



Pelchem SOC Ltd

Overview

www.Pelchem.com

Pelchem SOC Ltd

- A subsidiary of the South African Nuclear Energy Corporation (Necsa)
- Proud record of more than 30 years experience in locally produced fluorspar beneficiation
- Operates and maintains a portfolio of fluorochemical products in the local and international markets.
- Sole Producer and supplier of fluorochemicals in the Southern Hemisphere
- Plays a leading role in the South African Fluorochemical Expansion Initiative (FEI)
- Ability and knowledge base to diversify, expand and develop other chemicals across multiple market sectors
- Operates under patented technology.
- Fluorochemicals are versatile are used in everyday applications.

About Pelchem

Vision

*Global Manufacturer and
Supplier of Commodity
and Specialty Chemicals*



Mission



- To be the preferred supplier of both commodity and specialty chemicals
- Deliver on our promises, safely and in an environmentally responsible manner.
- Driving growth through Excellence, Innovation, Performance and Customer Focus.
- Deliver world class products and services reliably.

Values

Safety



Integrity

Innovation



Excellence

Reliability



Fluorochemical Value Chain

F-Complex

Upstream



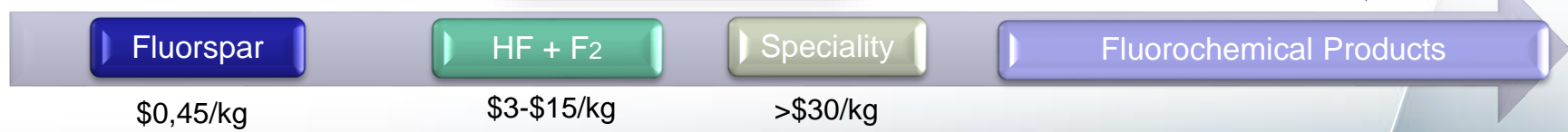
Midstream



Downstream



End User

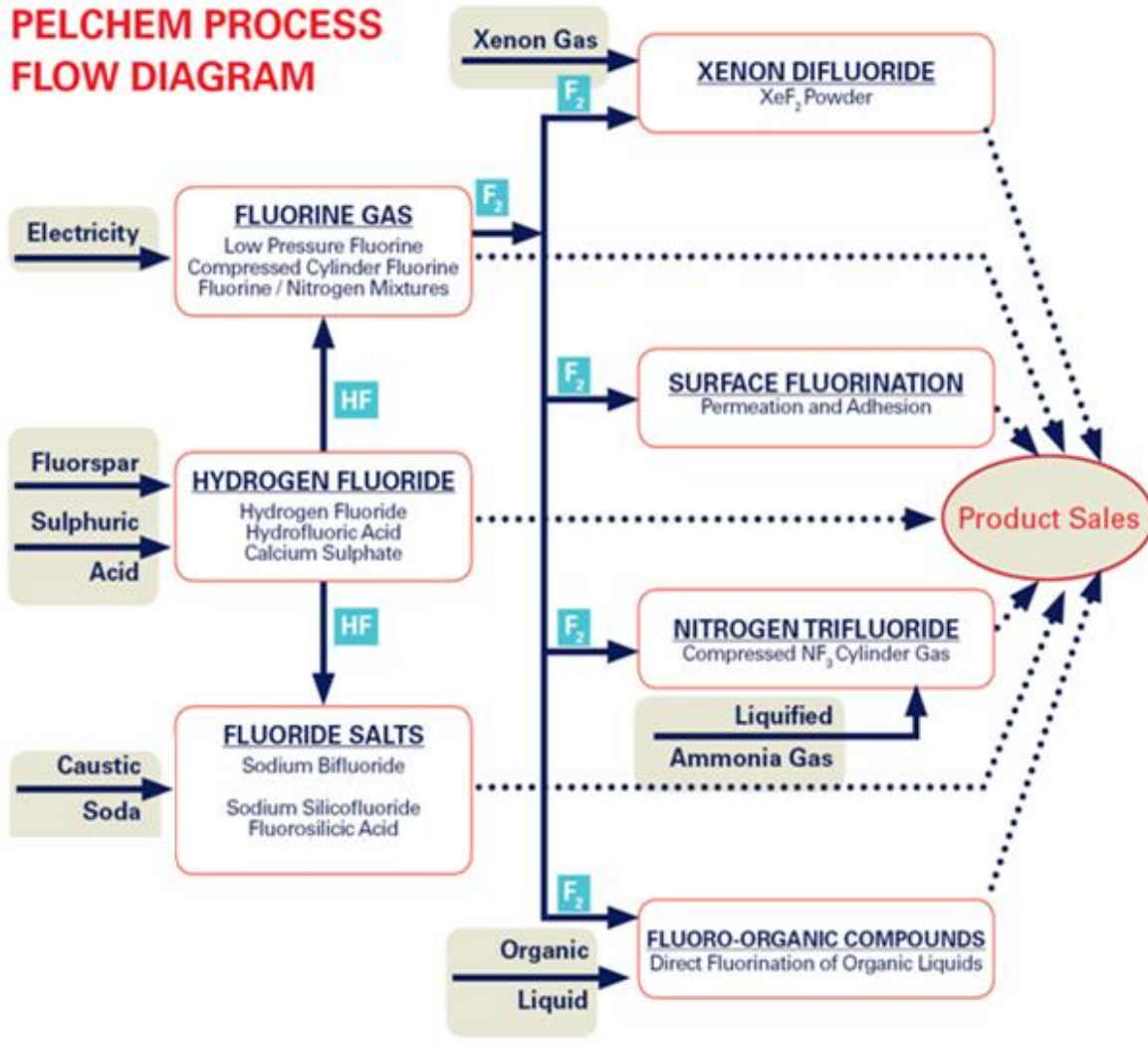


Fluorochemical exc

\$20 Billion Market

Plant Processes

PELCHEM PROCESS FLOW DIAGRAM



- 8 commercially operated production facilities, delivering 14 products and services to the local and international commodity and specialty gas markets
- Most production facilities are operated under patented, trade secret or trade mark protection
- Unique know-how across the Pelchem product value chain is a competitive advantage

Intellectual property

Pelchem IP portfolio:

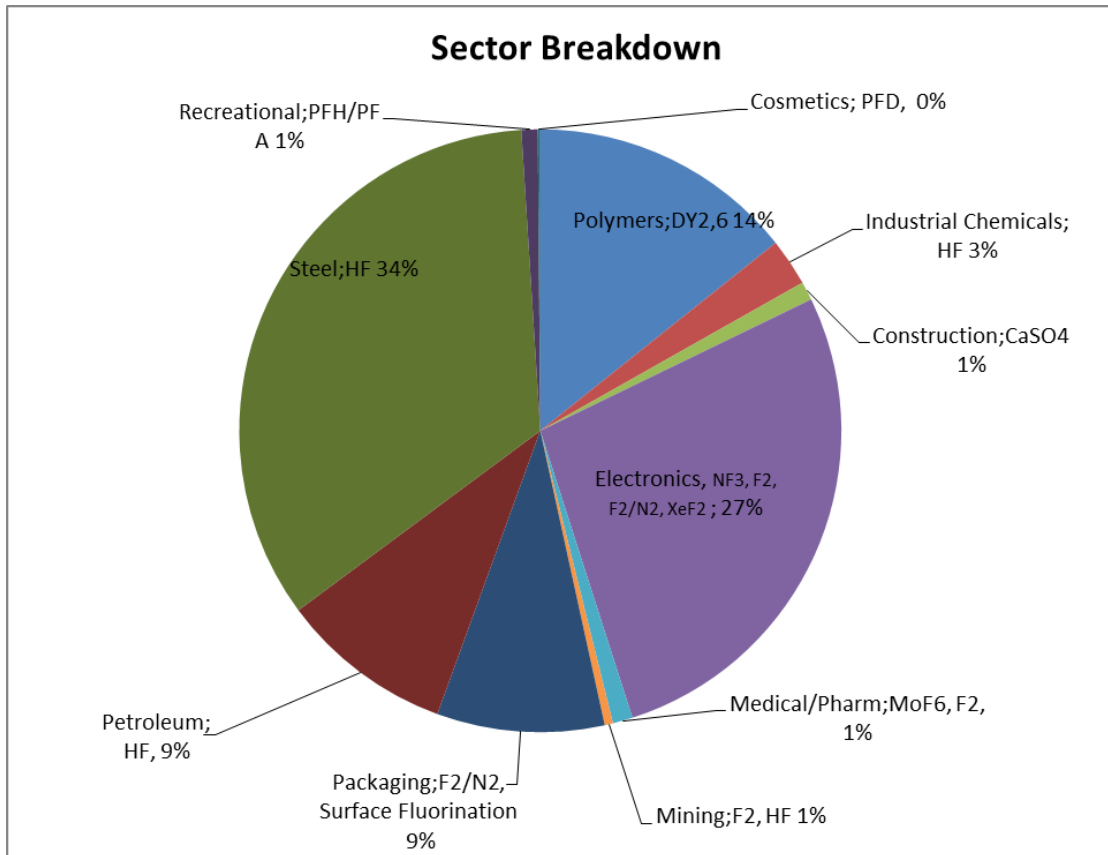
- Trademarks
 - Pelchem,
 - SF₂P (Surface Fluorination)
- Trade secrets
 - Fluorine manufacturing technology
 - XeF₂ production process and plant design
 - WF₆ production process and plant design
 - Organic Fluorides production process
 - Surface Fluorination process technology

Intellectual property cont.

- Patents:
 - 10 families (general descriptions)
 - Tetrafluoroethylene plasma technology
 - Surface Fluorination – Surface Fluorination oxyfluorination
 - Barrier – Surface Fluorination barrier technology
 - Glass Fibre Wrapping – Surface Fluorination adhesion technology
 - Cladding – Surface Fluorination adhesion technology
 - Vapour Enhanced Oxyfluorination
 - Direct Liquid Fluorination
 - Conversion of Liquid FC-containing materials to useful products
 - Conversion of Solid FC-containing materials to useful products
 - NF_3 production process

Market Sectors and Product Portfolio

Sector Breakdown

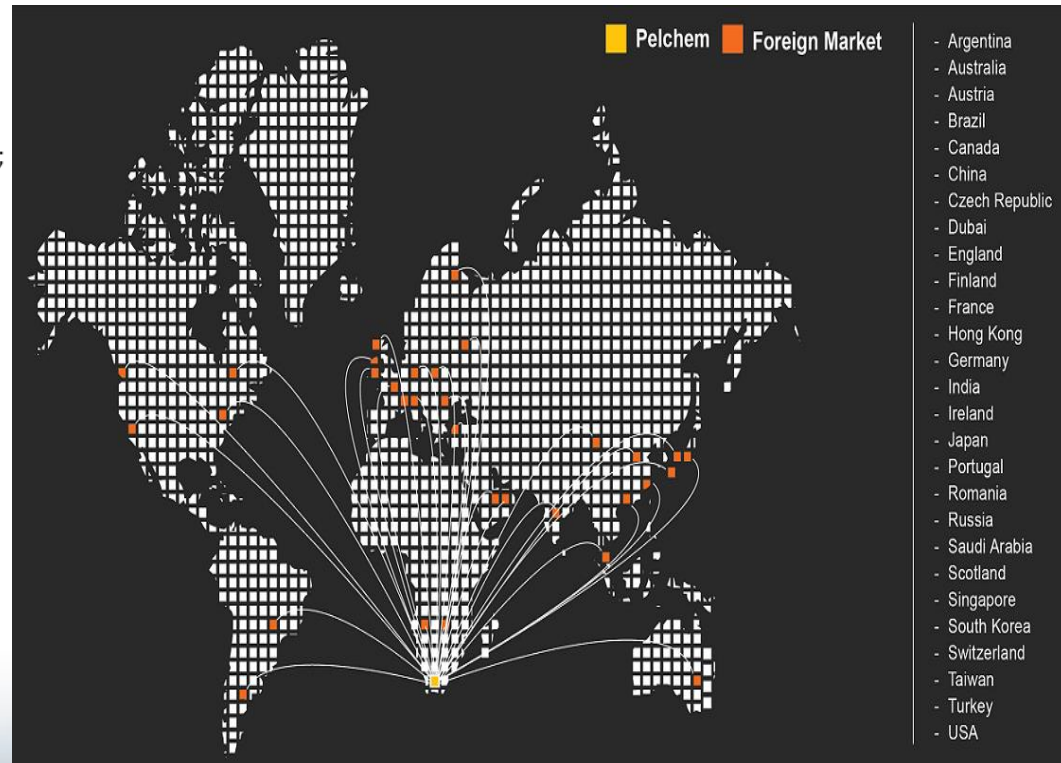
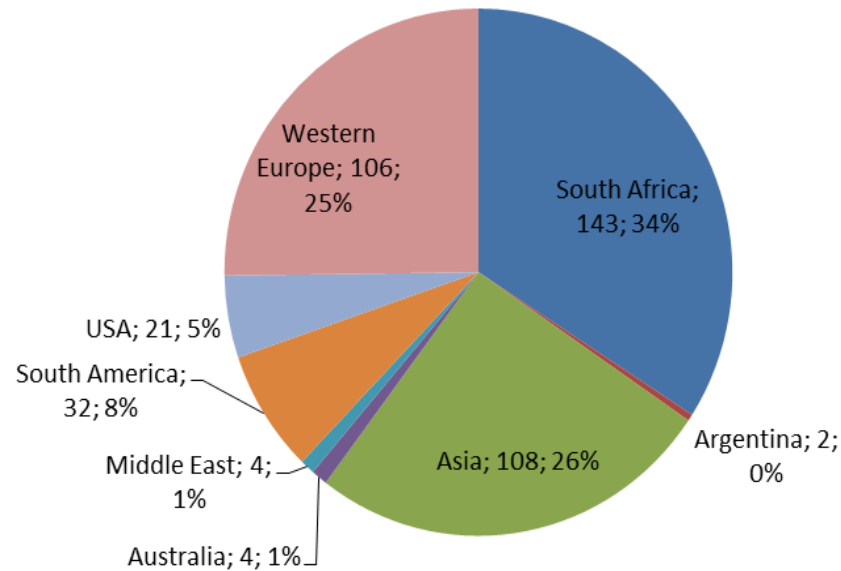


Pelchem Product Portfolio

1. AHF
2. HF
3. CaSO4
4. Na2SiF6
5. H2SiF6
6. F2
7. F2/N2 Mixtures
8. NF3
9. XeF2
10. Dy2,6
11. MoF6
12. PFH
13. PFA
14. PFD

Pelchem Global Footprint

Regional Breakdown



Hydrofluoric Acid (HF) Plant

Hydrofluoric Acid Production

Reagents: Sulphuric acid, fluorspar ore

Products: Anhydrous hydrogen fluoride, hydrofluoric acid

Markets: Petroleum alkylation, stainless steel, mining, industrial chemicals



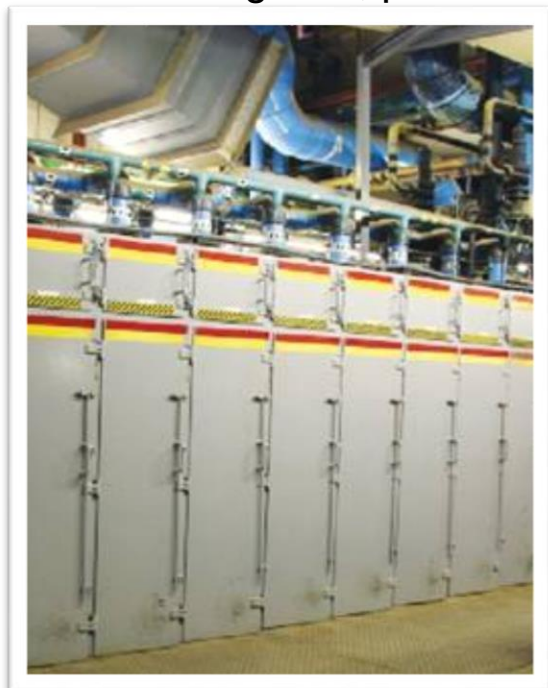
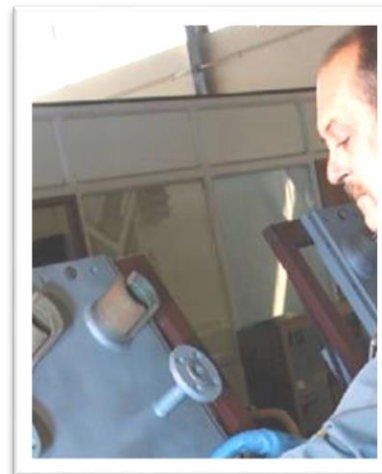
Fluorine Gas (F₂) plant

Fluorine Gas Production

Reagents: Potassium bifluoride, hydrogen fluoride, electricity

Products: Fluorine gas on line, compressed fluorine cylinders, fluorine & nitrogen gas mixtures

Markets: Pharmaceutical, laser gas mixtures, semiconductor gases, plastic surface fluorination



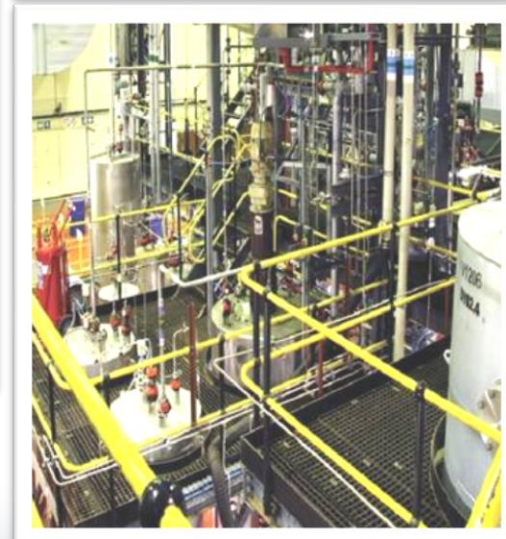
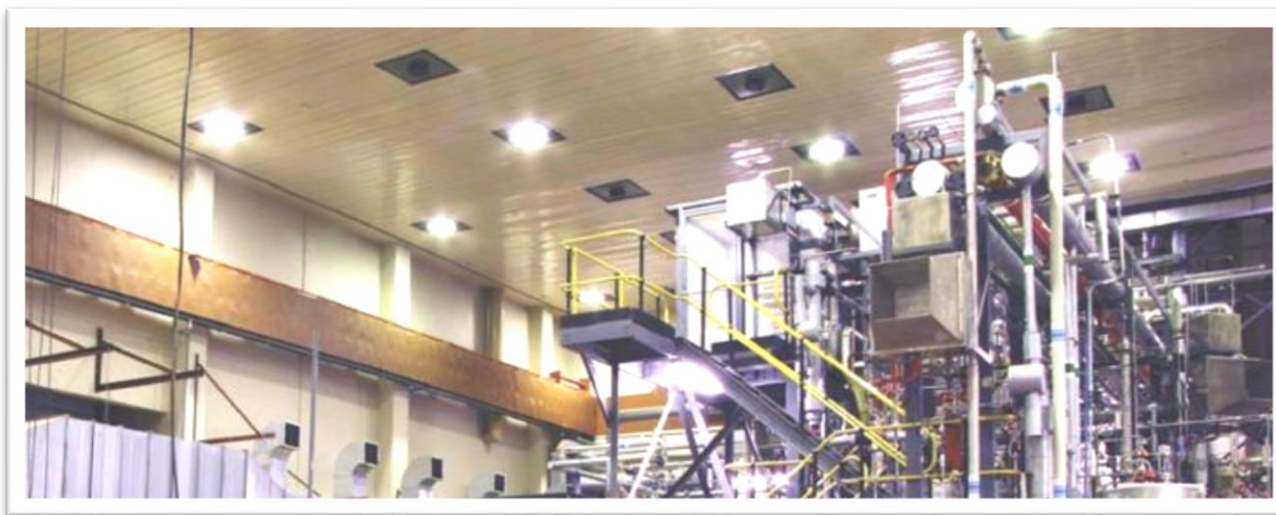
Fluoro-Organics Plant

Fluoro Organic Compound Production

Reagents: Organic intermediates, fluorine gas

Products: Fluoro organic monomer, perfluorocarbon liquids

Markets: Low temperature fluoro-elastomer to automotive and space industry



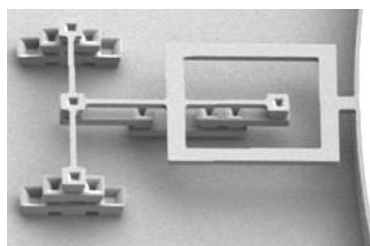
Xenon Difluoride (XeF_2) plant

Xenon Difluoride Production

Reagents: Xenon gas, fluorine gas

Products: Xenon difluoride

Markets: MEMS, display panels, consumer electronics



Services: Surface Fluorination

Reagents: Fluorine gas, various polymer products

Products: Fluorinated polymer products with reduced permeation, improved chemical resistance and adhesion characteristics

Markets: Automotive fuel tanks, chemical and agrochemical packaging, underground polymer fuel pipes and painted polymer parts



Small Scale Commercial Plant (SSCP)

- Production of commercial scale (10's of kg) samples of a wide variety of fluorochemical products for product development and market penetration and qualification
- Manufacturing various products, i.e. Perfluoroheptane (PFH), perfluoroalkanes (PFA), metal fluorides (MoF_6), Perfluorodecalin (PFD), etc



Polymerization reactor and initiator feed system showing dosing pump



Storage vessels of DF reaction system with utility headers in the background

Pelchem is located on the Necsa Pelindaba site,
North West Province, South Africa (30 km West of Pretoria)

