

09/26 WK2 Group Meeting

Location	ANU Engineering building
Date	09/26
Time	21:00-22:00
Attendees	Derek Tan, Lily Zhang, Jessica Ying, Andre Olivier, John Xu

Agenda

1. Collect feedback for our system from expert from Sensitar (John Xu)
2. Collect some data that is possible to use to simulate the whole process.

Notes

1. Do not need to wait after one batch finished.
2. There is no time required to preheat.
3. There is no need to clean. If the machine not been used for 7 days, clean in required.
4. It is possible to connect the condenser and cooker by using pipe between the containers. Thus, it is possible to place the condenser and cooker in separate container.
5. The capacity found in the market is same with the capacity of cooling tower provided by the manufacture. Thus, the cooling tower can be used in this system.
6. Considered the mobility of the system, it is better to use the electricity heating source in the system. The size of the steam heating source is big. It requires a whole 40 feet shipping container.
7. The manufacture suggest if you would like to mill the meat into powder, the machine you could use is the hammer mill. The machine need to place after the fat press. As discussed with Goterra. The final product is oil and tallow. Thus, there is no need to include the hammer mill in the system.
8. The temperature is generally 60 degree Celsius for pork, chicken and beef.
9. The breaker is not required in the process since the material size out from the breaker is between 3cm to 5cm. The insect is around 5cm. Therefore, there is no need to include the breaker in the system.
10. The cooling tower is smaller than the manufacturer's cooling tower. The cooling tower is found on the Alibaba. The capacity is same. We assumed it will work.
11. The screw conveyor length is shorter than the manufacturer's screw conveyor.

Action Items

Action item	Owner	Deadline
Remove the breaker in the system	Andre	09/27

Screenshot of communication process with manufacture

Another question is how long do we need to wait after finish processing the one ton raw material?



No need wait. put another batch material after finish one batch

Oh. I thought the control system is only for the automatic control.



The control system also include the heating system?



Do we need to clean it after one batch finish?



2019年9月26日 下午9:06





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Do we need to clean it after one batch finish?



2019年9月26日 下午9:06



the electricity heat price is higher than steam heat.the money is for electricity heat oil system



No need clean



for us since it is smaller than the steam one.



you need clean If you do not use machine more than 7days

Will the machine need person to clean?



the electricity heating Maybe damage your insect

Why?



If you think electricity heating is OK, we are ok



21"

2019年9月26日 下午9:10



12"



30"





damage your insect

Why?



If you think electricity heating is OK,
we are ok



21"

2019年9月26日 下午9:10



12"



30"



38"

2019年9月26日 下午9:16



7"

2019年9月26日 下午9:36



📞 通话时长 17:19







2019年9月26日 下午9:41



this is press working video

2019年9月26日 下午9:48

We got one question is what is the pre-heating hour? How long will the temperature to be stabilized.



pre-heating hour? How long will the temperature to be stabilized.

2019年9月26日 下午9:54



The raw material come out from cooker , then go to press

2019年9月26日 下午9:54

We think the oil need some time to be heated up. So we are wondering what's the estimated time to heat the oil?



Normally the raw material temperature is more than 70°C

So, roughly how long?



The raw material is hot after drying. No need heat again

I mean for the cooker, roughly how long will it takes to be heated into 70 degree Celsius?



70 degree Celsius?

2019年9月26日 下午10:03



i need check this. Normally it is 70 °C in drying stage, it depends on your raw material.

So we are wondering do we need to preheat the cooker before we put the insect into the cooker?



No need preheat. Put raw material into cooker, the cooker temperature from 0°C to your set temperature

Ok we got it!



2019年9月26日 下午10:13



OK

2019年9月26日 下午10:39

Can we adjust the steam temperature in the cooker jacket?



temperature in the cooker jacket?

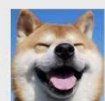


You can adjust steam valve , the steam valve control pressure. the steam valve connect batch cooker

So, if we reduce the pressure and it is possible to reduce the steam temperature to 70 right?



What is the cooker temperature if the raw material is meat?



2019年9月26日 下午10:45



饱和蒸汽温度、压力对照表

压力 (MPa)	温度 (°C)	压力 (MPa)	温度 (°C)	压力 (MPa)	温度 (°C)
0.01	45.83	0.1	119.61	1.0	184.06
0.02	50.07	0.2	133.54	2.0	212.37
0.03	52.79	0.3	143.61	3.0	233.84
0.04	54.76	0.4	151.06	4.0	250.33
0.05	56.28	0.5	156.97	5.0	263.99
0.06	57.43	0.6	161.87	6.0	275.96
0.07	58.34	0.7	166.07	7.0	286.52
0.08	59.13	0.8	169.78	8.0	295.96
0.09	59.81	0.9	173.10	9.0	304.34
0.10	60.36	1.0	176.06	10.0	311.72
0.12	61.52	1.2	181.11	12.0	324.84
0.14	62.64	1.4	185.19	14.0	336.06
0.16	63.72	1.6	188.62	16.0	345.64
0.18	64.76	1.8	191.51	18.0	353.84
0.20	65.76	2.0	194.06	20.0	360.84
0.22	66.72	2.2	196.39	22.0	366.84
0.24	67.64	2.4	198.44	24.0	371.96
0.26	68.52	2.6	200.24	26.0	376.24
0.28	69.36	2.8	201.81	28.0	379.72
0.30	70.16	3.0	203.19	30.0	382.44
0.32	70.92	3.2	204.49	32.0	384.36
0.34	71.64	3.4	205.64	34.0	385.56
0.36	72.32	3.6	206.64	36.0	386.96
0.38	72.96	3.8	207.51	38.0	387.56
0.40	73.56	4.0	208.24	40.0	388.36
0.42	74.12	4.2	208.84	42.0	389.36
0.44	74.64	4.4	209.34	44.0	390.56
0.46	75.12	4.6	209.74	46.0	391.96
0.48	75.56	4.8	210.04	48.0	393.56
0.50	75.96	5.0	210.24	50.0	395.36
0.52	76.32	5.2	210.34	52.0	397.36
0.54	76.64	5.4	210.34	54.0	399.56
0.56	76.92	5.6	210.24	56.0	401.96
0.58	77.16	5.8	210.04	58.0	404.56
0.60	77.36	6.0	209.74	60.0	407.36
0.62	77.52	6.2	209.34	62.0	410.36
0.64	77.64	6.4	208.84	64.0	413.56
0.66	77.72	6.6	208.24	66.0	416.96
0.68	77.76	6.8	207.51	68.0	420.56
0.70	77.76	7.0	206.64	70.0	424.36
0.72	77.72	7.2	205.64	72.0	428.36
0.74	77.64	7.4	204.49	74.0	432.56
0.76	77.52	7.6	203.19	76.0	436.96
0.78	77.36	7.8	201.81	78.0	441.56
0.80	77.16	8.0	200.24	80.0	446.36
0.82	76.92	8.2	198.44	82.0	451.36
0.84	76.64	8.4	196.39	84.0	456.56
0.86	76.32	8.6	194.06	86.0	461.96
0.88	75.96	8.8	191.51	88.0	467.56
0.90	75.56	9.0	188.62	90.0	473.36
0.92	75.12	9.2	185.19	92.0	479.36
0.94	74.64	9.4	181.11	94.0	485.56
0.96	74.12	9.6	176.06	96.0	491.96
0.98	73.56	9.8	170.97	98.0	498.56
1.00	72.96	10.0	165.84	100.0	505.36

大气压力: 0.101325 MPa, 海平面标准大气压(101.325 kPa)

EMUI浏览器

2019年9月26日 下午10:46



120-140°C if raw material is meat



大气压力: 0.10323MPa下, 饱和水或蒸汽温度: 100℃ (环境温度为25℃)



You control steam pressure to control temperature in cooker inside, the temperature is related to pressure in cooker inside



Hi, we got one question toward to the breaker.



What is the size for the meat after the breaker.



We are thinking that the insect size is only 5cm



Thus, if the size of meat after the breaker will exceed that, we probably won't need the breaker



Roughly it's 3-5cm

Ok, I think our design will not need the breaker.



If you want to break the insect to finer powder, I'll suggest you to use hammer mill

Ok. We got that. I think our output is only meat tallow. So, we don't need the hammer mill.



probably won't need the breaker



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Ok. We got that. I think our output is only meat tallow. So, we don't need the hammer mill.



It's ok. I also don't think you need one.

We did some modification based on lots of feedback from our industry experts.



But, we are not sure whether this is feasible, is it possible to get some feedback from you?



the breaker.



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Ok. We got that. I think our output is only meat tallow. So, we don't need the hammer mill.



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下午3:50



Ok, I can have a look

ANU_Goterra_Mobile_Re





Ok, I can have a look

ANU_Goterra_Mobile_Rendering_Pl...ummary.pdf
78K



This is our design. If it is possible, could you have a look?



Ok



I think it is good, but the cooling tower size don't make sense



We don't have such equipment

下午3:55



But we can supply the rest equipment



And screw conveyor doesn't make sense to me





But we can supply the rest equipment



And screw conveyor doesn't make sense to me



It looks like shorter than ours

For the cooling tower, we found one online which is smaller than yours. But it has similar capacity.



https://m.alibaba.com/product/875962686/Small-Cooling-Tower-Industrial-Industry-Water.html?s=p&__detailProductImg=//sc01.alicdn.com/kf/HTB1as1NbpuWBUjSszbq6AS7FXaG/Small-Cooling-Tower-Industrial-Industry-Water-Cooling.jpg_140x140xz.jpg



Do you mind have a look?



We are assuming the capacity is the key parameters for the cooling tower.

