

# PRODUCTION EQUIPMENT



NAME	TYPE	MATERIAL	SIZE	MAX. PRESSURE (BAR)	TEMPERATURE (°C)	
VR-01	Reactor	Glass lined	1885 l	1.8	-15 till +150	⊗
VR-02	Reactor	Glass lined	1885 l	1.8	-15 till +150	⊗
VR-03	Reactor	Stainless steel	855 l	3	-15 till +150	⊗
VR-04	Reactor	Glass lined	3000 l	25	-15 till +190	
VN-01	Suction-filter/dryer	Stainless steel	1 m <sup>2</sup>	3	N.a.	⊗
VV-01	Packaging silo	Stainless steel	1000 l	N.a.	N.a.	⊗
N.a.	Clean-room	N.a.	N.a.	N.a.	N.a.	⊗
VG-01	Scrubber	Polypropylene	3 m <sup>3</sup>	1	N.a.	
VT-01	Vacuum dryer	Halar	250 kg	1	10 till +90	⊗
VK-01	Extraction column	Glass	Ø 250 mm	1.8	N.a.	⊗
VZ-01	Centrifuge	Stainless steel	Ø 1200 mm	N.a.	N.a.	⊗
Brine cooling circuit	N.a.	N.a.	N.a.	N.a.	N.a.	
Storage tank farm	N.a.	Various	N.a.	N.a.	N.a.	
Buffer tanks	N.a.	Various	N.a.	N.a.	N.a.	
CR-01	Reactor	Stainless steel	4500 l	2	-15 till +150	⊗
CR-02	Reactor	Stainless steel	4500 l	2	-15 till +150	⊗
CR-03	Reactor	Stainless steel	4500 l	2	-15 till +150	⊗
CR-04	Reactor	Stainless steel	4500 l	2	-15 till +150	⊗
CR-05	Reactor	Glass lined	4900 l	2	-15 till +150	⊗
CR-06	Reactor	Glass lined	4900 l	2	-15 till +150	⊗
CR-07	Reactor	Glass lined	3200 l	6	-15 till +180	
CR-19	Reactor	Stainless steel	450 l	1	-15 till +90	⊗
CR-20	Reactor	Stainless steel	450 l	1	-15 till +90	⊗
CR-21	Reactor	Stainless steel	450 l	1	-15 till +90	⊗
CR-22	Reactor	Stainless steel	450 l	1	-15 till +90	⊗
CR-23	Reactor	Stainless steel	450 l	1	-15 till +90	⊗
CR-24	Reactor	Stainless steel	450 l	1	-15 till +90	⊗
CG-01	Scrubber	Stainless steel	N.a.	1	N.a.	
CG-02	Scrubber	Polypropylene	N.a.	1	N.a.	
CG-03	Scrubber	Polypropylene	N.a.	1	N.a.	
CT-01	Dryer	Stainless steel	6000 l	1	10 till +90	⊗
N.a.	Clean-room	N.a.	N.a.	N.a.	N.a.	⊗
CZ-01	Centrifuge	Stainless steel	Ø1500mm	1	N.a.	⊗
CZ-02	Centrifuge	Stainless steel	Ø1500mm	1	N.a.	⊗
CZ-03	Centrifuge	Stainless steel	Ø1500mm	1	N.a.	⊗
CN-01	Nutro	Hastelloy, glass lined	2 m <sup>2</sup>	6	N.a.	⊗
CK-01	Extraction column	Glass	Ø 250 mm	1	N.a.	⊗
CK-02	Thin film evaporator	Stainless steel	12 m <sup>2</sup>	N.a.	N.a.	⊗
CK-03	Extraction column	Glass	Ø 200 mm	N.a.	N.a.	⊗
CK-04	Extraction column	Glass	Ø 400 mm	N.a.	N.a.	⊗
Brine cooling circuit	N.a.	N.a.	N.a.	N.a.	N.a.	
Storage tank farm	N.a.	Various	N.a.	N.a.	N.a.	
Buffer tanks	N.a.	Various	N.a.	N.a.	N.a.	

Valsynthese

Chemie

GMP qualified ⊗

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# PRODUCTION EQUIPMENT



	NAME	TYPE	MATERIAL	SIZE	MAX. PRESSURE (BAR)	TEMPERATURE (°C)	
Phosgene	CR-51	Reactor	Glass lined	4500 l	2	-15 till +180	⊗
	CR-52	Reactor	Glass lined	2500 l	2	-15 till +180	⊗
	CR-53	Reactor	Hastelloy	N.a.	2	-15 till +180	⊗
	CL51	Chlorine storage	N.a.	N.a.	N.a.	N.a.	
	CL52	CO-storage	N.a.	N.a.	N.a.	N.a.	
	CG-51	Scrubber	Polypropylene	N.a.	1	N.a.	
	CG-52	Scrubber	Polypropylene	N.a.	1	N.a.	
	Pilot	LPR-01	Reactor	Glas	114 l	1.8	-20 till +150
LPR-02		Reactor	Stainless steel	125 l	1	-20 till +150	⊗
LPR-03		Reactor	Stainless steel	450 l	1	-20 till +150	⊗
LPR-04		Reactor	Glass lined	268 l	6	-20 till +150	⊗
LPG-01		Scrubber	Polypropylene	0.3 m³	N.a.	N.a.	
LPT-01		Vacuum dryer	Halar	30 kg	1	10 till +90	⊗
XN-03		Suction filter	Glass	20 l	0.5		⊗
XN-04		Suction filter	Glass lined	20 l	1		⊗
Kilo-Lab	XN-05	Suction filter	Glass lined	20 l	1		⊗
	N.a.	Clean-room	N.a.	N.a.	N.a.	N.a.	⊗
	BR-101	Reactor	Hastelloy	30 l	16	-60 till +200	⊗
	BR-102	Reactor	Glass	30 l	0.5	-60 till +200	⊗
	BR-103	Reactor	Glass	30 l	0.5	-60 till +200	⊗

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# QC EQUIPMENT



NAME	TYPE
GCs	Assay and Purity analysis
HPLC 1260 Infinity	Assay and Purity analysis
HPLC Nexera-I LC-2040C	Assay and Purity analysis
HPL UltiMate 3000	Assay and Purity analysis
Titratoren	Assay determination
UV/VIS Spectrophotometer	Assay determination
Density measurement device	Density
Ion chromatographic instrument	e.g. chloride, sulphate, nitrite analysis
Nanocolor photometer	Environmental analysis (e.g. ammonium)
Nanocolor vario C2 (Thermoblock)	Environmental analysis (e.g. ammonium)
Drying chamber	Loss on drying
Halogen dryer	Loss on drying
MS Quadrupole 6120	Mass determination
Melting point device	Melting point determination
Alpine air jet sieve e200 LS	Particle size distribution
pH-Meter	pH
Refractometer	Refractive index
Headspace sampler	Residual solvent
Climate chambers ICH260	Stability testing
TOC-L Analyzer	Total organic carbon analysis for e.g. cleaning validations
KF-Titrino	Water determination
UltraClear Evoqua	Water treatment
Balances	Further equipment
Flowmeter	Further equipment
Fridge and Freezer (-20° C)	Further equipment
Laminar Flow	Further equipment
Microscope	Further equipment
Particle size distribution determination	Further equipment
Sampling chamber	Further equipment
LUX-Meter	Further equipment
VL MSD with Triple-Axis Detector 5975C	Further equipment
Laboratory Dishwasher SALVISLAB SCD 1160	Further equipment



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# R&D EQUIPMENT



## NAME

State-of-the-art lab

6x walk-in fumehood & 6x bench hood

Dedicated phosgene cabin

6 thermostats, 3x diaphragm pumps, 1x rotary vane pump, 7x laboratory balances, 2x analytical balances

3x chemical drying ovens, 2x cryostats

ATEX 2x fridge (+2 to +10°C), 2x freezer (-9 to -26°C)

Up to 5L(-10L) double-jacketed reactors

Temperature: -15°C to 220°C / pressure: 10<sup>-2</sup> mbar to 60 bar

2x autoclaves (1L Hastelloy, 5L stainless steel)

RC-1 with reflux kit

FlexyCube system (4x 250mL)

Short-path distillation up to 10 liter

EasySampler (Mettler-Toledo)

2x GC-FID (Agilent 8860, 8890)

3x HPLC-UV (1x Agilent DAD Serie 1200, 2x Serie 1260 Infinity 2)

1x DSC (Mettler-Toledo DSC823)

pH (Metrohm 827 pH Lab)

Titration (Metrohm 916 Ti Touch)

Benchtop NMR 80MHz (Magritek)

ReactIR (Mettler-Toledo)

Laboratory

Synthesis

R&D Analytics



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