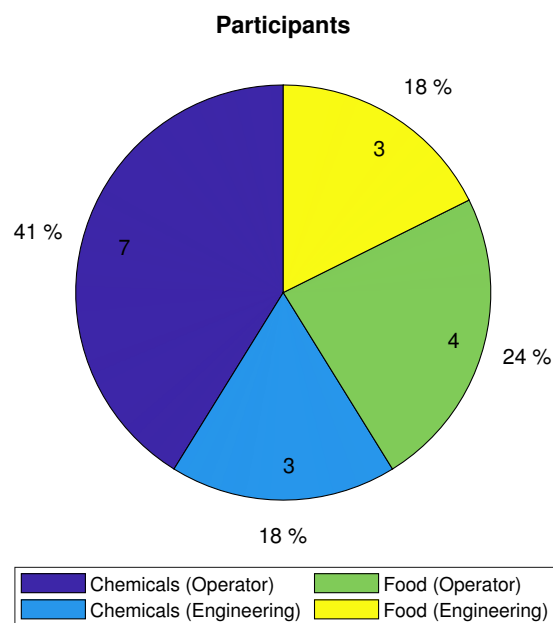


AiF/DFG Cluster 6: Questionnaire about foam formation in Process Equipment

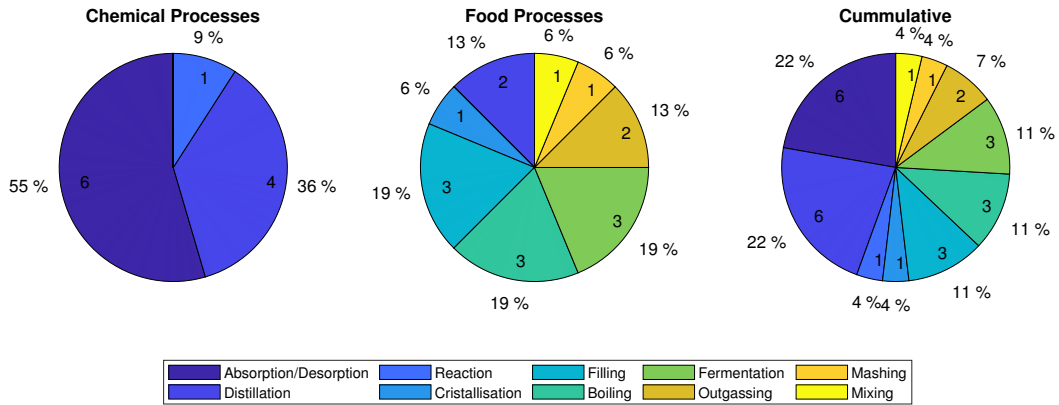
Provisional results as of 26.03.2020

Participants

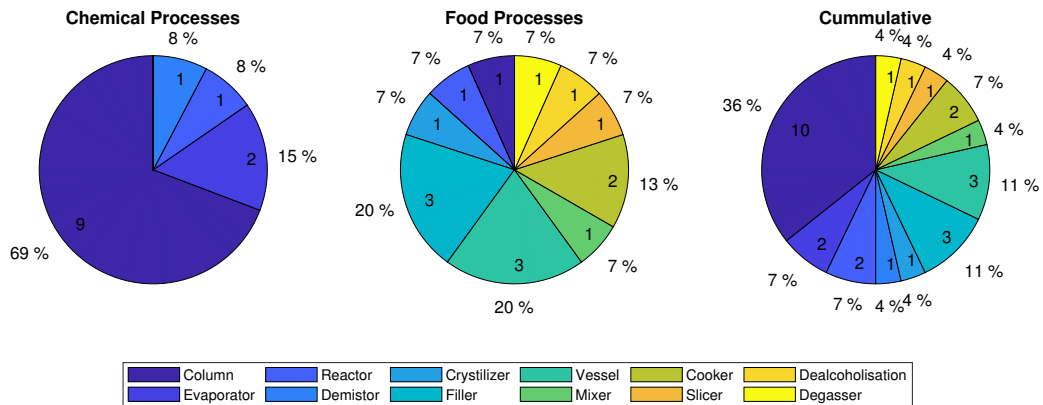


1 Process characteristics

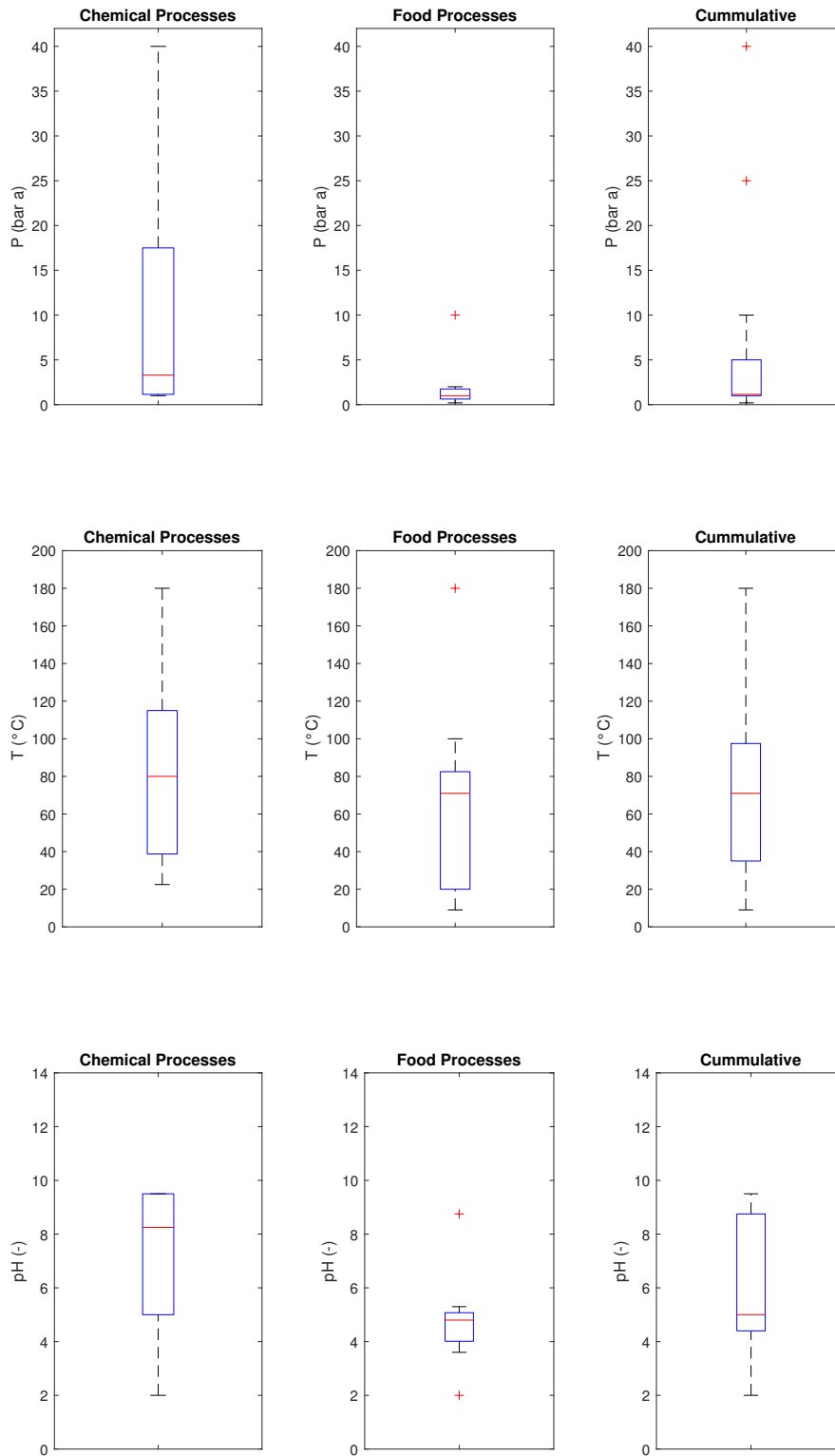
1.1 Which type of process is affected by foam (e.g. Distillation, Filling etc.)?



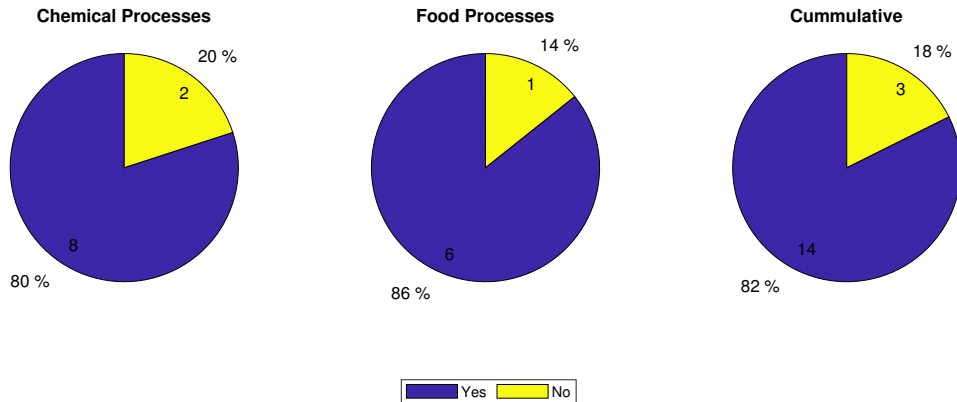
1.2 Which Equipment is affected by foam?



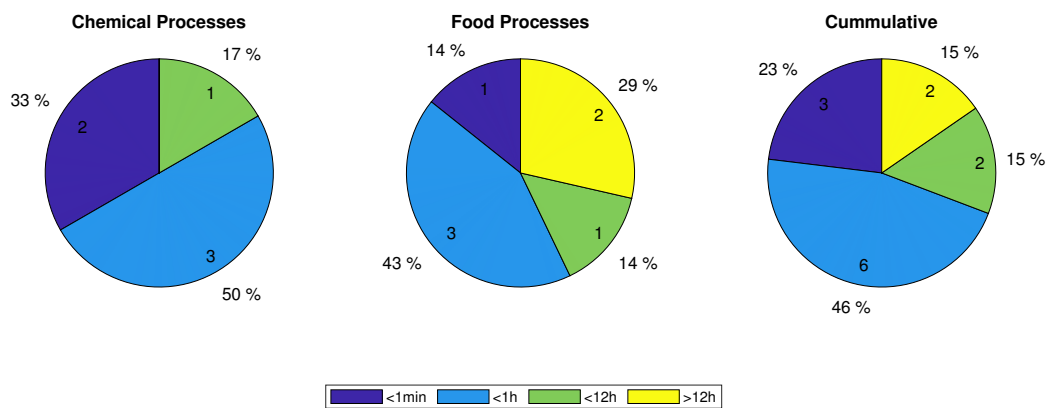
1.3 What are the process conditions inside the equipment (Pressure, Temperature, pH-Value, Throughput?)



1.4 Does gasformation or gasenclosure occur (e.g nucleate boiling, gas separation, absorption/desorption etc.)?

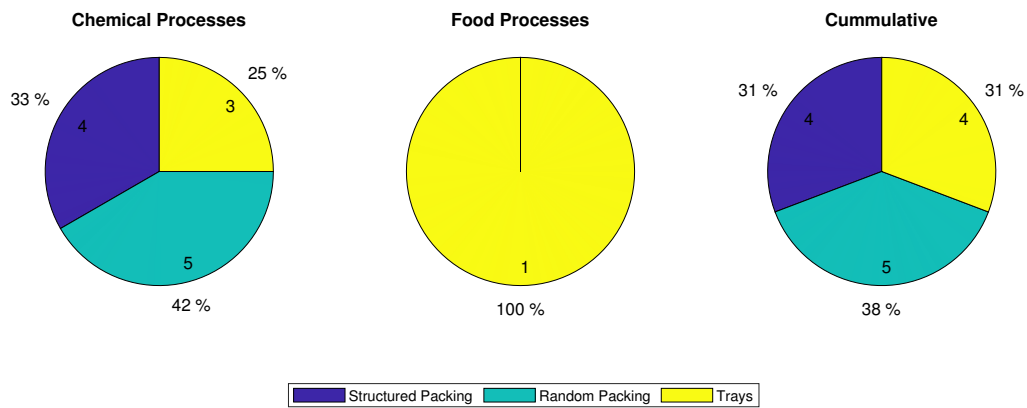


1.5 What is the residence time of the foam affected equipment?

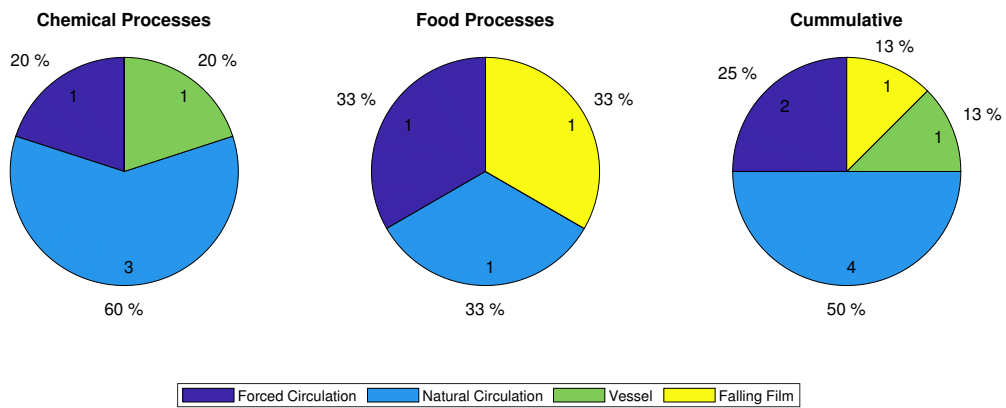


Questions about columns:

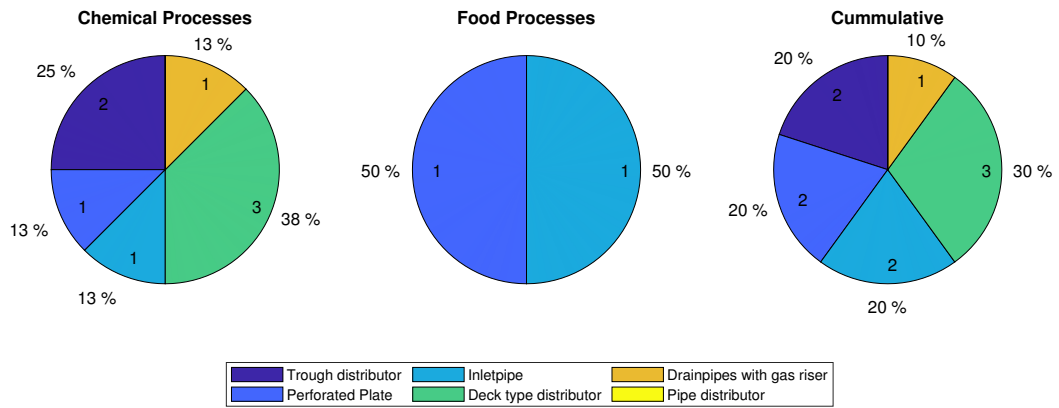
1.6 Which internals are installed into the column?



1.8 Which evaporator type is used?

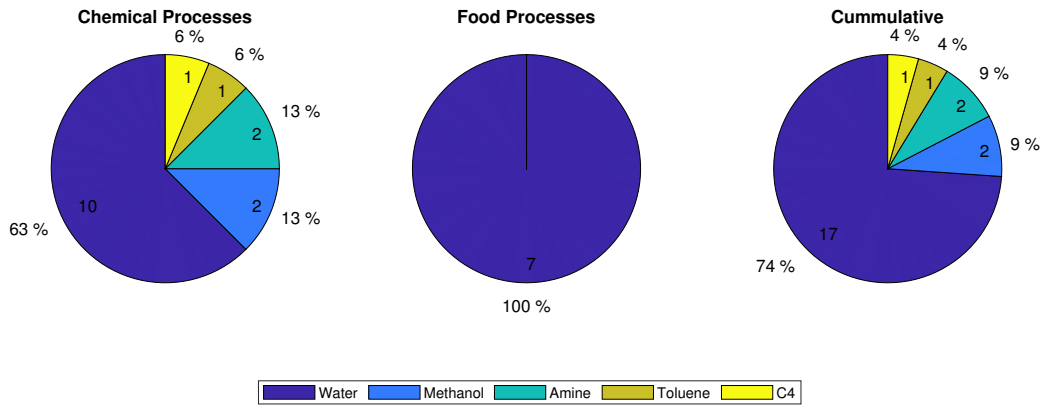


1.9 Which type of liquid distributor is used?

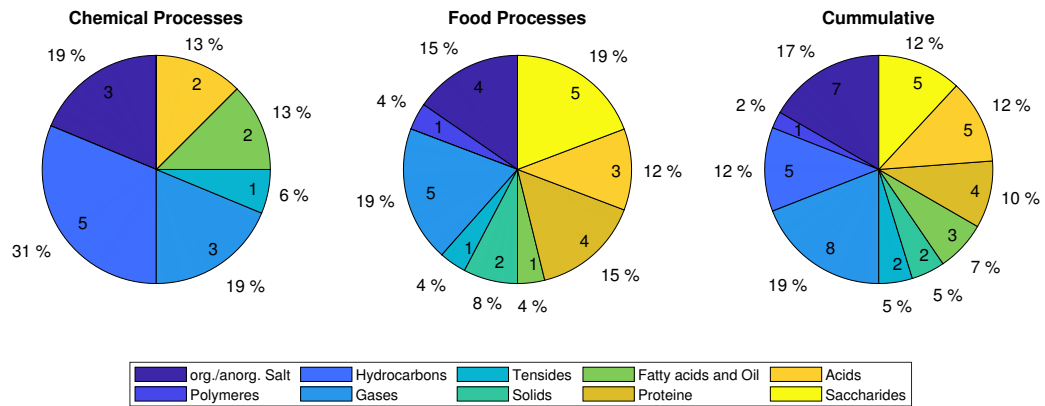


2 Substances

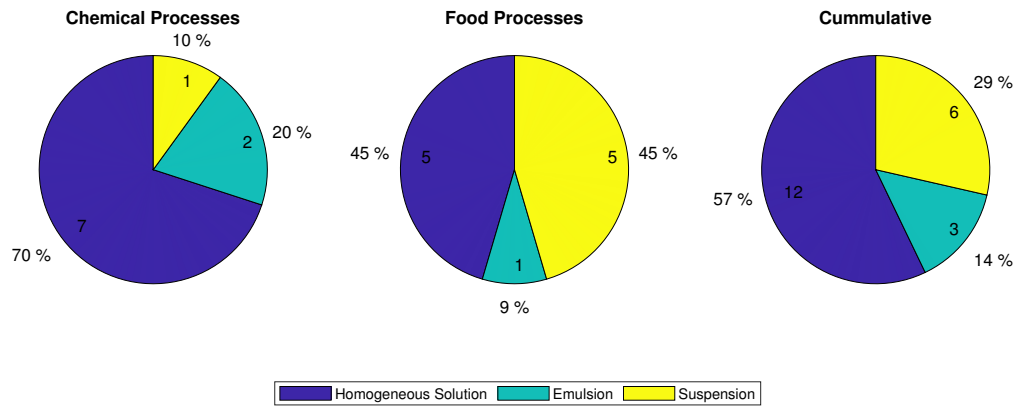
2.2 Are solvents used in the process? If yes, which ones?



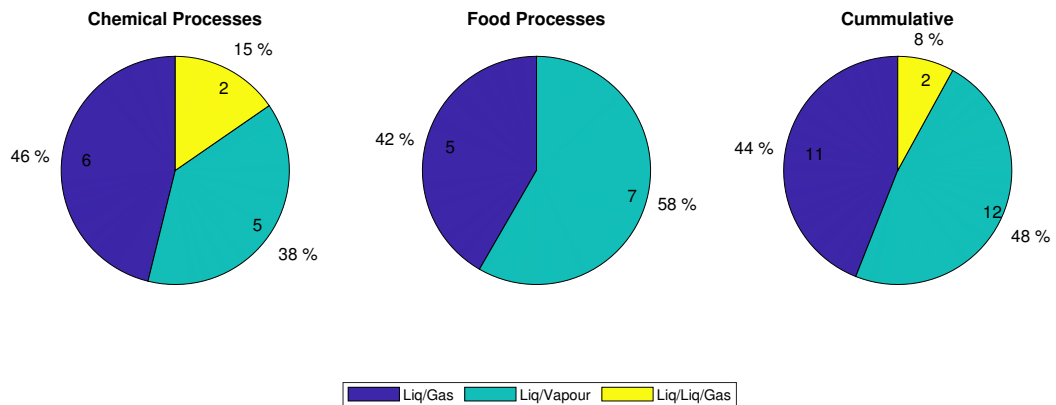
2.3 Which dissolved components or contaminations are



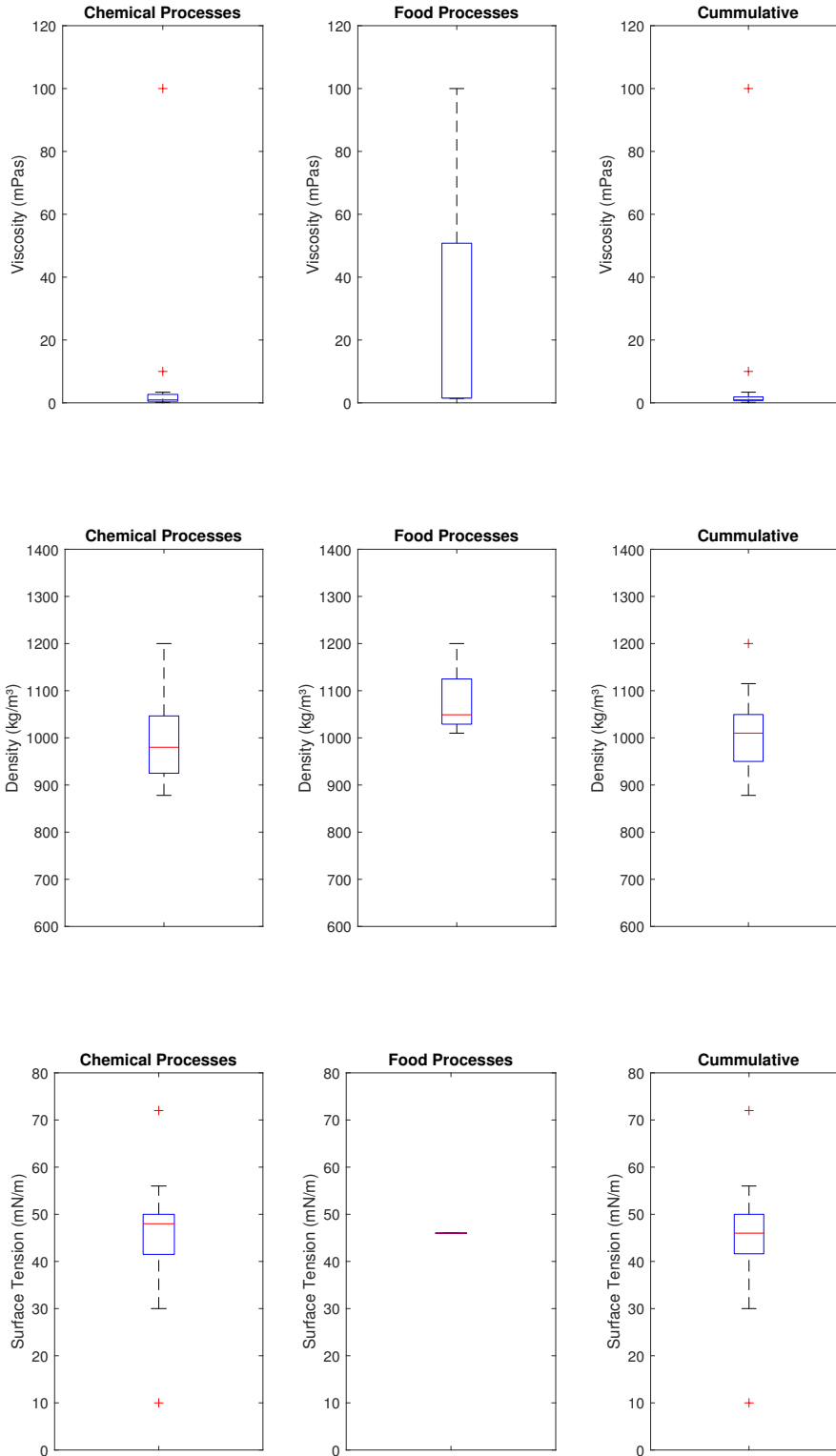
2.5 Which type of mixture does appear?



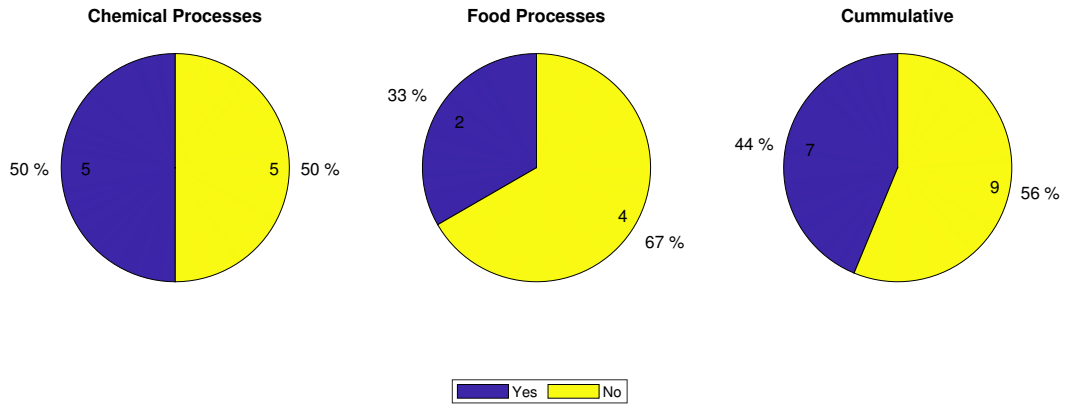
2.6 Which phases occur?



2.7 Please state the physical properties of the substance mixture.

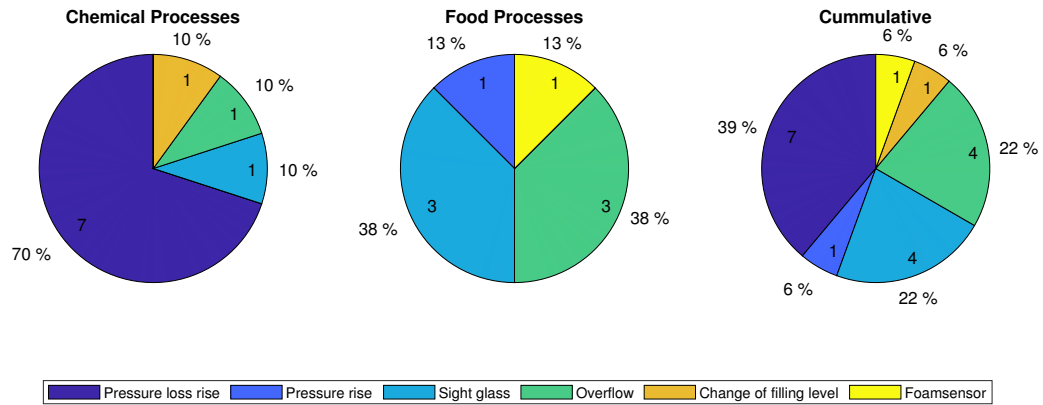


2.8 Does a reaction take place?

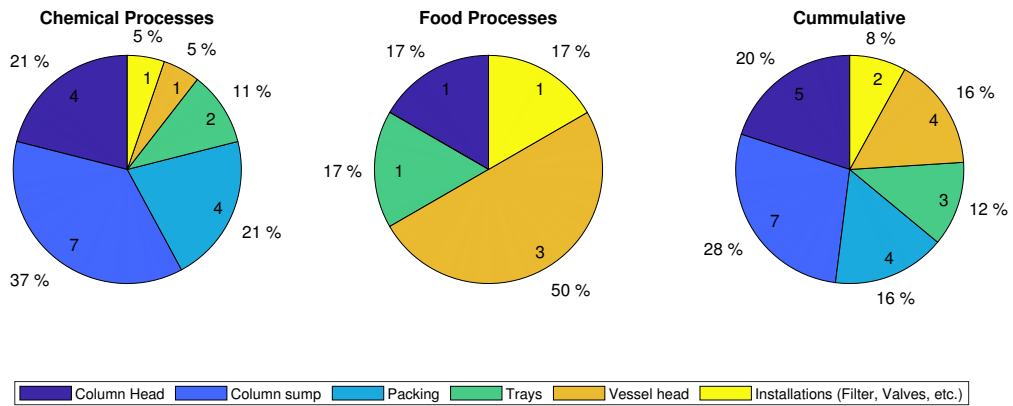


3 Foam formation

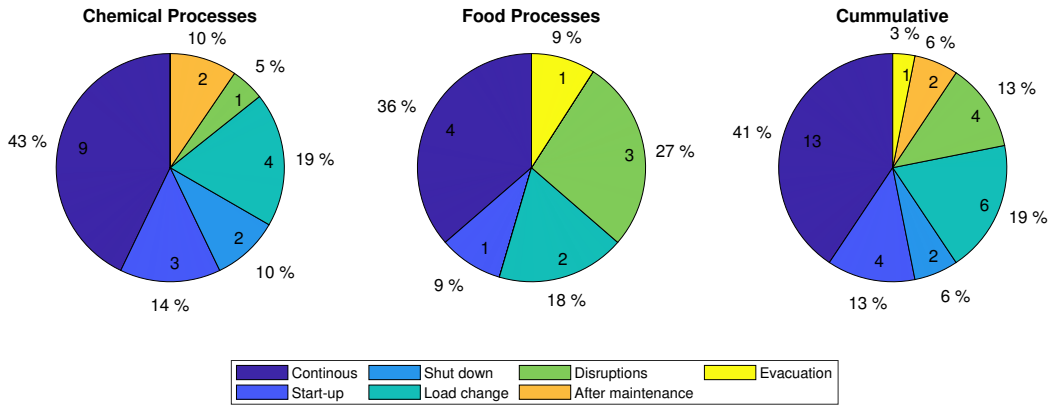
3.1 How was the foam formation detected?



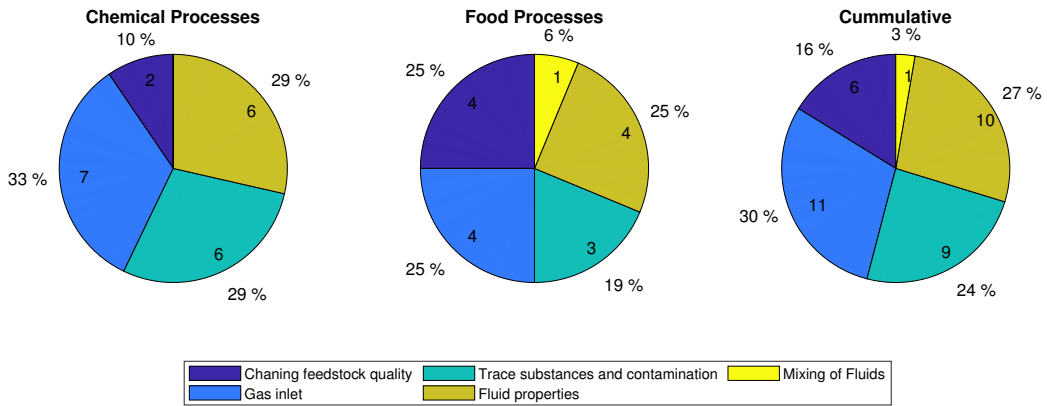
3.2 Where does the foam formation happen?



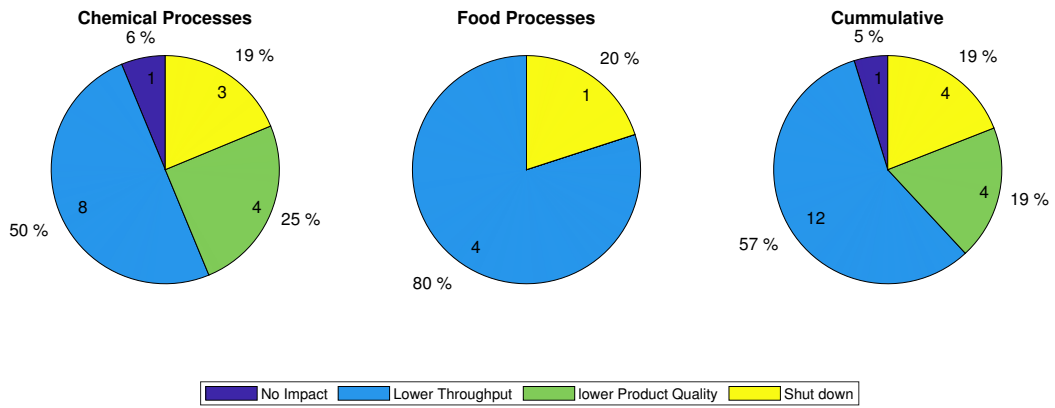
3.3 In which operation mode does foam formation occur?



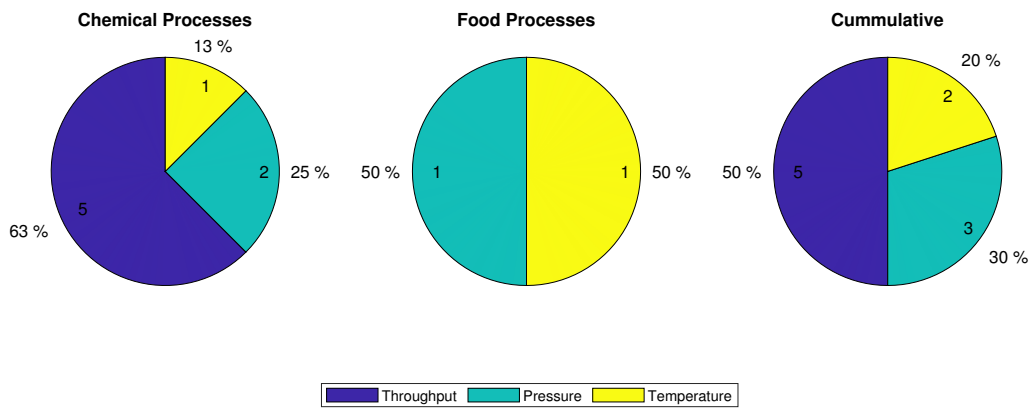
3.4 Which cause is suspected for foam formation?



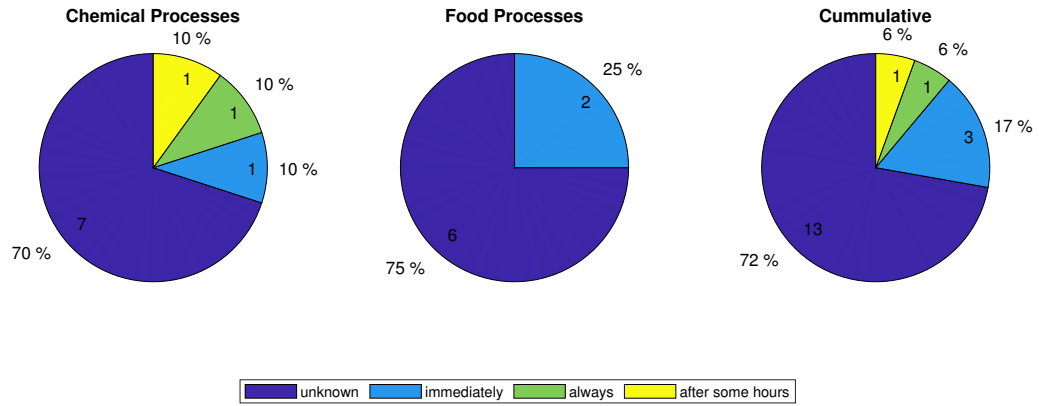
3.5 Which impact does have the foam formation?



3.6 Is the foam formation depending on certain parameters of the process (e.g. Temperature, Pressure, pH-Value, Throughput etc.)?



3.7 After how many hours of operation does foam formation usually occur?



4 Methods of foam destruction

4.1 Which actions have been taken to destruct foam and how effective were these actions? Please evaluate the listed actions or add further ones.

Tabelle 1: Evaluation of foam destruction actions.

	Action	+ +	+	o	-	- -	Average
a)	none	0	0	0	0	1	- -
b)	Reduction of throughput	1	3	3	2	3	o
c)	Change or process parameters	0	1	2	2	1	o
d)	Adding antifoam	3	9	0	0	1	+
e)	mechanical foam destruction	0	0	0	2	1	-
f)	Infrared Radiation	0	0	0	0	0	?
g)	Ultrasonic	0	1	0	0	0	+
h)	Irrigation with intrinsic liquid	0	0	0	1	0	-
i)	Change of equipment design	1	0	0	0	0	++
j)	mechanical filter	0	1	0	0	0	+
k)	Activated Carbon filter	0	0	1	0	0	o
l)	Steam to foam	0	0	0	1	0	-
m)	mild nucleate boiling	0	0	1	0	0	o
n)	Housing cooling	0	1	0	0	0	+