

# CONTRACT MANUFACTURING SERVICES



## ICL Industrial P R O D U C T S

ICL-IP Terneuzen BV in the Netherlands is a chemical production company specialising in flame retardants, fine chemicals, biocides and inorganic chemicals. We offer Contract Manufacturing of chemicals and blends. Our plant operates in batch wise processes in a continuous mode, seven days per week.

New is our bromine recovery installation which we also employ for the work-up of bromine containing waste streams.

A separate leaflet "Processing Bromine Containing Waste Streams" is available.



## General

**TECHNICAL EXPERTISE:** Bromination, hydrobromination, bromine recovery, sulphonation, phosphorylation, allylation, nucleophilic substitution, crystallisation, esterification, operations with acrylic acid, acrylonitrile and flammable solvents.

**WE OFFER:** The use of our multi-purpose equipment, pilot plant facilities and assistance in process development. Investment in dedicated installations is possible.

## Reactor Capacity Available

All vessels are suitable for reactions and blending activities.

- Glass lined reactors : 1.600 - 16.000 litres (different sizes available)
- Stainless steel reactors : 1.800 - 28.000 litres (different sizes available)

## Other Processing Equipment

- Centrifuges 316L, peeler type
- Centrifuges 316L, inverting filter type Heinkel
- Vacuum dryers 316L, type Nauta 2 m<sup>3</sup> and 3,5 m<sup>3</sup>
- Fluid bed dryer, 4 m<sup>2</sup>
- Sulzer packing (Melapack, 20 trays) and Durapack (glass, 7 trays)
- Drum flaker, 316L
- Schenk centrifugal discharge filter
- Storage tanks 25 m<sup>3</sup> HDPE and PP and PVDF
- Storage tanks 316L, 10 m<sup>3</sup>, 60 m<sup>3</sup>, 30 m<sup>3</sup>
- Glass lined storage vessels
- Vessel with Ekato Intermig agitator for mixing and crystallisation 316L
- HBr/HCl scrubbing facilities

## Raw Material and Product Storage Capacity

- Stainless steel 316L storage tanks 60 m<sup>3</sup>, 30 m<sup>3</sup>
- PVDF lined tanks 25 m<sup>3</sup>
- Container storage

## Utilities

- Steam 10 bars and lower
- Cooling water
- Chilled and cold glycol system
- Nitrogen supply to all installations
- Utility materials: standard acid and caustic feed systems, ammonia, demineralised - and soft water
- Compressed air system
- Vacuum systems per installation
- Temperatures up to 190 °C

## Laboratory and Pilot Facilities

**Laboratory facilities:** GC, HPLC, TOC, headspace analyses, ion chromatography, FTIR, DSC, TGA, Particle size by microscope and Malvern laser diffraction. Titrations, Karl Fisher, Halogen dryer.  
Powder behaviour measurements.  
Quality Control in full shift system.

**Pilot :** For trouble shooting assistance 2 - 10 - 25 litre scale reactors available.

## Environmental Facilities

Installations are equipped with active carbon solvent recovery systems and a catalytic burner system as final air treatment.  
For waste water active carbon and biological treatment facilities are in operation.  
Liquid waste by-product streams are treated in our incineration system equipped with a bromine recovery system.

## Work-up of Brominated Waste

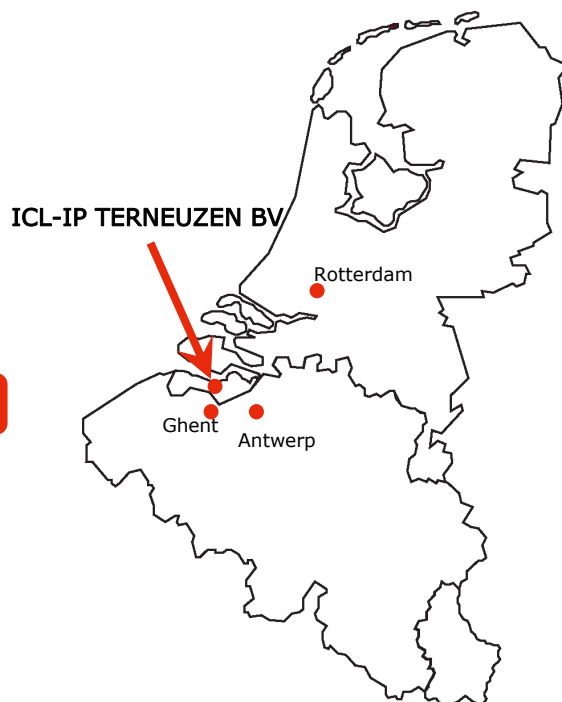
Capability for upgrading bromide-containing streams.  
Capability for incineration of bromine containing liquid waste streams and bromine recovery.

## Logistics

ICL-IP Terneuzen is located near the major industrial areas of Rotterdam, Antwerp and Ghent.

We have both outdoor and indoor storage facilities available, loading and unloading docks for lorries and railway carriages, and a 20 ft forklift for containers.

Also a jetty for loading and unloading of ships is at your disposal.  
As well as facilities for both the filling and emptying of drums and IBC's.



## Permits & Management Systems

ICL-IP Terneuzen is a chemical company and holds permits in accordance with SEVESO- and IPPC-guidelines.

ICL-IP Terneuzen BV is certified in accordance with the quality standards mentioned below:

- ISO 9001
- Environmental standard ISO 14001
- Safety standard OHSAS 18001

All our engineering activities are preceded by an in-depth safety study carried out by our HAZOP-team.



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