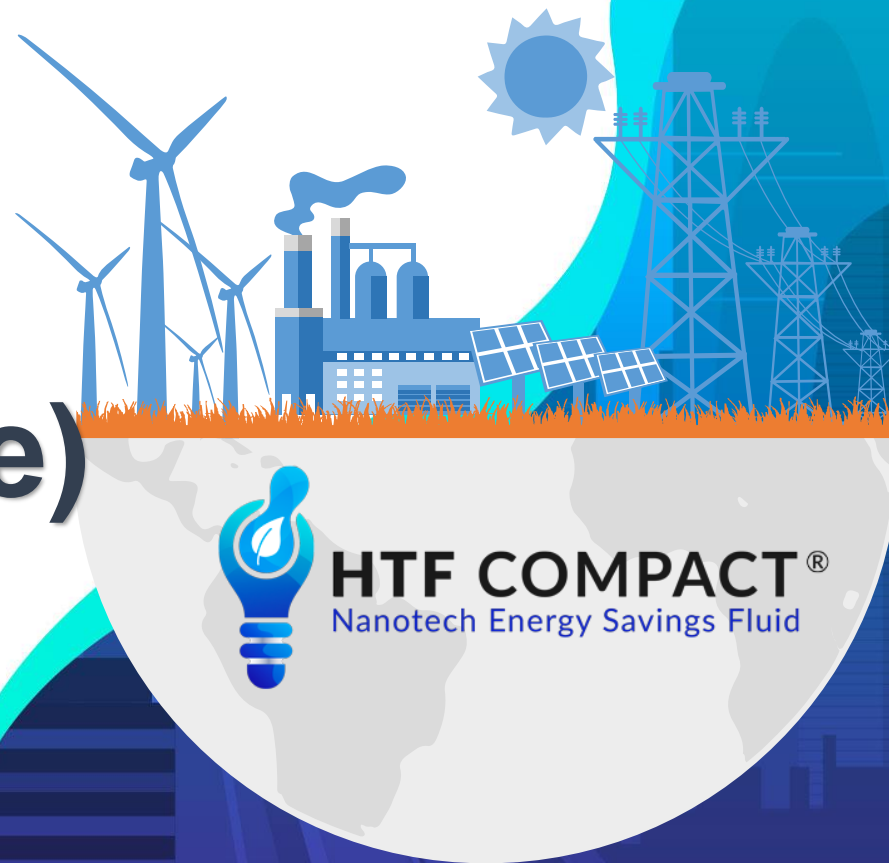




Reenui Food & Beverage Production Site (France)

HTF Compact Nano Thermo Fluid

Pilot test results

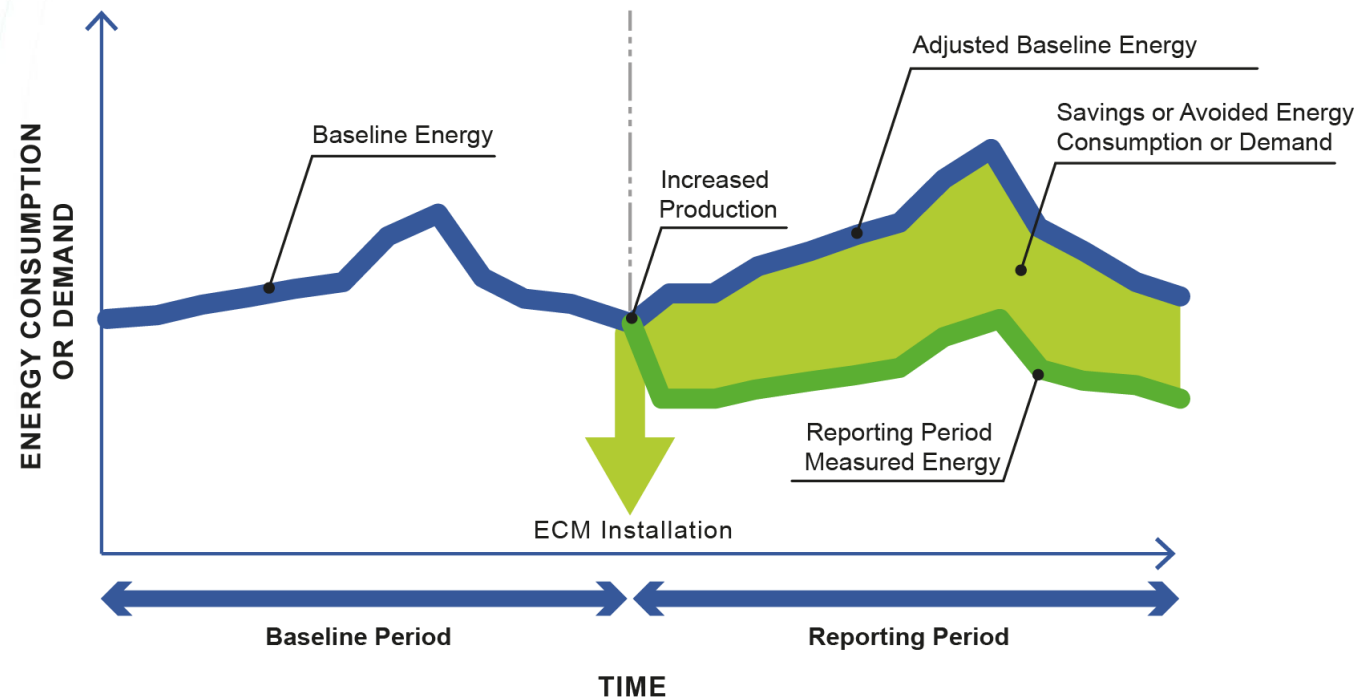


COLD STORAGE PILOT

PILOT TEST PROCEDURE AND REPORTS

Test Data

- Baseline period: January 2020 to December 2020
- Nanofluid was introduced on March 15th 2021
- First reporting done for 3.5-month period from September 2017 to August 2018



REENIU F&B COLD STORAGE- PILOT

PILOT TEST PRELIMINARY RESULTS

KEY FIGURES

Monthly tonnage processed	Consumption reduction Chillers only
14.5 ton	26 %
41 ton	24%
50 ton	21%
66 ton	33%

ENERGY PERFORMANCE

HTF Compact has delivered at least, without considering the upside realized savings due to optimization of chilled water set-point done after the first month of operations, **21.73% of confirmed electrical consumption reduction in average during 6 months period (March to August 2021).**

The introduction of HTF Compact and the optimization of the chilled water set-point has delivered in **average 23.8% net savings.**

GAS EMISSIONS

Overall gas emissions show a reduction of: **~13 tons of CO₂* from Mar to August 2021 (6 months period)**

FURTHER CONSIDERATIONS

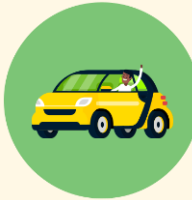
Performance is assessed at chillers level showing a higher performance if only chillers are within the perimeter of assessment. During summer season and high load processed volumes the colling system is utilized at its highest capacity which shows a peak of performance optimization showing values up to **33% consumption reduction.**

SUSTAINABILITY IMPACT

The greenhouse gas emissions yearly reduction Pilot Facility is **26 metric tons of CO₂**.
This is equivalent to:

Greenhouse gas emissions from

40,840



Kilometers driven by an average passenger vehicle

CO₂ emissions from

4.7



Home's Electricity use
For one year

or

60.2



Barrels of oil consumed

or

3,162,709



Number of Smartphone charged

Greenhouse gas emissions avoided by

8.8



Tons of waste recycled instead of landfilled

or

1,106



Trash bags of waste recycled instead of landfilled

Carbon sequestered by

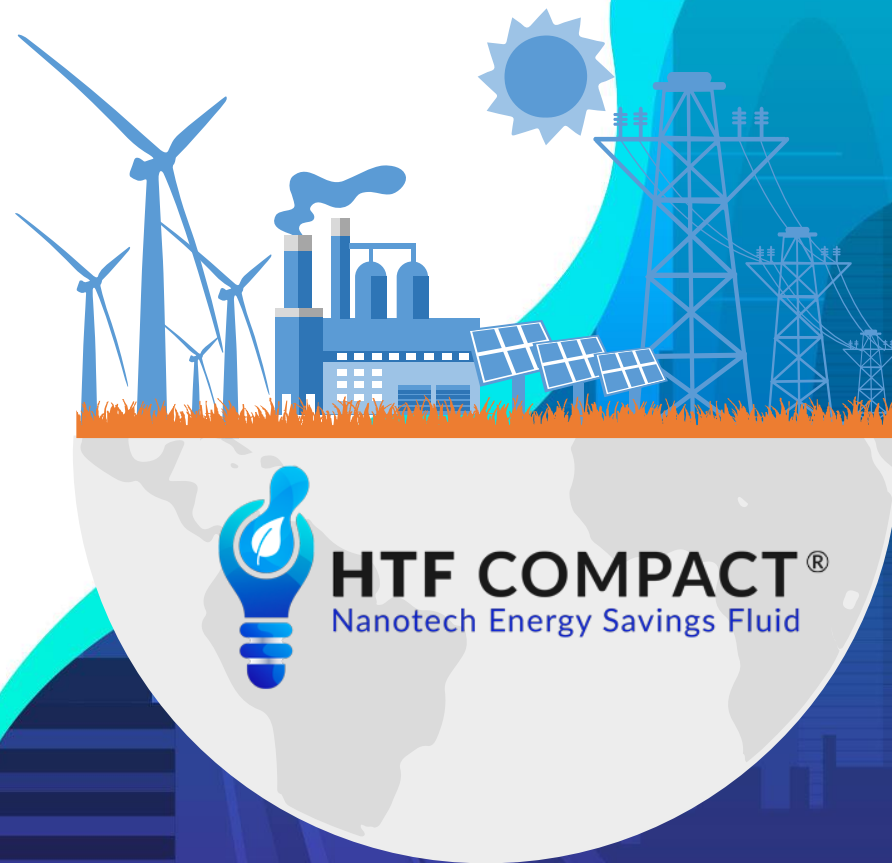
430



Tree seedlings grown for 10 years

GAS
EMISSIONS
REDUCTION

BACK-UP



PILOT TEST DETAILED RESULTS

Méthode F&B customer				
Comp.sur vol.de Mars à Août 2020-2021 (hors pompes)				
	Electricity	2020	Ratio	temp moyenne mars/Août
Year	kwh	Tons	Mwh/tons	
2,020	374,409	252.00	1.49	14.08
2,021	331,729	296.57	1.12	15.84
		Gain	32.83%	
Correction de température				
Impact delta temp.Ext		0.88%	3,295	kwh
Impact consigne MPG		2.25%	8,424	kwh
Nouveau ratio au kwh après correction				
2,020	369,280	252.00	1.47	
2,021	340,153	296.57	1.15	
		Gain	21.73%	

Comments		
1°C Outside Air Temperature increase means 1% higher electrical consumption.		considered for calculation: 0,5%
1°C decreased chilled water temperature means 2% higher electrical consumption		considered for calculation: 1,5%

SITE & SYSTEM DATA

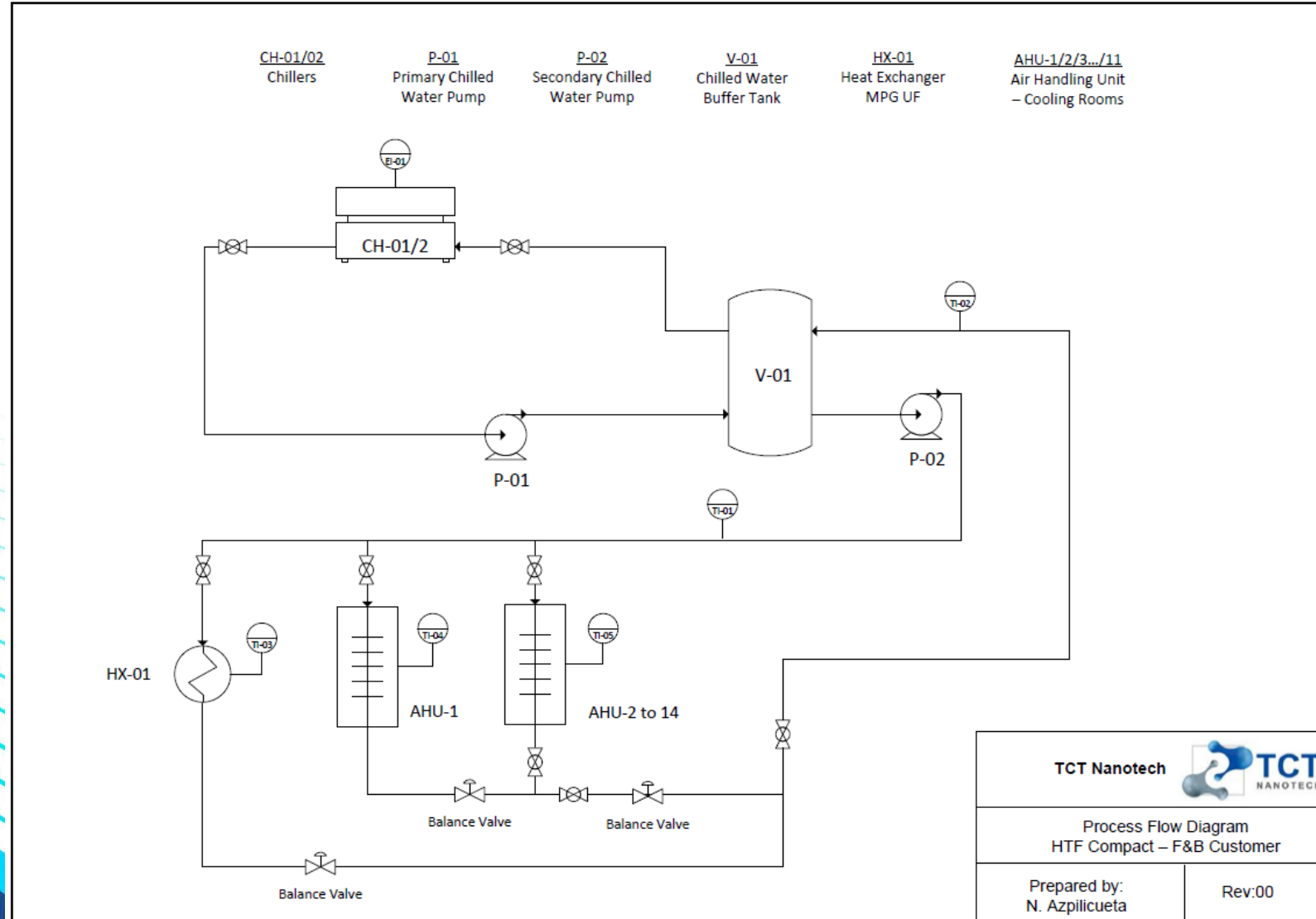
Reenui Food & Beverage Production Site – North of France



Basnanofluid	HTF Compact
Cold Storage System volume	7.2 m³
HTF Compact Volume	360 liters
Cooling carrier	Water/glycol (33% PG)

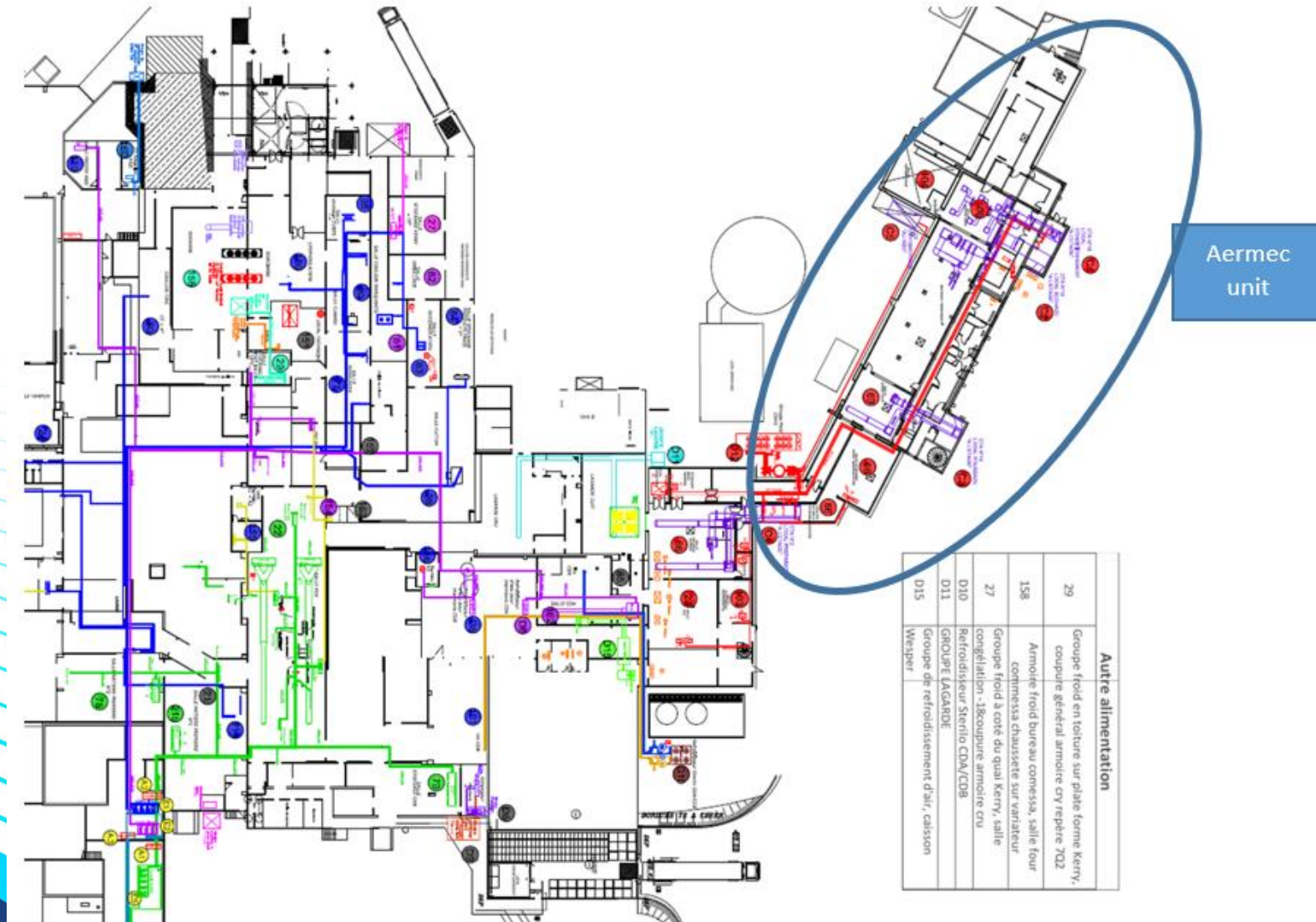
SYSTEM PROCESS FLOW DIAGRAM

Reenu Food & Beverage Production Site – North of France



SYSTEM PROCESS LAYOUT

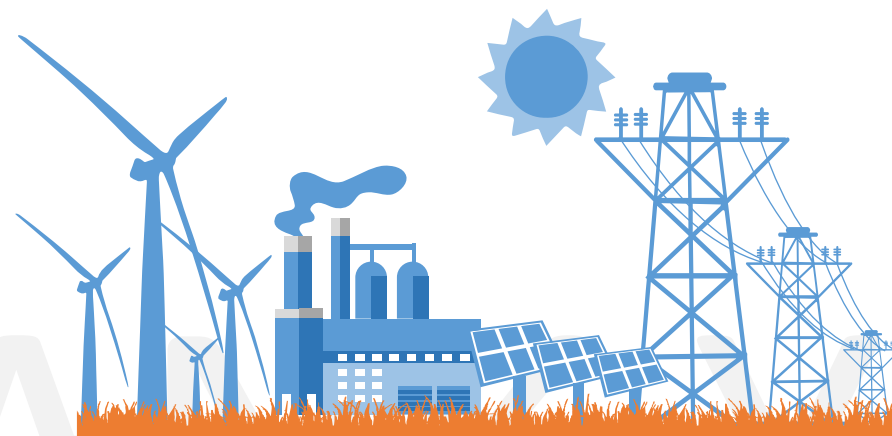
Food & Beverage Production Site – North of France



SYSTEM PROCESS SET-UP

Room Temperature Set-Point Table

Zone	Rev. Plan	Salles	Foaction	Révision Cahier des Charges 20	Révision Cahier des Charges 20	Révision cahier des charges 2020	2013/2020	Centrale actue	DEVIS dubois JUIN 202	PK'w/H Frigo	Tous les fr
DSH1		Compensation CO2 ligne A	Salle ou CTA technique			8°C (+/-2°C)		Aermec		50,00	Process
	23	Stockage bacs sortie Thermovis	Stockage frais	2°C	2°C (+/-2°C)	2°C (+/-2°C)	Idem	Aermec		A chercher	Stockage
	25	CTA Mélange Humide	Salle de Production	4°C et H2O : 70%	8°C (+/-2°C) H2O : 70%	8°C (+/-2°C) H2O : 70%	Idem	Aermec		68,00	Travail
	103	Préparation Ingrédients	Stockage d'approche	8°C	8°C (+/-2°C)	8°C (+/-2°C)	Idem	Aermec		A chercher	Stockage
	110	Local Déchets	Stockage frais	2°C	2°C (+/-2°C)	8°C (+/-2°C)	Changement	Aermec		A chercher	Stockage
	103	Local Foodscan	Salle de Production	8°C	8°C (+/-2°C)	8°C (+/-2°C)	Idem	Aermec		A chercher	Stockage
	103	Quai entrée Produits chimiques	Stockage d'approche	8°C	8°C (+/-2°C)	8°C (+/-2°C)	Idem	Aermec		A chercher	Stockage
	102	Bacs propres	Salle de Production	8°C	8°C (+/-2°C)	8°C (+/-2°C)	Idem	Aermec		A chercher	stockage
	15	Couloir sortie mélange humide	Transfert Produit	8°C	8°C (+/-2°C)		Suppression	Aermec		A chercher	Stockage
	24	Stockage bacs avant granulation	Stockage frais	2°C	2°C (+/-2°C)	2°C (+/-2°C)	Idem	Aermec		A chercher	Stockage
	-	Echangeur MPG UF	Transfert Produit		Delta T5°C -> 93/88	Delta T5°C -> 93/88	Idem	Aermec		A chercher	Process
	23	CTA granulation (TRAFIL0002 ?)	Salle de Production	4°C et H2O : 70%	4°C (+/-2°C) H2O : 80%	4°C (+/-2°C) H2O : 80%	Idem	Aermec		37,10	Travail
	-	CTA Caisson 3 (TRAFIL0003 ?)	Salle technique	25°C et H2O : 25%	25°C (+/-2°C) H2O : 25%	25°C (+/-2°C) H2O : 25%	Idem	Aermec		261,30	Process
	105	CTA Cdt sortie four (TRAFIL0010 ?)	Salle de Production	15°C et H2O : 50%	15°C (+/-2°C) H2O : 55%	15°C (+/-2°C) H2O : 55%	Idem	Aermec		35,00	Travail
	104	CTA cryobroyage (TRAFIL0005 ?)	Salle de Production	18°C et H2O : 50%	8°C (+/-2°C)	8°C (+/-2°C)	Idem	Aermec		A chercher	Travail
Total										452	



HTF COMPACT®
Nanotech Energy Savings Fluid

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