

FLUORINE **FORUM** 2021

Wednesday 20 October 2021

ONLINE



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FLUORINE FORUM 2022

Pan Pacific Hanoi
11-14 October 2022



Lead Sponsor & Field Trip Host

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Field Trip to Nui Phao Friday 14 October



CALL FOR PAPERS (contact Mike O'Driscoll mike@informed.com) | **EARLY BIRD ENDS 17 JUNE**



ACH SVS LLC
AD Process Strategies SARL
Additive Solutions Ltd
AGC Inc
ALCORE Ltd
Alufluor AB
Alufluoride Ltd
Anupam Rasayan India Ltd
Ares Strategic Mining
Arkema
Ashok Shinh Consulting Ltd
Bal-Co SpA
Britannia Refined Metals
Canada Fluorspar (NL) Inc
Carl Spaeter GmbH
Commerce Resources Corp
Delta Minerals
Derivados del Fluor
Eagle Minerals West LLC
ElixirPrahovo
EuroChem Trading

Europe Nanxi Minerals
Fluorine Chemistry & Technology LLC
Fluorsid
Fluorsid British Fluorspar
Fluorspar Ltd
Flurochemie Dohna GmbH
GannonEco
HaloPolymer
Henan Non-Ferrous Metal Ind. Co. Ltd
Hydro Aluminium
I.H.S Markit
James King
JRC Edge Consulting
Koura Global
Lincoln Electric Co
Luoyang Fengrui Fluorine Co. Ltd
Maharashtra Minerals Corportation Ltd
Masan High Tech Materials
Minera de Orgiva
Mineraria Gerrei
MINERSA

Mongolian Minerals
Ôko-Recherche
Pelchem
Possehl Erzkontor GmbH & Co. KG
Ravnovesiye Chemical Company
Rio Tinto
Roskill
S.B Chemicals
Sachtleben Minerals GmbH & Co.KG
Scheruhn Minerals & Chemicals GmbH
Seaforth Minerals
SK Materials
Sojitz Corporation
Solvay
Techcet
The Quartz Corp
Thyme Corporation
Thyssenkrupp Materials Trading GmbH
Traxys Cometals USA LLC
Traxys Europe SA
US Geological Survey
Witkop Fluorspar Mine

Thank you for the web conference on Fluorspar last Wednesday. I think it was very professionally held. Good job.

Fernando Arevalo, Commercial Director, Minersa Group, Spain

Thanks for running a great conference.

Mark Cooksey, CEO, ALCORE, Australia

Congratulations on Fluorine Forum 2021! It really was professionally done. From my perspective, it was a great success.

Bob Syvret, Principal/Owner, Fluorine Chemistry and Technology LLC, USA

Good conference today, thank you

Anna Carson, Director, Britannia Refined Metals, UK

PROGRAMME*

All times shown are BST
(corresponding time zones
shown)

* All timings approximate; subject
to change

BST	CET+1	EDT-5	SGT+7	
11:00	12:00	06:00	18:00	Welcome & Introduction Ismene Clarke & Mike O’Driscoll, Directors, IMFORMED, UK
11:30	12:30	06:30	18:30	Alcore: aluminium fluoride production in Australia Dr Mark Cooksey, CEO, ALCORE Ltd, Australia
12:00	13:00	07:00	19:00	Steel production outlook in a world of low carbon James F. King, Steel Industry Consultant, UK
12:30	13:30	07:30	19:30	European HFC refrigerants market and F-gas alternatives Barbara Gschrey, General Manager, Öko-Recherche, Germany
13:00	14:00	08:00	20:00	BREAK

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BST	CET+1	EDT-5	SGT+7	
13:15	14:15	08:15	20:15	Fluorocarbon products as critical enablers in the production of semiconductor materials and IC devices Dr Robert Syvret, Chief Scientist, Electronic Fluorocarbons LLC, USA
13:45	14:45	08:45	20:45	Hydrofluoric acid and downstream market outlook Samantha Wietlisbach, Director Minerals Research, IHS Markit, Switzerland
14:15	15:15	09:15	21:15	Supply chain resilience in the Acidspar-HF-Lithium Ion Battery chain Kerry Satterthwaite, Division Manager Strategic Minerals, Roskill, UK – A Wood Mackenzie Business
14:45	15:45	09:45	21:45	BREAK

PROGRAMME*

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to change

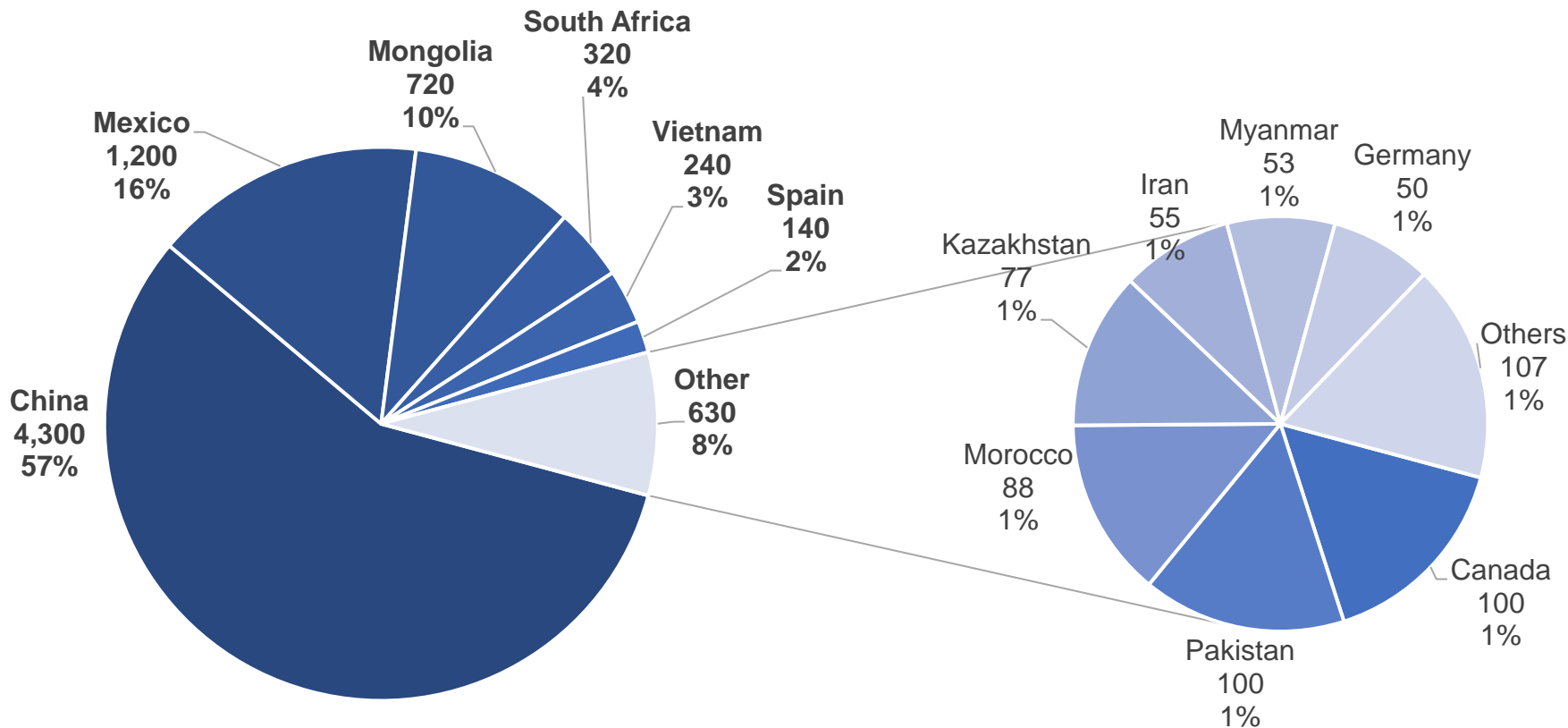
BST	CET+1	EDT-5	SGT+7	
15:00	16:00	10:00	22:00	Fluorspar mining trends & outlook post-Covid Peter Robinson, Chairman, Fluorsid British Fluorspar, UK
15:30	16:30	10:30	22:30	Lost Sheep Mine: High grade source supplying the US market James Walker, Chief Executive Officer, Ares Strategic Mining, Canada
16:00	17:00	11:00	23:00	ROUNDTABLE BREAKOUT <i>Informal Networking</i> FLUORSPAR SUPPLY FLUORSPAR MARKETS

Fluorspar market overview

Supply & Market Development Highlights & Discussion Points



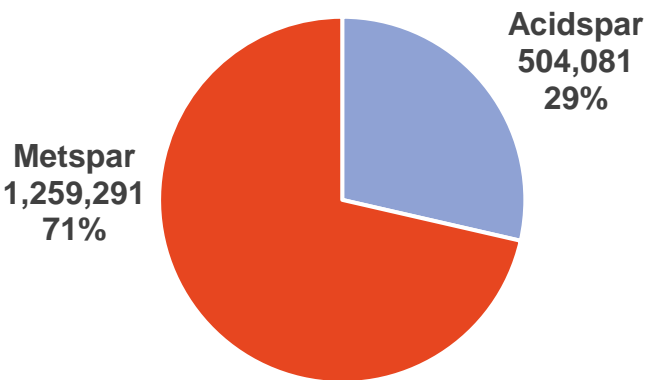
World fluorspar production 2020
Total: 7.6m tonnes (figs. below '000s tonnes)



Source: USGS 2021

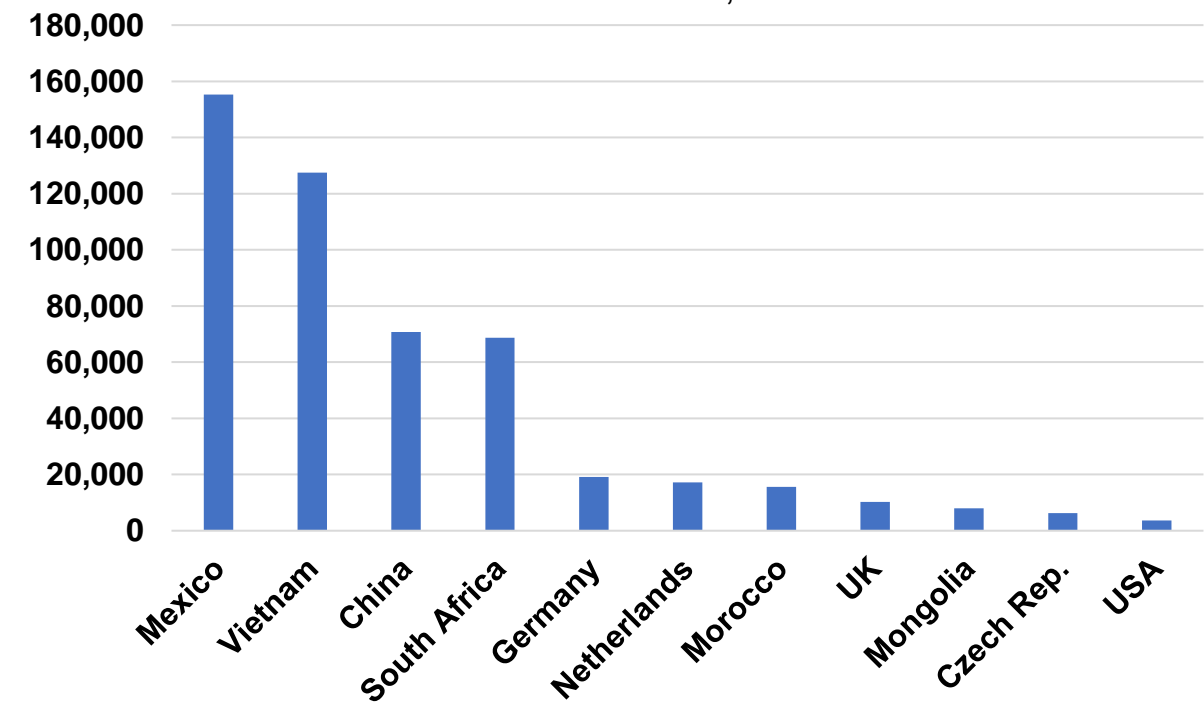
World fluorspar trade 2020

Acidspar exports & imports
2020 exports total: 1.76m tonnes



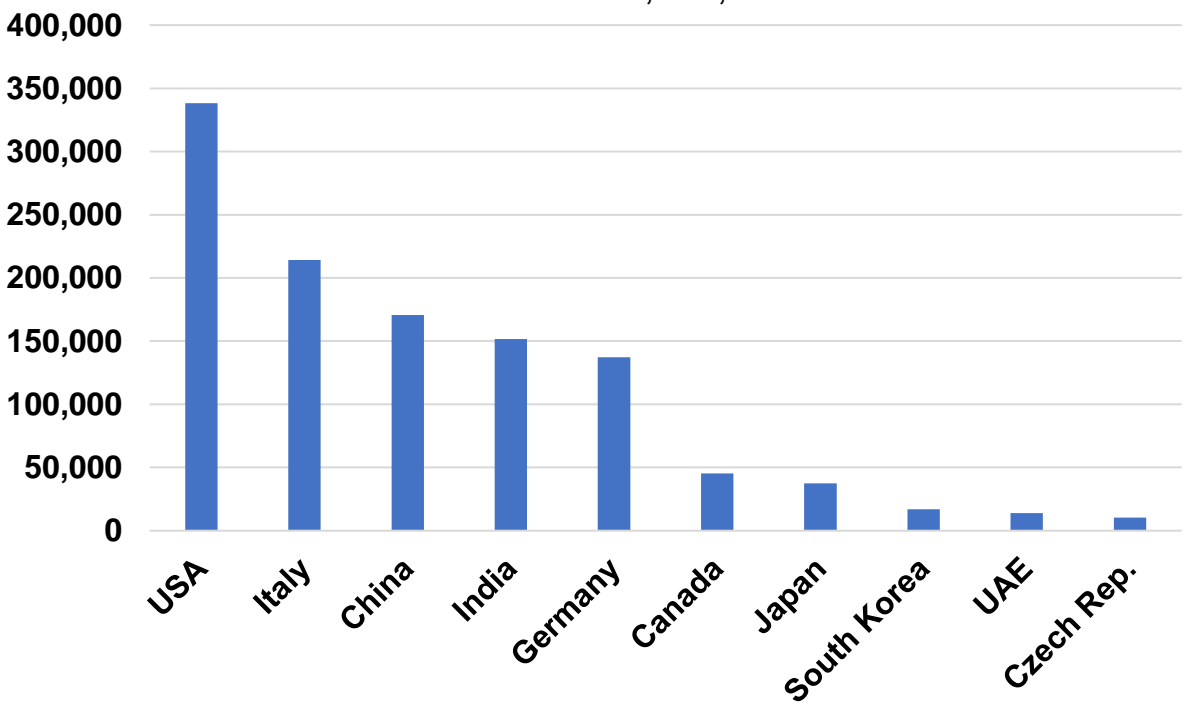
Acidspar primary export sources

World total: 504,081 tonnes

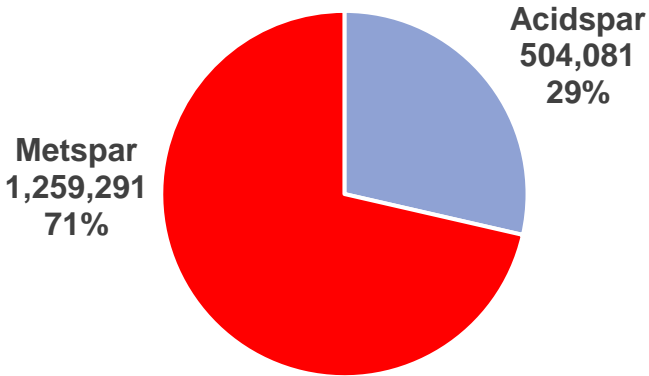


Acidspar primary import markets

World total: 1,174,249 tonnes



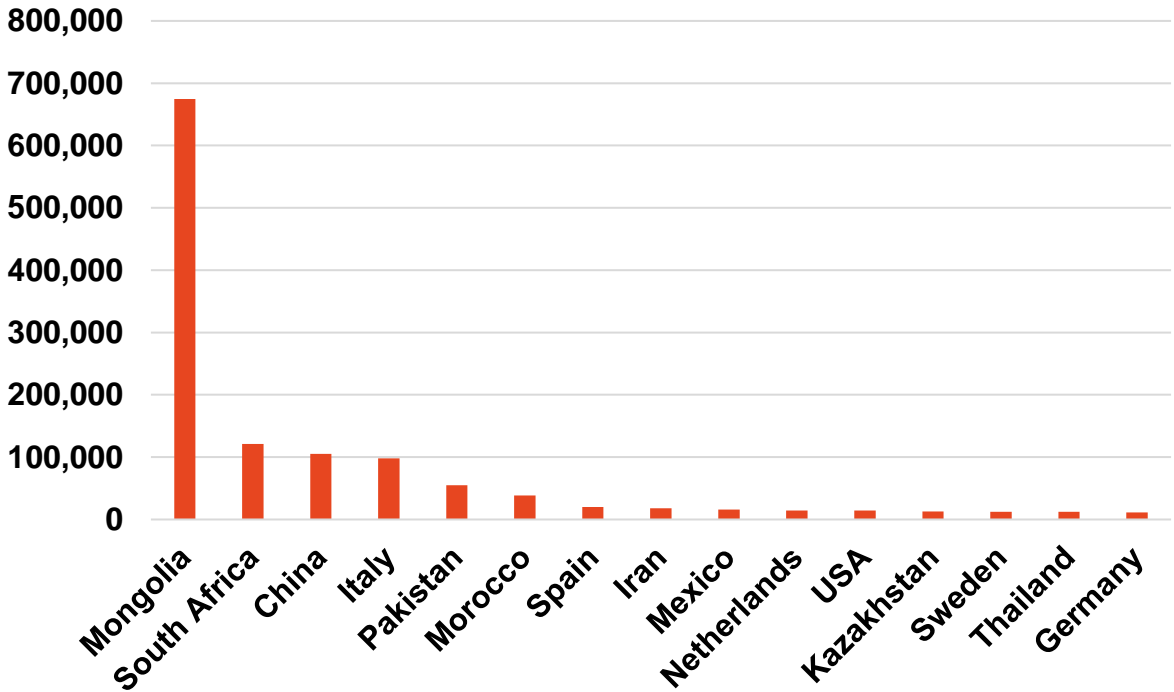
Source: ITC



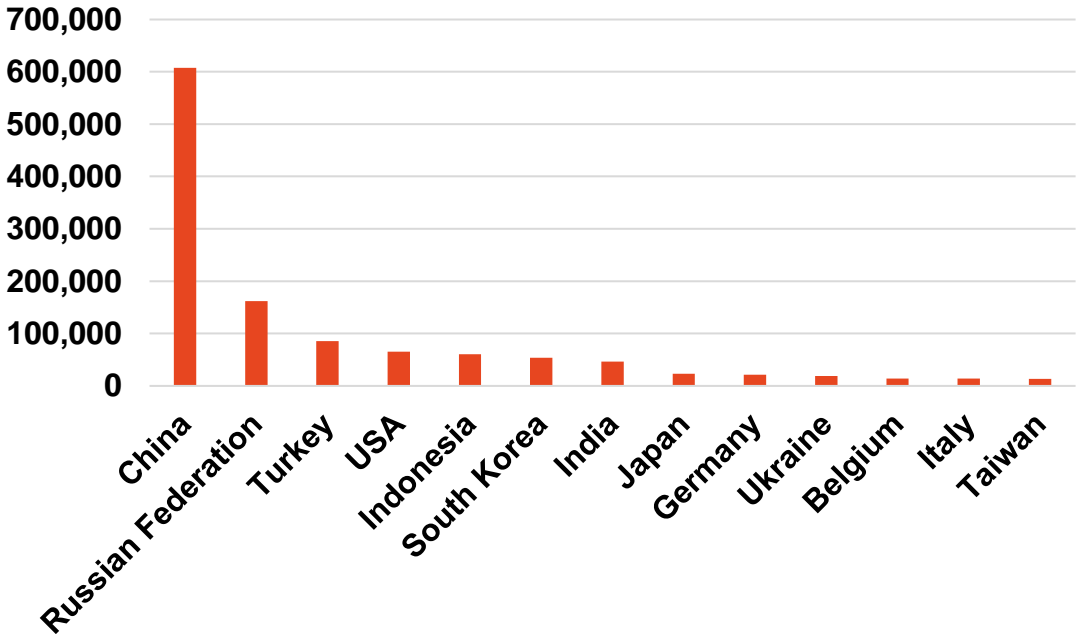
World fluorspar trade 2020

Metspar exports & imports

Metspar primary export sources
World total: 1,259,291 tonnes



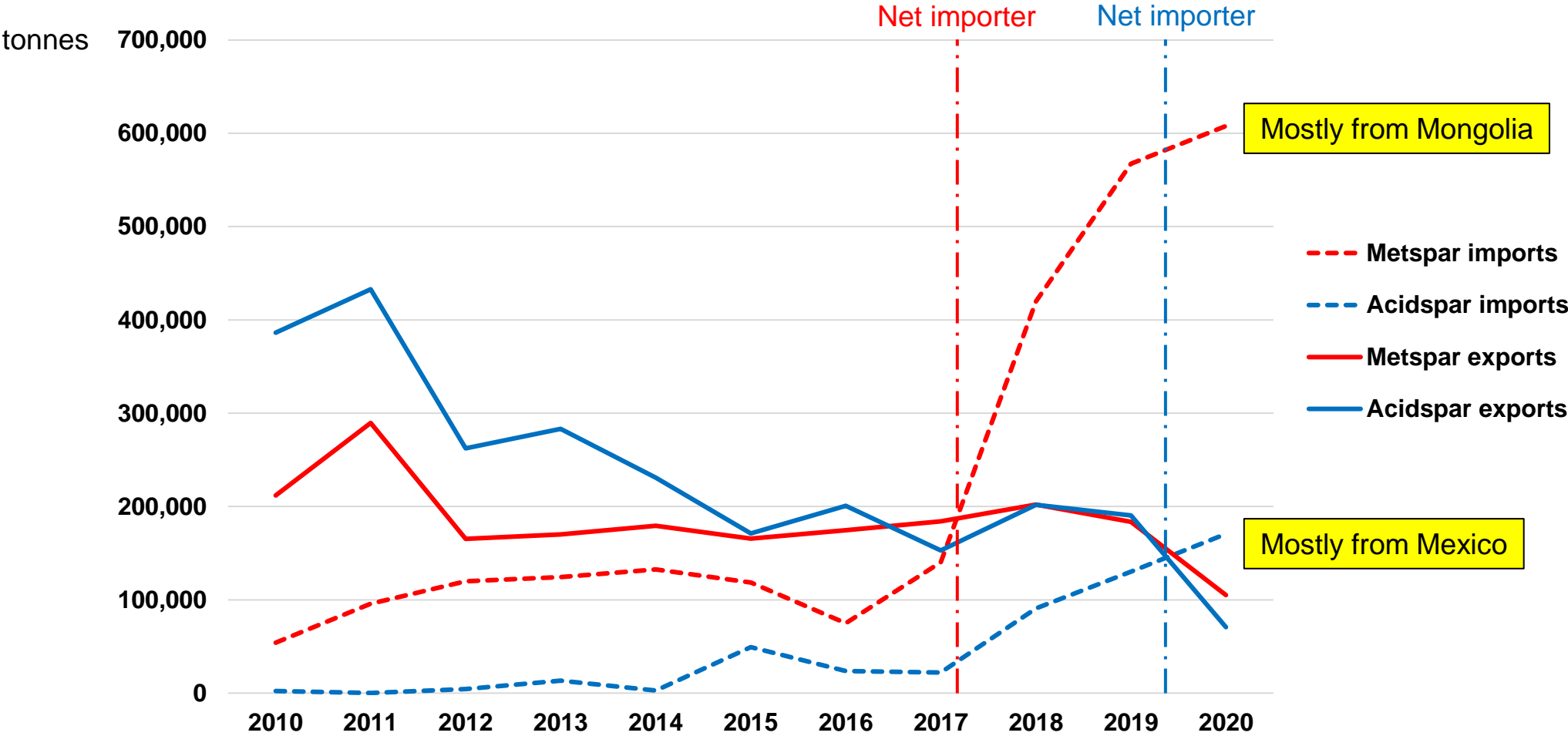
Metspar primary import markets
World total: 1,347,897 tonnes



Source: ITC

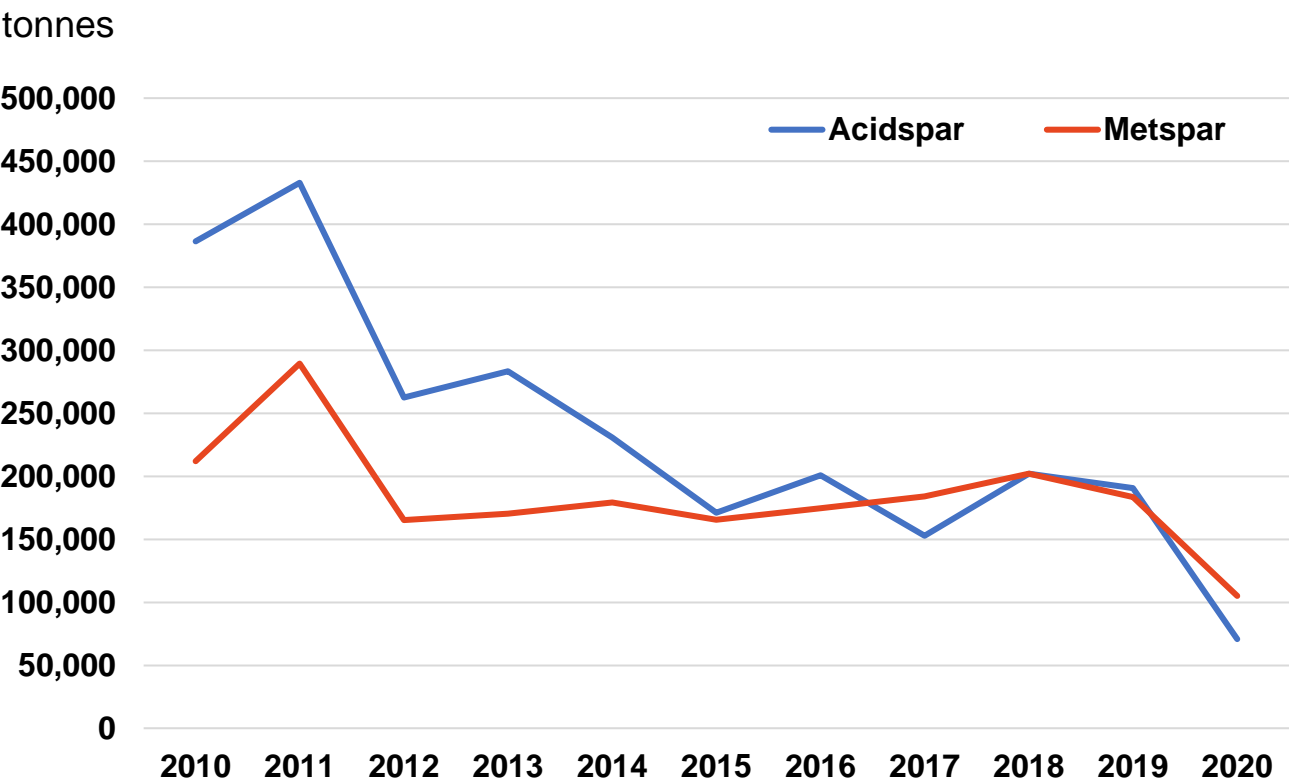
Chinese fluorspar trade 2010-2020

Becoming a net importer

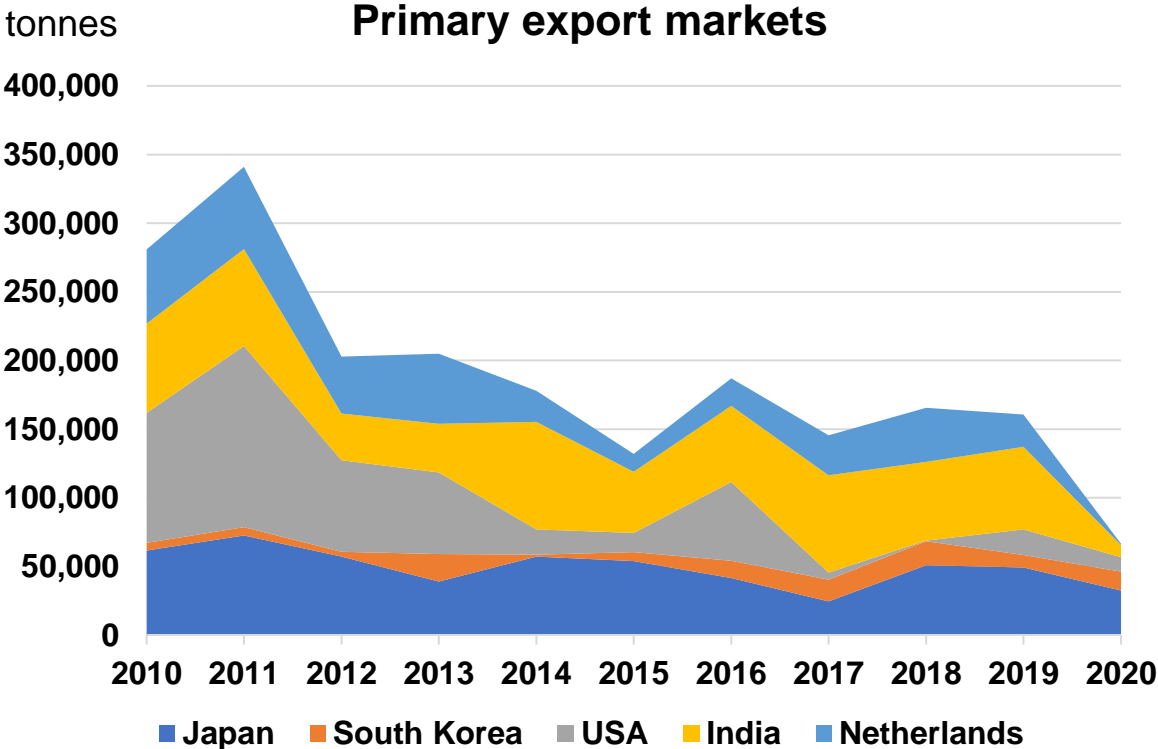


Source: ITC

China acidspar exports decline 2010-2020



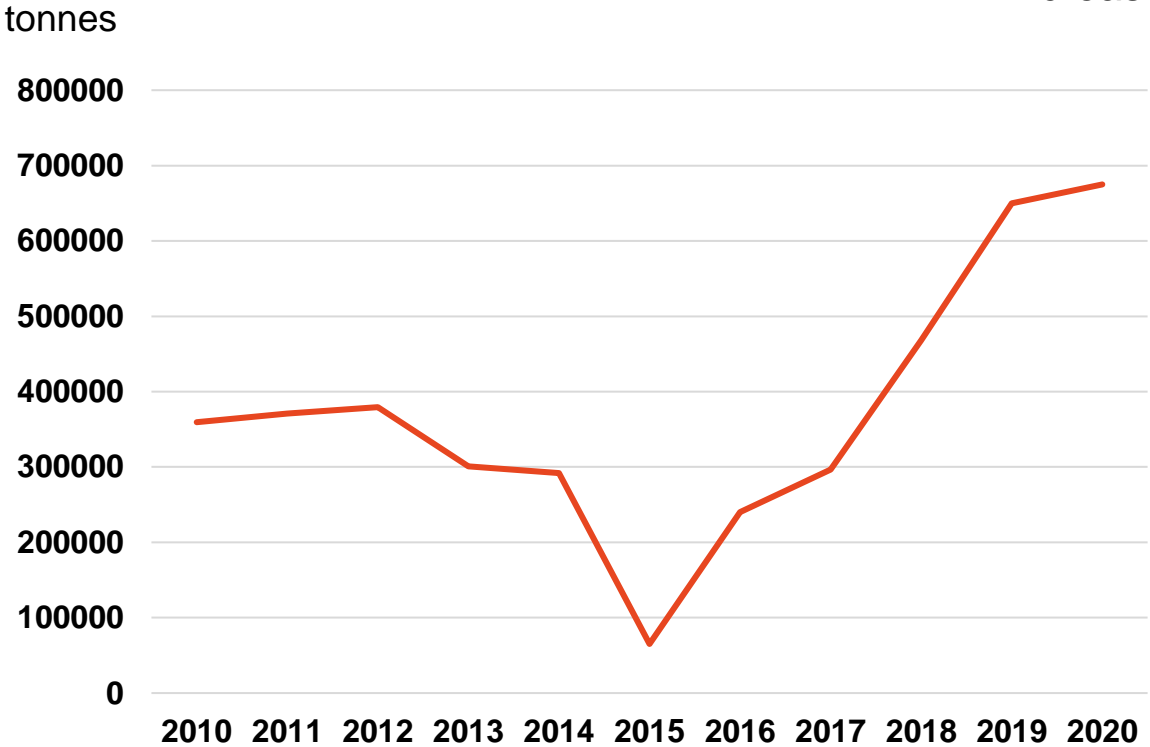
Primary export markets



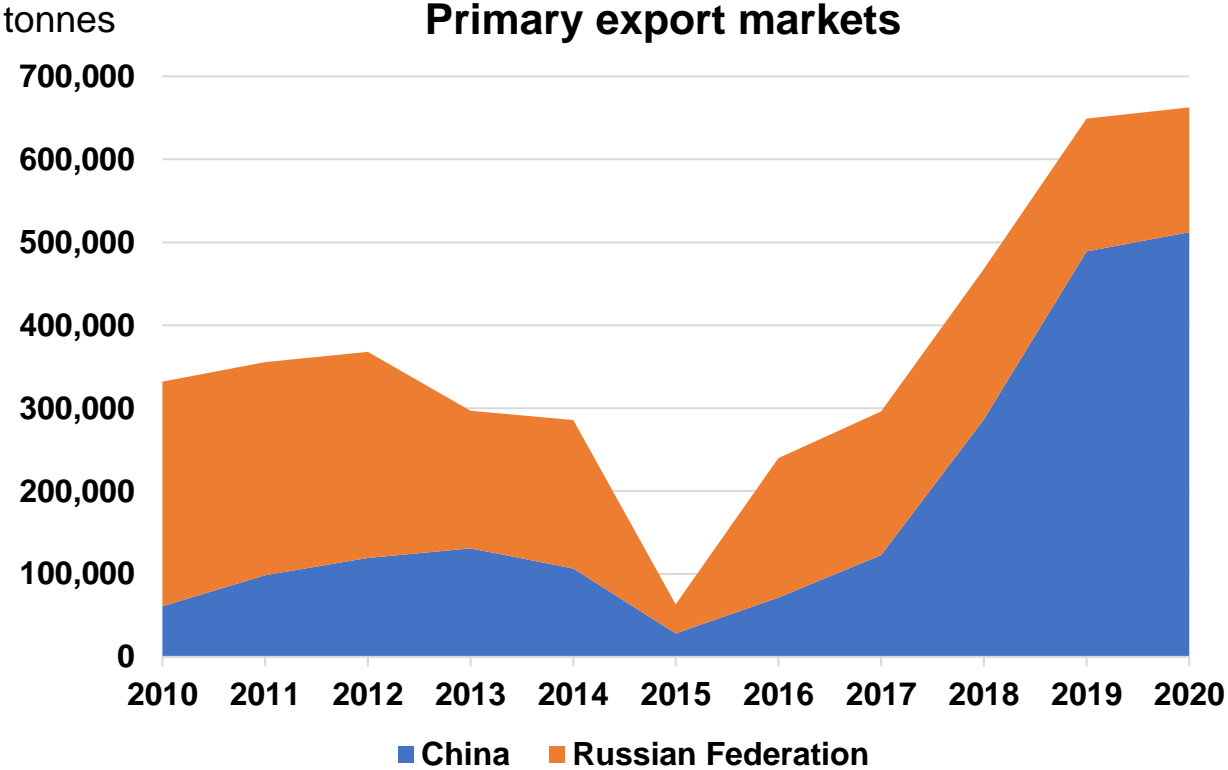
Source: ITC

Mongolian metspar exports rise 2010-2020

Increasing exports to China



Primary export markets



Source: ITC

Supply developments

- **Canada Fluorspar Inc. (CFI):** celebrated July 2021 1st fluorspar shipment from new terminal at Blue Beach, St. Lawrence Harbour; 17 metre draft permits access to more markets using larger ore carriers.
- **Ares Strategic Mining Inc. (ASM):** filed NI 43-101 compliant updated Technical Report on its Lost Sheep Mine Fluorspar Project, located near Delta, Utah; discovered new F-rich zone; acquired processing plant, under construction.
- **Commerce Resources Corp.:** initiated mineral processing programme to determine final Prefeasibility Study (PFS) design criteria of front-end flowsheet for Ashram Rare Earth and Fluorspar Deposit, Quebec, Canada
- **Eclipse Metals Ltd:** continuing examination of historical diamond drill core at Ivittuut cryolite mine district, southwestern Greenland. Ivittuut open pit mine was until 1987 world's largest producer of cryolite (Na_3AlF_6).
- **ALCORE:** progressing with its 10,000 tpa AlF_3 plant project in Australia, using Al smelter waste.
- **Elixir Prahovo:** new AlF_3 producer in Serbia, started March 2021; 4,000t for 2021, targeting 10,000 tpa AlF_3 in 2023; using FSA from captive 165k tpa phosacid plant.



Supply developments

- **Gobishoo LLC, Mongolia**
 - ramping up to serve Asian and European markets with acidspar and metspar grades
 - Shine Us mine and plant site in Dundgobi province
 - May 2020 Gobishoo commissioned 35,000 tpa acidspar plant
 - approx. 30m t fluorspar deposit using surface and underground mines; “current shelf” mined hosts 700,000 tonnes reserves, “leading to” 4.5-5.0m tonnes; ore grade 18-40% CaF_2 .
 - 2,000 tpm acid grade powder; funding in place to increase output to 100,000 tpa acid grade.
 - Appointed Fluorspar Ltd, UK as exclusive sales agent



Market developments

- **Raw material price rises:** supply tightness, energy and logistics issues contributing factors leading to fluorspar and F product price increases, eg. domestic acidspar US\$400+/t, and R134a up >67% in September to US\$7,000/t.
- **Metallurgical markets:** riding high with increasing prices and buoyant demand forecasts into 2022, eg. steel demand to grow by 4.5% in 2021 and a further increase of 2.2% in 2022 to 1,896.4m tonnes;
- **HFC phase out ongoing:**
 - USA, India and China's recent ratification boosts Kigali Amendment to cut production and consumption of HFCs by >80% over next 30 years.
 - EU debate over REACH impact on HFC/HFOs; EC's F-gas review also sparked criticism.
 - Ongoing development and certification of low GWP alternatives by manufacturers
 - US EPA released proposed rulemaking to establish allocation system to decrease production and import of HFCs by 85% over next 15 years, effective 1 January 2022.
- **China market growth:** drive to expand fluorochemical sector, eg.
 - 14th Five-Year Plan for High-End Development of Chemical Industry in Jiangsu Province to focus on fluorine materials
 - Mar. 2021 "World's largest fluorine chemical industry base" Inner Mongolia – JV: Kings Resources, Inner Mongolia Baogang United Steel, Longda Food, & Zhejiang Yonghe Refrigerant
- **India market growth:** driven by automobile, air conditioning, refrigeration, construction cold storage, pharma/life science sectors. India expected to be world's 4th largest chemical producer by 2030.



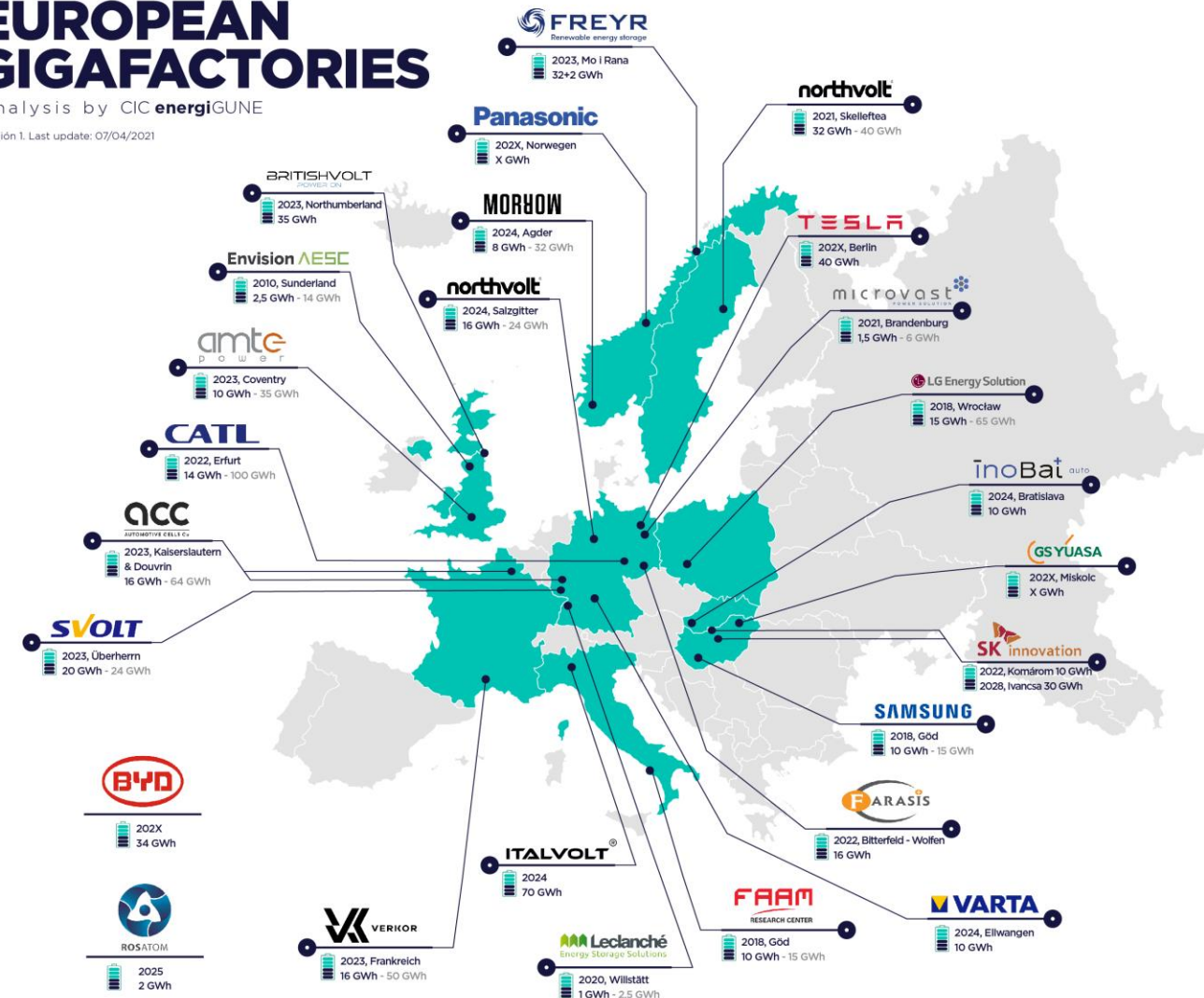
Market developments

- Semiconductors**
 - increased demand as more use of IT devices for online interactions owing to pandemic
 - 2021 shortage of high-purity electronic-grade HF for semiconductor production
 - governments now sensitive to semiconductor supply chain, want to boost domestic manufacturing sectors
- Li-ion battery market potential**
 - encouraging F product developments and capacity hikes, eg. June 2021 Arkema new Kynar® PVDF specifically targeted for LIB
 - PVDF used as binder in production of electrodes and as separator coating
 - Arkema to further increase fluoropolymer production capacity in Changshu, China by 35% in 2022; Solvay also increasing PVDF capacity in China for LIB
 - GFL, India filed for LiPF6 product, used as electrolyte
 - Although China leads race, EV battery gigafactories planned in Europe
- Recycling | Decarbonisation | “Green Mining”**

EUROPEAN GIGAFACTORIES

Analysis by CIC energigUNE

Versión 1. Last update: 07/04/2021





- **Launched in January 2015**
- **Extensive experience & reputation**
- **Specialising in conferences & market research in:**
 - **Industrial Minerals Supply/Demand**
 - **Magnesia**
 - **Refractory Minerals**
 - **China**
 - **Mineral Recycling**
 - **Fluorine**
 - **India**
 - **Oilfield Minerals**
 - **Salt**

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SALT FORUM 2022



Grand Elysée Hotel, Hamburg, 15-17 November 2022

The new conference for global salt supply and markets



Supply Trends | Logistics | Processing Developments | Market Demand

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Salt Partners

Vladimir Sedivy: Salt Industry Training Day 15 Nov.

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