INDUSTRY MARKET RESEARCH FOR BUSINESS LEADERS, STRATEGISTS, DECISION MAKERS

World Fluorochemicals

Industry Study with Forecasts for **2016 & 2021**

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Industry Study with Forecasts for ***2016 & 2021***

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ASIA/PACIFIC

OTHER REGIONS

INDUSTRY STRUCTURE

World Fluorochemicals

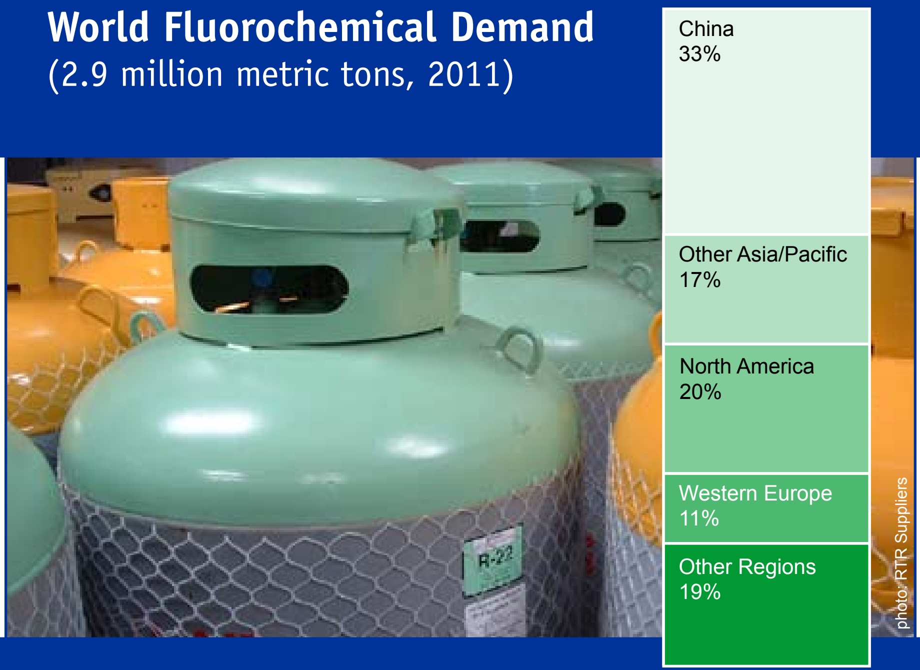
Industry Study with Forecasts for ***2016 & 2021***

Gains in global fluorochemical demand will be fueled by increasing production of refrigeration and cooling equipment worldwide, as well as by an acceleration in primary aluminum output.

World demand to rise 3.9% annually through 2016

Global demand for fluorine-containing chemicals is forecast to rise 3.9 percent per year to 3.5 million metric tons in 2016, valued at $19.7 billion. Gains will be fueled by increasing production of refrigeration and cooling equipment worldwide, as well as by an acceleration in primary aluminum output. However, fluorochemical suppliers face a number of challenges. The first is obtaining access to key raw materials such as fluorspar, as exports from China -- by far the world's leading producer -- have increasingly come under restrictions. Another challenge is dealing with the ever-shifting regulatory environment for fluorocarbons, which are subject to multiple global and national regulations that vary considerably by region and change over time. Finally, competition with alternative products is intensifying in a number of sectors -- particularly in the blowing agent and commercial refrigeration industries -- placing pressure on fluorochemical suppliers serving these markets.

World Fluorochemical Demand
(2.9 million metric tons, 2011)



Fluoropolymers to be fastest growing products

Among other fluorochemical products, fluoropolymers will see the most rapid gains in demand, driven by expanding opportunities for high-performance materials in the motor vehicle, chemical processing, electronics, and coatings markets. Fluoropolymers have a very low penetration rate in many parts of the world, offering ample room for market growth. Demand for inorganic and specialty fluorochemicals will rise at a pace close to the overall average through 2016, benefiting from strong growth in global aluminum production. Additionally, rising production of semiconductors, advanced batteries, and other electronic components will fuel demand for specialty gases and other high-value fluorochemicals.

Shifts taking place among fluorocarbon products

In the fluorocarbon segment, demand will rise at a rate slightly below the overall fluorochemical average through 2016. However, significant shifts are taking place among individual products. Due to Montreal Protocol requirements, developed world countries are in the final stages of phasing out ozone-depleting HCFCs, while restrictions for developing countries will begin to take effect in 2015. As a result, HCFC demand will decline going forward. Demand for HFCs grew considerably from 2001 to 2011, and they will continue their strong advances as replacements for HCFCs in the developing world. However, concerns over the global warming potential (GWP) of HFCs will begin to limit demand, particularly in Western Europe, presenting opportunities for low-GWP HFO fluorocarbons to penetrate the market.

Sample Text, Table & Chart

TABLE VI-3

CHINA: FLUOROCHEMICAL SUPPLY & DEMAND

Item	2001	2006	2011	2016	2021
Population (million persons)					
$ GDP/capita					
Gross Domestic Product (bil 2010$)					
Gross Fixed Capital Formation (bil 201					
Manufacturing Value Added (bil 2010$)					
Motor Vehicles in Use (mil)					
Commercial Refrigeration Shpts (mil $)					
Aluminum Production (000 metric tons)					
Fluorochemical Demand (000 metric to					
+ net exports					
Fluorochemical Production (000 m tons)					

SAMPLE TABLE

ASIA/PACIFIC

China: Fluorochemical Products

Demand for fluorochemicals in China is projected to ris
percent annually through 2016 … val
billion. As China has one of t… t g
economies, the country's fluor… ed
well above the global average. … ra
pected for HFCs and fluoropol… ma
for expansion. However, over … s w
a deceleration from the decade … uri
demand rose more than 15 percent per year. Restraining furt
will be a concerted effort on the part of the Chinese governm
economic growth to sustainable levels, particularly in the manufactur-
ing sector. As a result, key fluorochemical-consuming industries such as aluminum, motor vehicles, and refrigeration and cooling equipment will see marked decelerations through 2016.

SAMPLE TEXT

Restrictions implemented as part of the Montreal Protocol are beginning to have a noticeable effect on fluorocarbon consumption in China, and will continue to do so going forward. Although demand will still increase at a strong pace, considerable shifts in the product mix are expected. The Protocol requires Article 5 (developing) countries to begin phasing out HCFCs in 2015 and, as a result, HCFC demand in China will start to decline through 2016 and fall at an accelerated rate through 2021. The Chinese government announced in 2011 that it would not approve construction of new HCFC-22 capacity, and limited the size of
new HCFC-142b projects in the country. Consumption of H
ever, will benefit a great deal from the forthcoming HCFC d
As companies in China have already begun to make the tran
from HCFCs, HFC demand rose more than sixfold from 200
Through 2016, the market for HFCs is expected to continue
a rapid pace. CFC demand in China will maintain its long-te
although a substantial black market for replacement CFC ref

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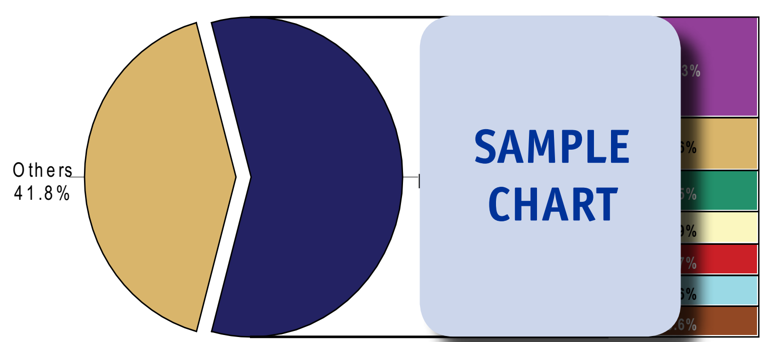
CHART VIII-1

WORLD FLUOROCHEMICAL MARKET SHARE BY COMPANY ($15.3 billion, 2011)



World Fluorochemicals

Industry Study with Forecasts for ***2016 & 2021***

Sample Profile, Table & Forecast

TABLE VI-4

CHINA: FLUOROCHEMICAL DEMAND BY PRODUCT
(thousand metric tons)

Item	2001	2006	2011	2016	2021
Population (million persons)					
kg fluorochemical/capita					
Fluorochemical Demand					
Fluorocarbons:					
HCFCs					
HFCs					
Other					
Inorganics & Specialties					
Fluoropolymers					
$/kg					
Fluorochemical Demand (mil $)	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

SAMPLE TABLE

COMPANY PROFILES

South African Nuclear Energy Corporation
Church Street West Extension
Brits Magisterial District
North West Province
Pelindaba, Pre
South Africa
27-12-305-49
http://www.n

Revenues: $ ... pany)
Employment: ...)

Key Products

SAMPLE PROFILE

South African Nuclear Energy Corporation (Necsa) is a state owned company that is primarily involved in the nuclear science and radiation technology industry, including operations related to nuclear fuel, radiochemistry and radiopharmaceuticals. The Company's operations also include activities in fluorine chemistry and engineering services. Necsa operates in three segments: NTP Group, Pelchem Group and Corporate.

The Company participates in the world fluorochemical industry through the Pelchem Group segment, which includes the Pelchem Pty Limited subsidiary (Pelindaba, South Africa). In FY 2011, the company generated sales of $22 million. Pelchem is engaged in the production and supply of organic and inorganic fluorochemicals for such markets as semiconductor, electronic, petrochemical, metallurgical, refrigeration, detergent, polymer, agricultural chemical, pharmaceuticals, consumables and construction. Fluorochemicals are used in the manufacture of numerous products, including microchips and memory

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"China is a major consumer of inorganic and specialty fluorochemicals, which accounted for over half of total demand in 2011. Aluminum fluoride, for example, is used in the country's large and expanding aluminum industry. China is the world's largest manufacturer of primary aluminum, and the market for aluminum fluoride is further boosted by a reliance on less chemically efficient smelters. Although newer smelters consume significantly fewer fluorochemicals per ton of aluminum produced, China's aluminum sector will ..."
--Section VI, pg. 196

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Other Studies

World Activated Carbon

This study analyzes the global activated carbon industry. It presents historical demand data for 2001, 2006 and 2011, and forecasts for 2016 and 2021 by type (e.g., powdered, granular), application (liquid phase, gas phase), market (e.g., industrial, water treatment, food and beverage processing), world region and major country. The study also considers market environment factors, details industry structure, evaluates company market share and profiles industry participants.

#2878 ....April 2012 .... $6200

World Silicones

World demand for silicones will rise 6.2 percent annually through 2015. The Asia/Pacific region will remain the largest and fastest-growing market. Electrical and electronic products will continue to be the leading outlet, bolstered by high-growth applications such as components for LEDs and solar energy products. This study examines the $12.4 billion world market for silicones, with forecasts for 2015 and 2020 by market, product, world region and for 15 countries. The study also evaluates company market share and profiles industry participants.

#2779 .... July 2011.................... $5900

HVAC Equipment

Demand in the US for heating, ventilation and air conditioning (HVAC) equipment is projected to increase 5.1 percent annually through 2015. Unitary air conditioners will offer the best opportunities in the cooling system market. Heat pumps will remain the largest type of heating equipment, and grow the fastest within that segment. This study analyzes the $13.1 billion US HVAC equipment industry, with forecasts for 2015 and 2020 by fuel type, equipment type and market. The study also evaluates company market share and profiles industry players.

#2813 .... November 2011 .... $5100

World Rare Earths

World rare earths demand will rise 7.1 percent annually through 2015, driven by gains in key markets such as battery alloys and permanent magnets. Neodymium and dysprosium will grow the fastest, while cerium will remain the most widely used. China will continue to dominate overall rare earths production. This study analyzes the 128 thousand metric ton world rare earths industry, with forecasts for 2015 and 2020 by product, market, world region and for 13 countries. The study also evaluates company market share and profiles industry players.

#2775 .... July 2011.................... $6100

Commercial Refrigeration Equipment

Demand for commercial refrigeration equipment in the US is forecast to rebound through 2014, growing 7.2 percent annually. Growth will be strongest for the largest product segment, transportation systems. Distribution will post the strongest market gains, while foodservice remains the largest segment. This study analyzes the $6.6 billion US commercial refrigeration equipment industry, with forecasts for 2014 and 2019 by market and product. It also evaluates company market share and profiles industry players.

#2661 .... July 2010.................... $4800

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