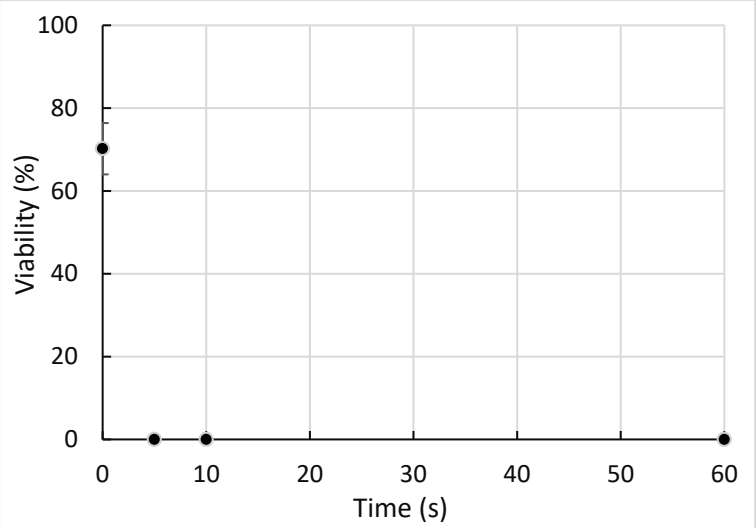
Viability of Ascaris eggs development versus time at 60°C



Observations:

- Fast inactivation (after 2 minutes)

Viability of Ascaris eggs development versus time at 80°C

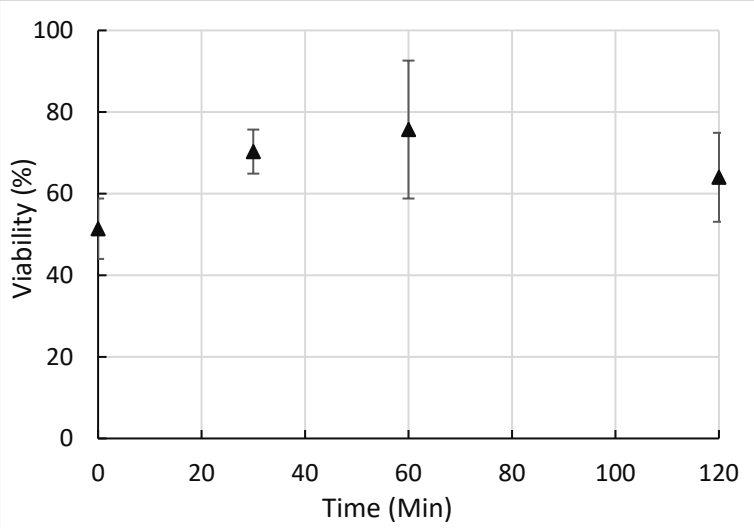
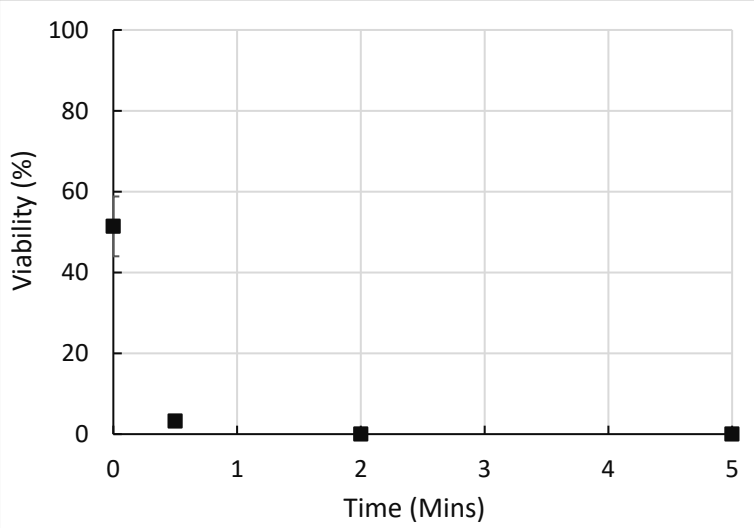


Observations:

- Almost immediate inactivation (less than 5 s)

General information	
Type of data	Ascaris eggs deactivation with temperature
Place of experimentation	Pollution Research Group, University of KwaZulu-Natal (South Africa)
Dates of the experiments	2017 - 2018
Feedstock	
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	~ 90% wt
Total solids content	~ 10% wt
Volatile solids content	~ 65% db
Ash content	~ 35% db
Presence of trash?	No (sludge pre-screened during pit emptying)
Pre-treatment	Mixing
Experimental Procedure	
Drying experimental setup	N.A.
Drying time	N.A.
Operating conditions	N.A.
Sample form in the dryer	N.A.
Analysed parameters	Viability of Ascaris eggs development
Employed methods	Extraction of Ascaris eggs from the sludge and count of viable eggs in the microscope (SOP 8.9.3.1)
Publications	
Naidoo, D., Archer, C. E., Septien, S., Appleton, C. C., & Buckley, C. A. (2020). Inactivation of Ascaris for thermal treatment and drying applications in faecal sludge. *Journal of Water, Sanitation and Hygiene for Development*, 10(2), 209-218.	

Data source files
https://www.dropbox.com/s/pi4br70brsasvop/2017%20-%202018%20VIP%20Thermal%20Disinfection%20%28Ascaris%20eggs%20viability%29.xlsx?dl=0
Additional Notes
○ Sludge heated in a controlled temperature water bath at 40°C during 30, 60 and 120 min; at 60°C during 0.5, 2 and 5 min; and at 60°C during 5, 10 and 60 s ○ Sludge place inside an aluminium crucible (70 x 40 mm) and covered in order to avoid moisture loss (interest in only the effect of temperature)
Description of Data

Viability of Ascaris eggs development versus time at 40°C  	Observations: Low inactivation after 120 minutes
Viability of Ascaris eggs development versus time at 60°C  	Observations: Fast inactivation (after 2 minutes)

Viability of Ascaris eggs development versus time at 80°C	Observations: Almost immediate inactivation (less than 5 s)