



INDUSTRIAL WASTEWATER TREATMENT



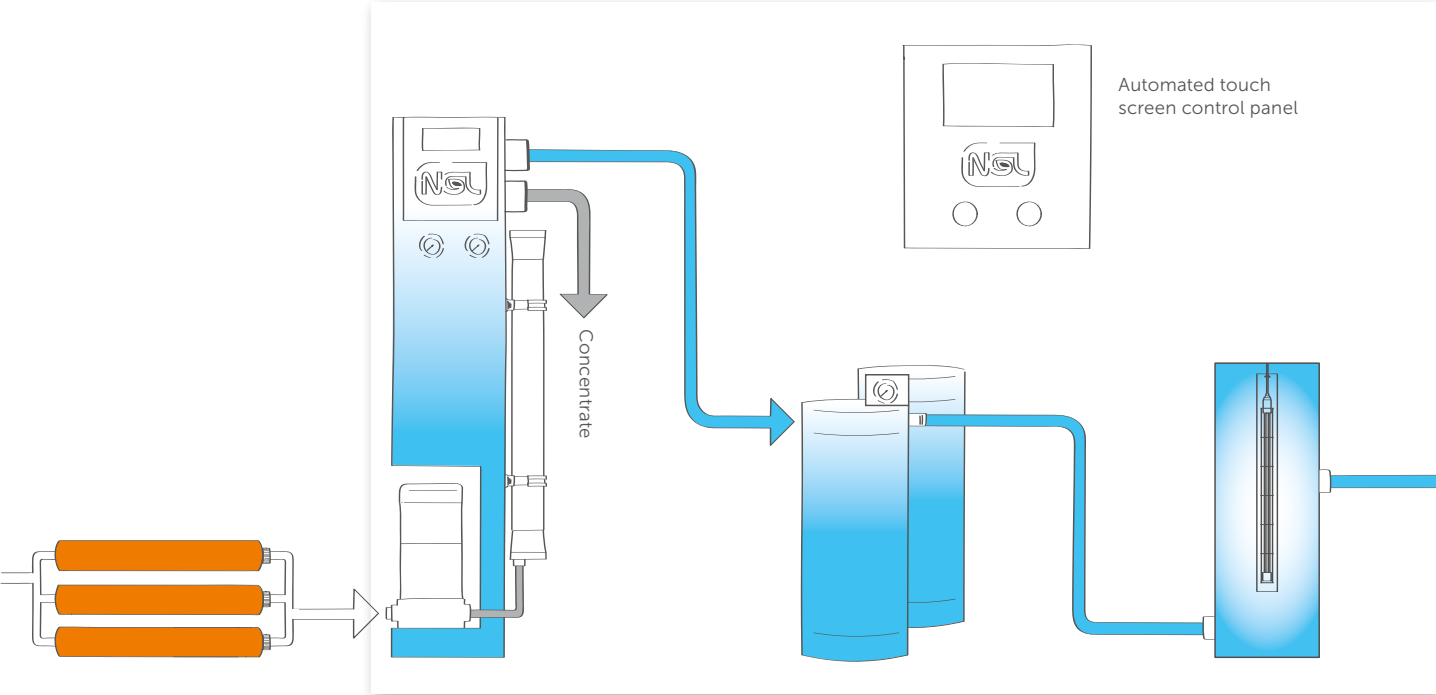
ECOLOGICAL CLEANING SOLUTIONS

 SWISS QUALITY

PREPARATION OF PROCESS WATER: NANOCLEAN RO

OPERATING PRINCIPLE

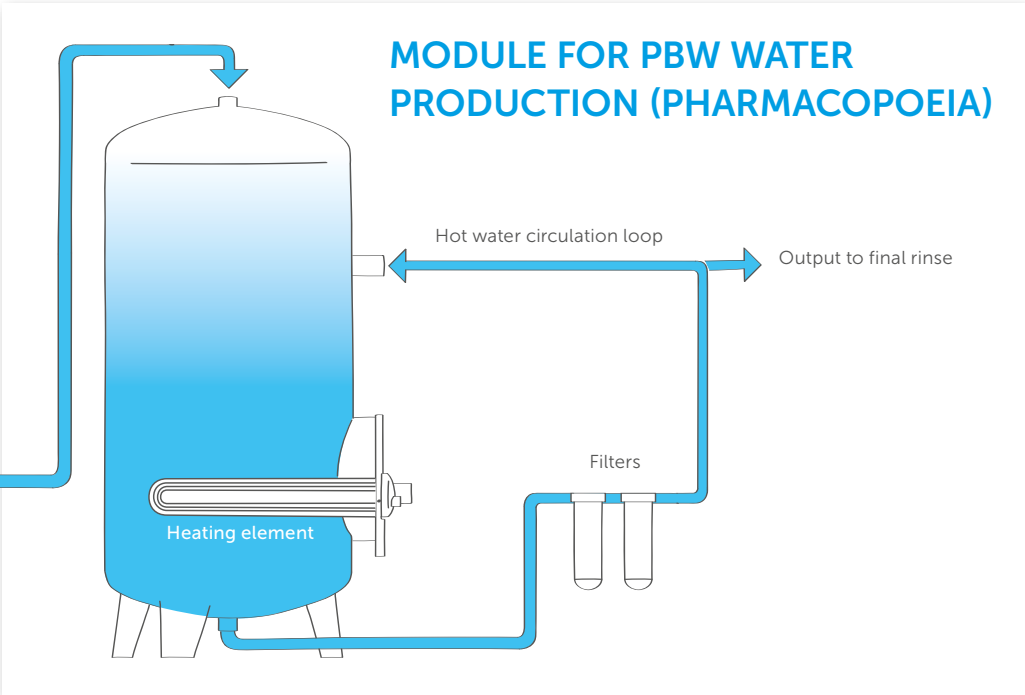
Nanoclean is a modular and compact process water preparation system that can be fitted to produce different water qualities and types.



UV DISINFECTION



Distilled, demineralized, tap water for industrial applications can be treated with UV, avoiding bacterial growth, without the addition of chemicals such as chlorine or ozone. Bacteria, micro-organisms and fungi are destroyed by UV radiation.



AQUA4D®

Action on limescale. Calcium carbonate crystallises into non-adherent aragonite.

OSMOSIS UNIT

Removes most of the organic matter, colloids, suspended particles and minerals.

RESIN & ACTIVE CARBON

Removes dissolved mineral residues on ion exchange resin, and organic compounds with activated carbon.

UV LAMP

Removes any «pioneer» bacteria found in the water.

FILTERS

Continuous filtration on 0,2 µm filters and 0,05 µm (endotoxin) to ensure microbiological parameters.

PBW MODULE

Hot water circulation loop at 70°C, in 316L steel, no weldings or retentions. Cleaned and passivated (ASTM G93 standard). Continuous filtration on 0,2 µm and endotoxin filters (0,05 µm).

AQUA4D®

- Removes calcite deposits and prevents redeposition in pipes and equipment
- Removes biofilm and avoids its formation
- Reduces clogging of membranes
- Removes rust and prevents corrosion
- Quality and conductivity characteristics similar to the tap water from which it is made

RO WATER

- Generated by filtration through low porosity membranes
- 90% of salts retained; conductivity: 5-20 micro Siemens / cm
- No organic matter or bacterial contamination

DEMINERALIZED WATER

- Generated and recycled using ion exchangers (mixed bed resins)
- No salt content; conductivity: 0,055 to 2 µS/cm
- > Requires UV treatment and activated carbon

PURIFIED WATER

- Water complying with the requirements of the European Pharmacopoeia (PE7)
- Generated by filtration from tap water
- Stored in a 316L stainless steel circulation loop with no bends or welds, totally passivated
- Continuous filtration on 0.2µm filters and 0.05µm endotoxin filters

	TAP WATER	AQUA4D® WATER	RO WATER	DEMINERALIZED WATER	PURIFIED WATER
Production mode		Ion exchange resin	Reverse Osmosis	Ion exchange resin	Ultrafiltration
pH	6,5 - 8,5	6,5 - 8,5	6,5	6,5	6,5
TOC	< 2 mg/l	< 2 mg/l	< 2 mg/l	< 1 mg/l	< 0,5 mg/l
Conductivity at 25°	200 to 800 µS/cm	200 to 800 µS/cm	5 to 20 µS/cm	0,055 µS/cm to 2 µS/cm	< 5,1 µS/cm
Heavy metals	< pb 10 µg/l, Ni 20 µg/l, Cu 100 µg/l, etc	< pb 10 µg/l, Ni 20 µg/l, Cu 100 µg/l, etc	< 0,1 ppm	< 0,1 ppm	< 0,1 ppm
Nitrates	40 mg/L	40 mg/L	< 0,2 ppm	< 0,2 ppm	< 0,2 ppm
Cl-	0,1 - 0,5 mg/l	0,1 - 0,5 mg/l	0,1 - 1 mg/l	0	0 per AgNO3 precipitate
Na+	1 - 10 mg/l	100 - 200 mg/l	0,1 - 10 mg/l	0	NA
CaCO3	60 - 180 mg/l	Aragonite	0,1 - 10 mg/l	0	NA
Maximum microbiological germs level	100 UFC/ml	100 UFC/ml	100 UFC/ml	100 UFC/ml	100 UFC/ml

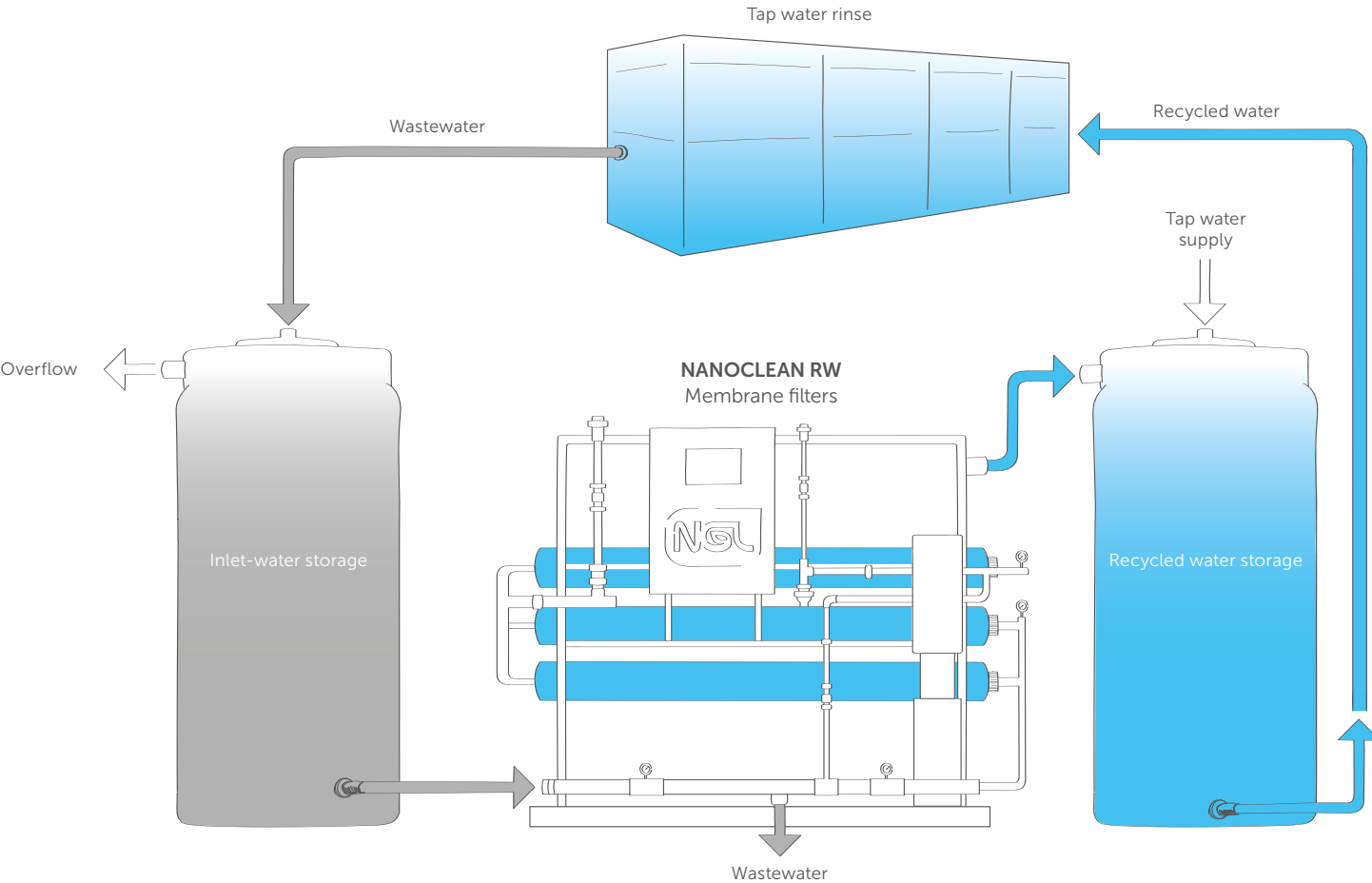
PROCESS WATER RECYCLING: NANOCLEAN RW

OPERATION PRINCIPLE

Reclaimed water rinse is stored in a buffer tank before being filtered through a membrane system. Chemical cleaning of the membranes can be automated, this enables the system to run by itself for several months between maintenance operations. A second storage tank allows the purified water to be collected before being returned to the process.

INDUSTRIAL PROGRAMMABLE SYSTEM

Programmable with probes and sensors to ensure full supervision and control of all circuits; this type of PLC can also facilitate remote controlled operation and an easier handling with a touch screen.



WASTEWATER TREATMENT: EVAPORATORS

OPERATION PRINCIPLE

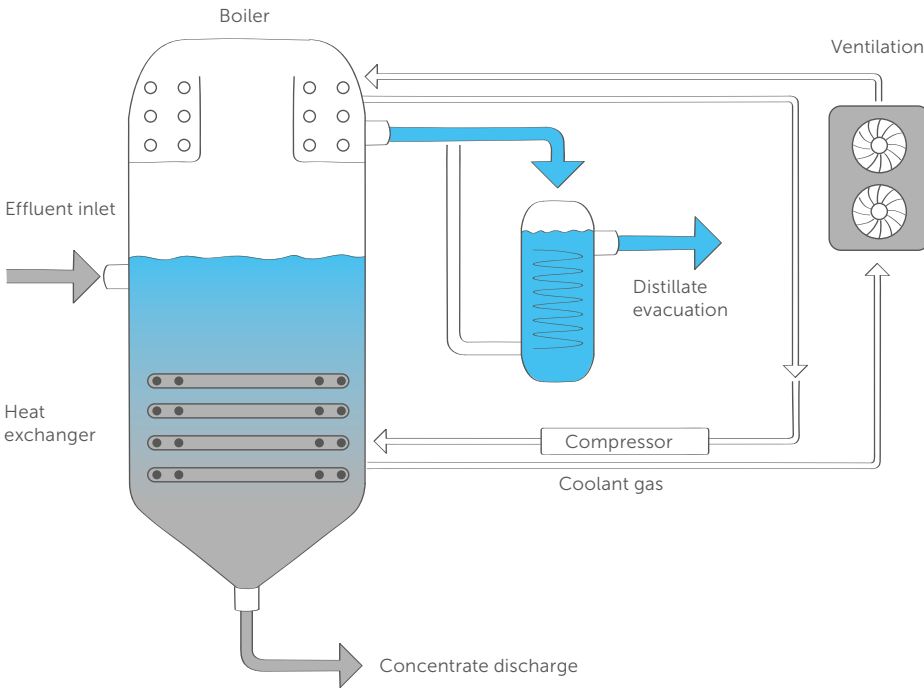
Separation of the aqueous phase from the process contaminants by distillation, which is carried out in a boiler under vacuum to low boiling point at a temperature of 35-38°C. The resulting distillate has similar characteristics to demineralized water and can therefore be reused in the production process. Vacuum evaporators allow the recovery of approximately 90-95% of the treated wastewater as distillate.

INDUSTRIAL PROGRAMMABLE SYSTEM

Operating is simple and does not require any special intervention by dedicated operator. The unit is completely automated and able to run 24h cycles. Operating hours and modes can be selected from the touch screen control panel.

TYPES OF EFFLUENTS

- Water containing heavy metals (Pb, Cr, Cu, etc.)
- Concentrates from demineralization processes
- Rinse water from cleaning processes
- Water from washing equipment or floors
- Recycling of water from foundries
- Treatment of oil emulsions



Distillery lab testing



1 - Pure distillate
2 - Concentrated waste

WASTEWATER TREATMENT: DECOFLOC



OPERATION PRINCIPLE

The main pollutions : COD, BOD5, Nitrogen, NTK, Phosphorus, SS, pH, heavy metals... are mostly removed by pH correction, filtration, decantation and coagulation/flocculation processes. When the COD at the treatment outlet exceeds 2000 mg/L, evapo-concentration systems are generally used.

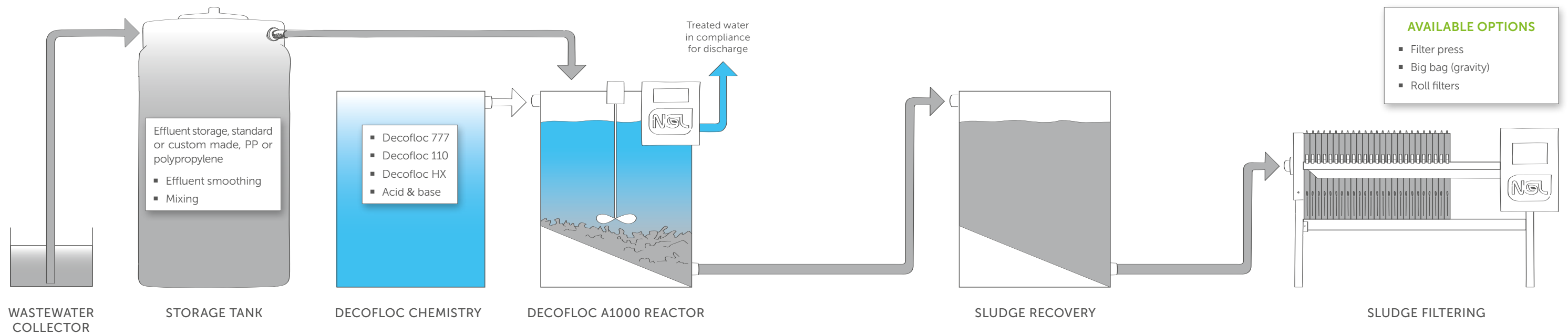
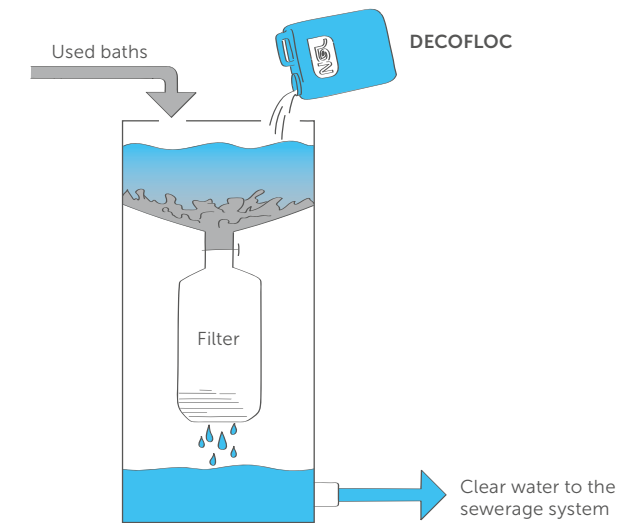
INDUSTRIAL PROGRAMMABLE SYSTEM

Programming with probes and sensors to regulate all circuits. This type of automation also allows for remote control and easy operation through a touch screen.

MANUAL UNIT

For volumes up to 1m³ day, manual units can be set up.

These installations are compact, easy to use and require no maintenance.



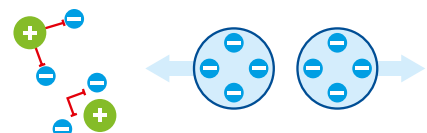
DECOFLOC PROCESS



DECOMPLEXATION

Separated chelated metals from detergents with DECOFLOC 777.

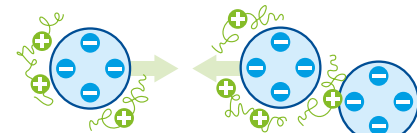
Negatively charged particles after decomplexation with DECOFLOC 777.



COAGULATION

Agglomerate dissolved metals with coagulation salts with DECOFLOC 110.

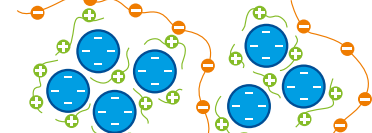
Particles are attracted after addition.



FLOCCULATION

Agglomerate the molecules into flocs which mass and size allow decanting and filtering.

Flocs are formed on a macroscopic scale.



TREATMENT PLANT WITH AUTOMATIC SYSTEM, REMOTE-CONTROLLED AND FITTED INSIDE A SHIPPING CONTAINER

Turnkey treatment plant in a 20 feet container, including a reactor/decanter, a sludge tank, a filter press and the reagents allowing the insolubilization of the pollutions and the collection of the sludge. In addition, to avoid any nuisance, the system is completely isolated: frost-proof, silent, programmable: no nuisance and flexibility of use. Pre-assembled, this containerized station is installed in a few hours, set on the ground, for a capacity of 1 to 10 m³/day.



OUR SUBSIDIARIES AROUND THE WORLD

NGL FRANCE SAS

Parc Aktiland Bât B
1 rue de Lombardie
FR-69800 SAINT-PRIEST
france@ngl-group.com

NGL CLEANING GMBH

Schlavenhorst 15
DE-46395 BOCHOLT
kontakt@ngl-group.com

NGL NORDIC A/S

Industriskellet 10
DK-2635 ISHØJ
nordic@ngl-group.com

NGL SHANGHAI

Room 407, Building 3, No.3199 Jinhai Road
Fengxian District
CN-201401 SHANGHAI
shanghai@ngl-group.com

NGL ASIA PACIFIC PTE LTD

28 Kallang Place #05-09
Kallang Basin Industrial Estate
SG-339158 SINGAPOUR
asiapacific@ngl-group.com

NGL AMERICA INC.

747 North Church Road, Suite G-9
ELMHURST, IL 60126, USA
usa@ngl-group.com



30/05/2023



NGL CLEANING TECHNOLOGY SA - ECOLOGICAL CLEANING SOLUTIONS

Chemin de la Vuarpillière 7 – CH-1260 NYON – SWITZERLAND
+41 22 365 46 66 – contact@ngl-group.com – www.ngl-group.com

