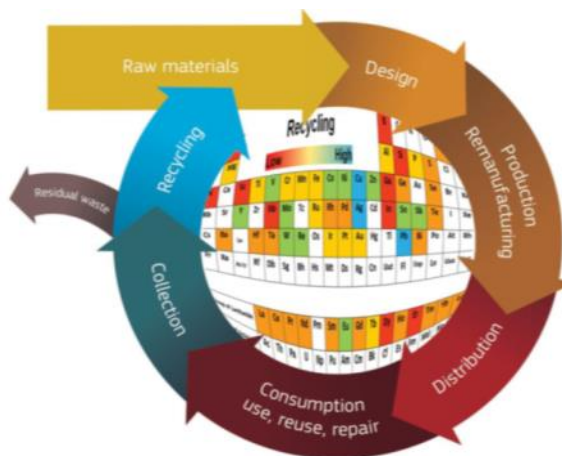


MINERAL RECYCLING FORUM 2020



Pullman Hotel Aachen Quellenhof, 10-11 March 2020

**Secondary raw material sources, supply,
processing, and markets**



Supporting
Partners



IMFORMED

Welcomes you to Aachen





Alcoa
Asturiana de Aleaciones
BAIE Minerals Inc.
Barit Maden Turk
BASF Construction Solutions
Betolar
Calderys Italia S.r.l
Clariant
Dorfner GmbH & Co. Kaolin und
Kristallquarzsandwerke KG
Duferco SA
EcoMagnesium Ltd
EK-Company AG
Forschungsgemeinschaft Feuerfest
Fraunhofer Institute ILT
Gouda Refractories
Green Minerals
Guzman Global SL
Harsco Environmental
Harsco Luxequip
Helmholtz Institute Freiberg
Hudig & Veder Bulk BV
IMA-Europe
Imerys
JBTC India

Kaolin EAD
Korea Materials
Lehman&Voss&Co
LKAB Sweden
Mercado Mineral Consultants
Min-Consult
Mine Feuerfest GmbH & Co. KG
Mineralmahlwerk Westerwald Horn GmbH & Co
Minéraux Kollée
Neuman & Esser Process Technology GmbH
PK Rohstoffe GmbH
Possehl Erzkontor GmbH & Co. KG
Quarzwerte GmbH
Recycling Solutions
REF Minerals
Refractories World Forum
Refratechnik Ceramics GmbH
Refratechnik Holding GmbH
RHI Magnesita
RWTH Aachen
Saint-Gobain SEPR
Sidenor
Sojitz Corp.
ST Equipment & Technology



Good programme and variety of subjects, and good long coffee breaks for networking; excellent mobile app and easy to use.

Alban Cagniard, Commercial Development, Minéraux Kolleé, France

A pity that the current situation forced this event to be shortened and kept off a lot of attendees. Nevertheless, it was worth coming, thank you for the good organisation.

Werner Odreitz, Managing Director, REF Minerals GmbH, Germany

A good and comprehensive programme, nicely located venue, and brilliant organisation

Andreas Henssen, Product Manager Classifiers, Neuman & Esser Process Technology GmbH, Germany

Excellent programme, venue, and organisation.

Kristian Yerygin, Chief Commercial Officer, Recycling Solutions, Ukraine

Good programme, excellent venue, and mobile app is simple and useful.

David Maza, R&D Process Manager, Sidenor, Spain





Programme – Tuesday Morning

TUESDAY 10 MARCH 2020

08.00 **Registration & Welcome Coffee Networking**

OVERVIEWS

09.30 **Welcome & Introduction**

Ismene Clarke, Director, & Mike O'Driscoll, Director, INFORMED, UK

10.00 **The new Circular Economy plan & the minerals sector**

Francesca Girardi, Policy Adviser Industrial Affairs, IMA-Europe, Belgium

10.30 COFFEE

RECYCLING INNOVATION | PROCESSING

11.30 **LKAB increases recycled mineral portfolio with innovation projects**

David Högnelid, Chief Marketing & Communications Officer, Special Products Division, LKAB, Sweden

12.00 **The use of air classification technology for recycling of minerals**

Andreas Henssen, Product Manager Classifiers, Neuman & Esser Process Technology GmbH, Germany

12.30 LUNCH

**REVISED PROGRAMME
TO ONE DAY**

**Owing to late speaker
cancellations**

**All cancelled speakers
have been requested to
send in presentations.**

**Only missing 2 (STET &
Korea Materials).**



Programme – Tuesday afternoon

REFRACTORIES | SLAG | TAILINGS | WEEE

- 14.00 **Valorisation of refractory wastes: latest developments & progress**
Aintzane Soto Larzabal, R&D Process Researcher, Sidenor, Spain
- 14.30 **Refractories made from recycled materials: challenges in making the grade**
Dr Christian Dannert, Head of R&D & Johannes Kasper, Research Associate, Forschungsgemeinschaft Feuerfest eV, Germany
- 15.00 **CO2 uptake by steel slags and olivine and possible uses**
Simon Etzold, Research Assistant, Institute of Mineral Engineering, RWTH Aachen University, Germany, & Pol Knops, CEO, Green Minerals, the Netherlands

15.30 COFFEE

- 16.00 **Recycling waste streams from potash and salt producers: challenges & lessons learned... is a new legal framework required?**
Tony Crimmins, CEO, EcoMag, Australia
- 16.30 **Automated inverse production of end-of-life electronics provides novel secondary raw materials**
Dr Cord Fricke-Begemann, Head of Materials Analysis, Fraunhofer Institute for Laser Technology (ILT), Germany

- 17.00 **CLOSE OF CONFERENCE & DRINKS RECEPTION**



Download our App

- Event info
- Real time updates
- Agenda
- Delegate messaging
- Speaker profiles



*Search for
IMFORMED*



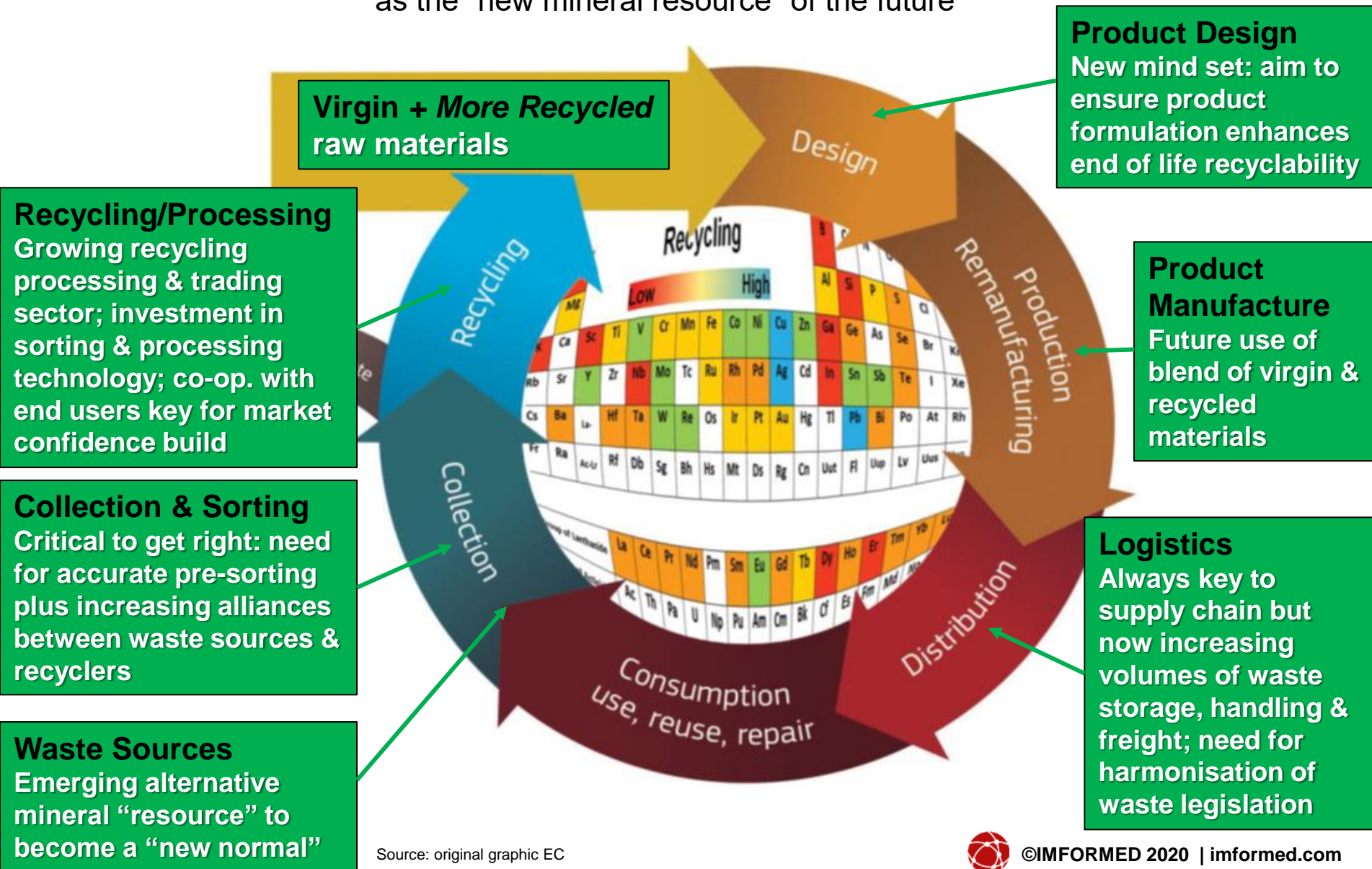
Why “Mineral Recycling”?

What are “Secondary Raw Materials”?



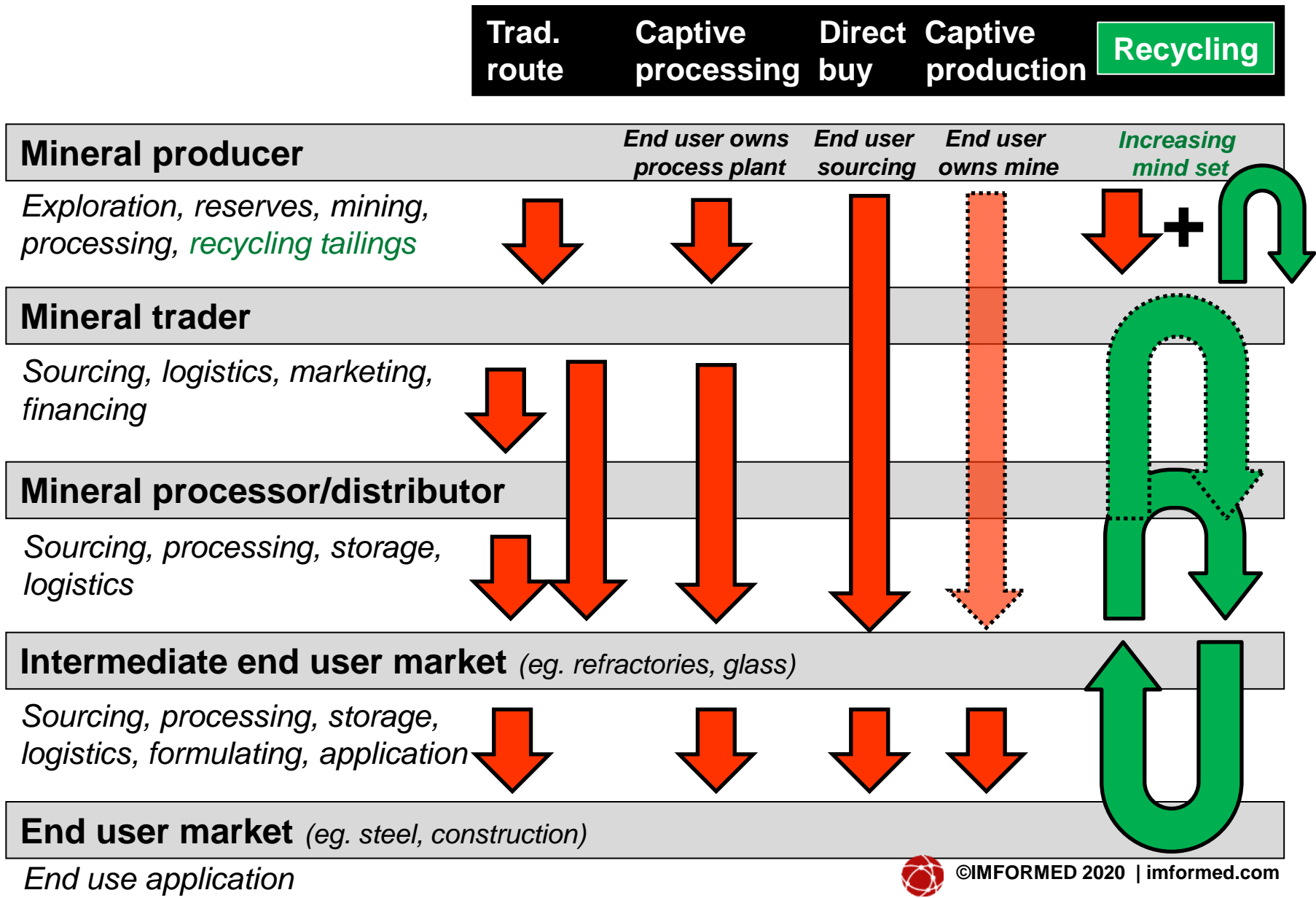
Moving towards the Circular Economy with industrial minerals

“Closing the loop” with increasing use of industrial waste resources as the “new mineral resource” of the future



Moving towards the Circular Economy with industrial minerals

New mind set in supply chain options for industrial mineral buyers and traders



Secondary Raw Materials (SRM) for industrial mineral markets

Some examples

SRM source*	SRM recovered	Market
Aluminium salt slag	alumina	cement; ceramics; geopolymers; metallurgy; mineral wool; refractories;
Batteries	graphite; lithium; manganese dioxide	batteries; ceramics; chemicals; glass; refractories
Fly ash	aluminosilicate	ceramics; coatings; construction; foundry; plastics; proppants (oil & gas drilling)
Glass	REE; silica	abrasives; chemicals; coatings; concrete; glass; plastics; sealants
Gypsum wallboard	gypsum	wallboard
Refractories	alumina; andalusite; bauxite; chromite; dolomite; mag-carbon; graphite; magnesia; silicon carbide; zirconia	ceramics; metallurgy; refractories
Steel slag	alumina; calcia; magnesia; silica	abrasives; aggregate; cement; concrete; fertiliser; filtration; metallurgy
Waste water	phosphorus	fertiliser
WEEE**	antimony trioxide; bromine FR; fluorspar; graphite; REE	batteries; ceramics; chemicals; flame retardants

* ie. waste from processing, or used/discarded mineral-bearing end products to be recycled

** waste electrical and electronic equipment



Mineral recycling drivers

- Environmentally driven legal requirements – national/regional
- Conservation of primary mineral resources by use of recycled materials
- Alleviates mineral resource squeeze, their “criticality”, dependence on certain countries, eg. China (*more later*)
- Mineral price rises
- Recycling contributes to CO₂ reduction
- Conservation of energy
- Controls hazardous substances
- Reduces landfill cost and pressure
- Technological advances in processing
- Employment opportunities



IMFORMED

Industrial Mineral Forums & Research

Networking and knowledge for the industrial minerals business



 imformed.com



- Launched in January 2015
- Extensive experience & reputation
- Specialising in conferences & market research in:
 - Magnesia
 - Refractory Minerals
 - China
 - Mineral Recycling
 - Fluorine
 - India
 - Oilfield Minerals



CHINA REFRACTORY MINERALS **FORUM 2021**

InterContinental Dalian

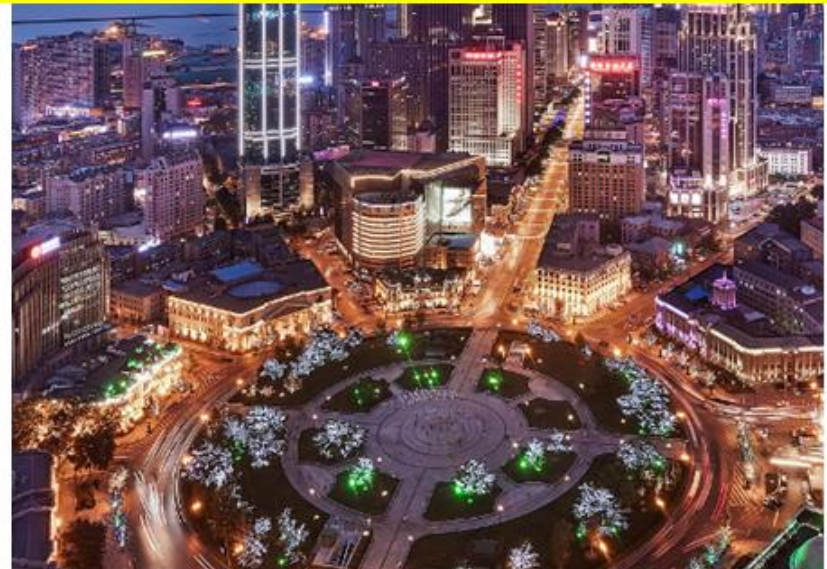
15-17 March 2021



PLEASE NOTE NEW DATES 15-17 MARCH 2021



HaiMag



FIELD TRIP TO HAICHENG MAGNESITE OPERATIONS

CALL FOR PAPERS | EARLY BIRD RATE

INFORMED *Rendezvous*

Grand Hotel Huis ter Duin (Noordwijk),
Amsterdam, 12-14 April 2021



The Vision for Industrial Minerals

Lead Sponsor



**Port of
Amsterdam**



POSTPONED TO APRIL 2021



MINERAL
MARKET
MATRIX

AT A GLANCE
A-Z GUIDE
WHICH MINERALS
FOR WHICH
MARKETS

MINERAL "Derivative" Synthetic	MARKETS*																				MINERAL "Derivative" Synthetic	MAIN RAW MATERIAL FEEDSTOCK(S) ¹⁾	KEY SPECIFIED CHEMICAL COMPONENT(S) ²⁾	WORLD PRODUCTION ³⁾	MAIN SOURCE COUNTRIES ⁴⁾
	Alumina	Alumina	Alumina	Alumina	Alumina	Alumina	Alumina	Alumina	Alumina	Alumina	Alumina	Alumina	Alumina	Alumina	Alumina	Alumina	Alumina	Alumina	Alumina	Alumina					
ALUMINA																					ALUMINA	Bauxite	Al ₂ O ₃	6,000	China, USA, Germany
ANDALUSITE																					ANDALUSITE	Stibnite	SiO ₂	300	South Africa, France, Peru
ANTIMONY TRIOXIDE																					ANTIMONY TRIOXIDE	Chrysotile	n.a.	10	China, Russia, Tajikistan
ASBESTOS																					ASBESTOS	n.a.	20,000	20,000	Russia, China, Brazil
ATTAPULGITE																					ATTAPULGITE	n.a.	2,220	USA, Senegal, Spain	
BADDELEYITE																					BADDELEYITE	ZrO ₂	9	Russia	
BARITE (BARIUM)																					BARITE (BARIUM)	BaSO ₄	972	China, India, Morocco	
BAUXITE																					BAUXITE	Al ₂ O ₃	10,000	China, Guyana, Greece	
BENTONITE																					BENTONITE	(also Hectorite serves similar markets)	n.a.	17,500	USA, China, India
BORAX																					BORAX	Borax, Colemanite, Kernalite, Ulexite	B ₂ O ₃	18,000	Turkey, USA, China
BROMINE																					BROMINE	Bittern, Seawater, Salt lakes	n.a.	750	Israel, USA, Jordan
CALCIUM CARBONATE																					CALCIUM CARBONATE	CaCO ₃	10,000,000	Global	
CELESTITE																					CELESTITE	Limestone, Dolomite, Marble, Chalk	SrSO ₄	250	China, Spain, Mexico
CHROMITE																					CHROMITE	Cr ₂ O ₃	6,250	South Africa, Turkey, Oman	
DIAMOND (INDUSTRIAL)																					DIAMOND (INDUSTRIAL)	n.a.	(in carats 60")	1,000	DR Congo, Russia, Australia
DIATOMITE																					DIATOMITE	SiO ₂	2,000	USA, China, Denmark	
DOLOMITE																					DOLOMITE	CaCO ₃ MgO	12,000,000	Global	
FELDSPAR																					FELDSPAR	Al ₂ O ₃ , K ₂ O, Na ₂ O	23,000	Turkey, Italy, China	
FLUORSPAR																					FLUORSPAR	CaF ₂	6,250	China, Mexico, Mongolia	
GABRIEL																					GABRIEL	n.a.	1,600	India, China, Australia	
GRAPHITE																					GRAPHITE	C	700	China, Brazil, India	
GYPSEUM																					GYPSEUM	Anhydrite	CaSO ₄	246,000	China, USA, Iran
HEMIMORPHITE																					HEMIMORPHITE	TiO ₂	6,600	Australia, South Africa, China	
IODINE																					IODINE	Bittern, Caliche nitrate	I	52	China, Japan, USA
IRON OXIDE																					IRON OXIDE	Hematite, Goethite, Magnetite, Manganese IO, Ochre, Umber	Fe ₂ O ₃	1,000	India, Pakistan, Spain
KALIN																					KALIN	Kalinite, Halloysite	Al ₂ O ₃ , SiO ₂	44,000	USA, Germany, China
KYANITE																					KYANITE	Al ₂ O ₃	902	USA, India, Brazil	
LIME																					LIME	Limestone, Dolomite, Chalk	CaO	350,000	China, USA, India
LITHIUM																					LITHIUM	Spodumene, Petalite, Lepidolite, Bittern, Salt lakes, Hectorite, Zinnwaldite	Li ₂ CO ₃ , Li ₂ Cl, CO ₂	1,000	China, Russia, Turkey
MAGNESITE																					MAGNESITE	MgO	12,000	China, Russia, Turkey	
MANGANESE																					MANGANESE	MnO ₂	2,000	China, South Africa, Australia	
MICA																					MICA	Muscovite, Phlogopite	Al ₂ O ₃	1,000	China, Russia, USA
MULLITE*																					MULLITE*	Alumina, Bauxite, Kalite, Kyante, Pyrophyllite	Al ₂ O ₃	1,000	USA, China, Brazil
NEPHELINE SYENITE																					NEPHELINE SYENITE	Al ₂ O ₃ , K ₂ O, Na ₂ O	5,600	Russia, Canada, Norway	
NITRATE																					NITRATE	Caliche ore, Nitrate	NaNO ₃	550	Chile
OLIVINE																					OLIVINE	Dunite, Serpentine	MgO	8,000	Norway, Japan, Spain
PERILLITE																					PERILLITE	n.a.	3,800	China, Greece, Turkey	
PHOSPHATE																					PHOSPHATE	Phosphogite	P ₂ O ₅	220,000	China, Mexico, USA
POTASH																					POTASH	Carminite, Kambite, Langbeinite, Sylvite	K ₂ O	36,000	Canada, Russia, Belarus
PUMICE																					PUMICE	Tuff, Volcanic ash	n.a.	1,000	Turkey, Italy, Saudi Arabia
PYROPHYLITE																					PYROPHYLITE	n.a.	250	USA, China, Norway	
QUARTZ																					QUARTZ	SiO ₂	1,000	China, Russia, USA	
RARE EARTHS																					RARE EARTHS	Monazite, Xenotime, Zircon, Zirconium	RE oxides	100,000	China, Australia, USA
RUTILE																					RUTILE	TiO ₂	800	Australia, Sierra Leone, South Africa	
SALT																					SALT	Halite	NaCl	260,000	China, India, USA
SEPOLITE																					SEPOLITE	Zeolite	n.a.	600	Spain, Turkey, USA
SILICA SAND																					SILICA SAND	Quartz	SiO ₂	200,000	China, USA, Italy
SILICON CARBIDE**																					SILICON CARBIDE**	Silicon Carbide	SiC	1,000	China, Norway, Japan
SILLIMANITE																					SILLIMANITE	Al ₂ O ₃	62	India	
SPINEL*																					SPINEL*	Magnesia-Alumina	MgO, Al ₂ O ₃	100,000	China, Germany, USA
SODA ASH																					SODA ASH	Trona, Natronite	Na ₂ CO ₃	14,000	USA, Turkey, China
SODA ASH*																					SODA ASH*	Sulfur, Limestone, Coke	Na ₂ CO ₃	37,000	China, Russia, Germany
SODIUM SULPHATE																					SODIUM SULPHATE	Muscovite, Thionite	Na ₂ SO ₄	8,000	China, Spain, Mexico
SULPHUR																					SULPHUR	Pyrites, Recovered as by-product, Native sulphur	S	60,000	China, USA, Russia
TALC																					TALC	n.a.	6,000	China, India, USA	
VERMICULITE																					VERMICULITE	n.a.	400	South Africa, USA, China	
WOLLASTONITE																					WOLLASTONITE	n.a.	1,000	China, India, USA	
ZEOCLITE*																					ZEOCLITE*	Chlorophyllite, Chabazite, Montmorillonite	n.a.	3,000	China, South Korea, USA
ZIRCON																					ZIRCON	ZrO ₂	1,000	Australia, South Africa, China	
ZIRCONIA*																					ZIRCONIA*	Zircon, Baddeleyite	ZrO ₂	200	China, USA, Japan

1. Feedstocks are chemical components specified in commercial grades, usually expressed as percentage by dry weight.

2. Key chemical components (KCC) are listed in the table. KCC are listed in

- Leading industrial minerals
- Main raw material feedstock
- Key specified chemical component
- World production
- Main source countries
- Leading consuming markets

PICK UP YOUR COMPLIMENTARY
COPY AT OUR STAND TODAY !!



REFRACTORY RAW MATERIAL WORLD SOURCES

**LIMITED ADVERTISING SPACE AVAILABLE
PLEASE CONTACT ISMENE CLARKE**



EK-COMPANY AG
 EKC AG
 Hütteweg 8
 D-91074 Regensburg
 T +49 (0) 91 666678-0
 F +49 (0) 91 666678-28
 info@ekc-ag

**SUPPLIER OF RAW MATERIALS
 FOR THE INDUSTRY**

www.ekc-ag

IMFORMED
Industrial Mineral Forums & Research

**REFRACTORY
RAW MATERIAL
WORLD SOURCES**



KEY — see notes below

- ALUMINA
- FUSED ALUMINA
- ARCOLITE
- BAUXITE
- CHROMITE
- GRAPHITE
- CRACK FURNED MAGNETITE
- FUSED MAGNETITE
- SILICON CARBIDE
- ZIRCON

[illegible]

1.5 horizontal
W 200mm
H 95mm

IMERYS

SUSTAINABLE MATERIALS FOR THE
**REFRACTORY
INDUSTRY**

REGISTER ON **IMFORMED**'s WEBSITE
TO ENSURE YOU DON'T MISS REGULAR
ARTICLES, NEWS, AND FORUM UPDATES.

Need help? Please contact Ismene here on-site

enquiries@imformed.com



IMFORMED

Industrial Mineral Forums & Research

[Home](#)

[About](#)

[Get IMFORMED](#)

[Forums](#)

[Registration](#)

[Contact](#)

[Gallery](#)

[IMFObites](#)



 NEWSFILE

 FORUMS

 IMFObites

MINERAL RECYCLING **FORUM** 2020

Pullman Hotel Aachen Quellenhof, 10-11 March 2020

**Secondary raw material sources, supply,
processing, and markets**

***Participate
Learn
Enjoy***

IMFORMED
Industrial Mineral Forums & Research Ltd
Networking and knowledge for the industrial minerals business

