

## OILFIELD MINERALS & MARKETS FORUM Middle East 2018

InterContinental Regency, Bahrain, 5-7 February 2018







Welcome Reception Sponsor









Supporting Partners









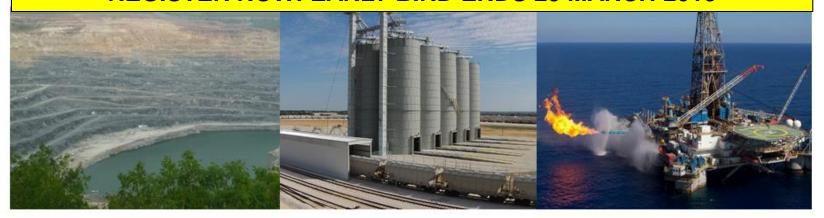




## OILFIELD MINERALS & MARKETS FORUM HOUSTON 2018

Hilton Houston Post Oak, Houston, 6-8 May 2018

#### **REGISTER NOW! EARLY BIRD ENDS 23 MARCH 2018**



#### Supply and demand trends for industrial minerals in the oilfield market

Welcome Reception Sponsor

Sponsor

Exhibitors













Supporting Partners













#### **Confirmed speakers**

#### Outlook for oil and gas supply and demand

Uday Turaga, CEO, ADI Analytics Inc., USA

#### Oilfield mineral demand and outlook in drilling fluids

Veronica Brown, VP of Supply Chain, QMax Solutions Inc., USA

#### The most common INCOTERMS mistakes that shippers and importers make

John Newcaster, Director Southwest, The Cumberland Group Inc., USA

#### Logistic challenges: rates rise as demand and regulatory constraints bite

Richard Dodd, President, RDC Logistics, USA

#### An emerging new frac sand supplier for Asia-Pacific markets

Murray Lines, Managing Director, Stratum Resources, Australia

#### North American proppants market trends and developments

Joel Schneyer, Managing Director, Minerals Capital & Advisory Practice, Capstone Headwaters, USA

#### Overview and outlook for the barite supply market

The Barytes Association, UK

#### Chinese barite supply, and the recent impact of environmental controls

Rita Hu, General Manager, Guizhou Saboman Imp. & Exp. Co. Ltd, China

#### Exploration and development of barite at Surprise Creek, British Columbia

Rene Bernard, Director, Mountain Boy Minerals Ltd, Canada

#### Evaluation of drilling grade barite: methods and mineralogy

Andrew Scogings, Consultant, Australia

#### Oilfield well cements: raw material demand

Claudio Manissero, President, ChemCognition LLC, USA

#### Separation technology for oilfield minerals: solutions for testing and mobility

Steve Gray, Consultant, ST Equipment & Technology LLC, USA

#### A revolutionary new concept in oilfield mineral milling: Mobility and Modularity

Jean-Francois Maréchal, Managing Director, Poittemill, France

#### Welcome to Bahrain











#### **Welcome Reception Sponsor**



#### **Exhibitors**







#### **Supporting Partners**







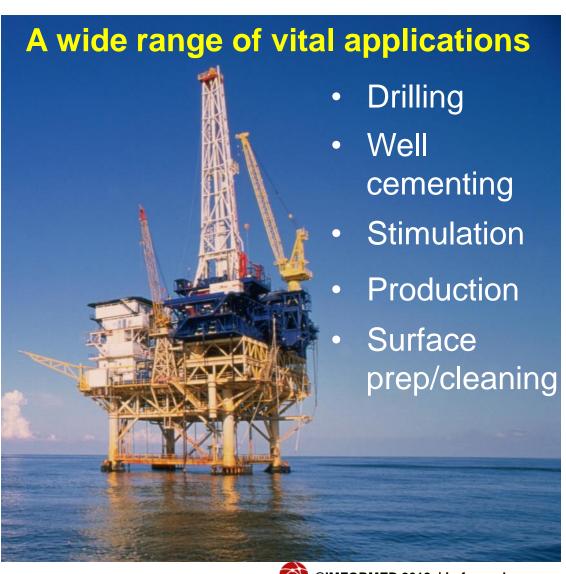




#### Industrial minerals & the oilfield market









#### Industrial minerals & the oilfield market

#### A wide range of minerals used

Attapulgite

Barite

Bauxite

**Bentonite** 

**Borates** 

Calcium carbonate

Calcium chloride

Diatomite

Garnet

Gilsonite

Graphite

Gypsum

Haematite

Hectorite

Ilmenite

Iron oxide

Kaolin



Source: OGP/IPIECA

Lignite

Lime

Magnesia

Magnesium silicate

Magnesium chloride

Mica

Perlite

Potassium chloride

Salt

Sepiolite

Silica sand

Soda ash

Sodium silicate

Vermiculite

Zinc oxide

Zirconia



## Industrial minerals & the oilfield market For a wide range of applications

| Function   | Mineral   |
|--|---|
| Weighting agents high SG; help offset pressure; control liquid flow into wellbore from formation; keep the hole open | barite, haematite, calcium carbonate  |
| Bridging agents plug pore spaces at wellbore, restricting invasion of solids and fluids into the formation           | calcium carbonate, salt   |
| Viscosifiers Carry cuttings to surface; build a cake against permeable formations; lubricates drill string.          | sodium bentonite, treated calcium bentonite for freshwater muds; attapulgite and sepiolite for saltwater muds; organophillic clays for oil muds |
| Stabilisers Prevents dissolution of formation  | Gilsonite, salt, gypsum   |

#### Industrial minerals & the oilfield market

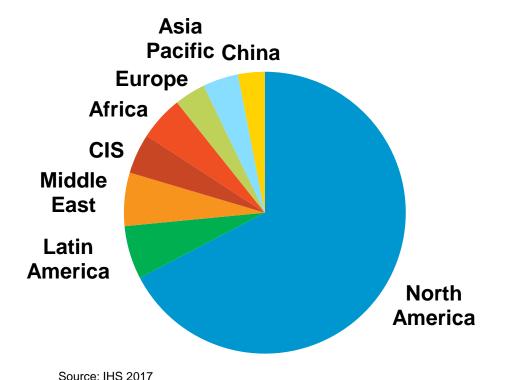
| Mineral   |
|---|
| Gilsonite, mica, diatomite, expanded perlite and vermiculite (bentonites, organophilic clays) |
| sodium borates  |
| graphite, bentonite   |
| silica sand, calcined bauxite, calcined kaolin, magnesium silicate                            |
|   |



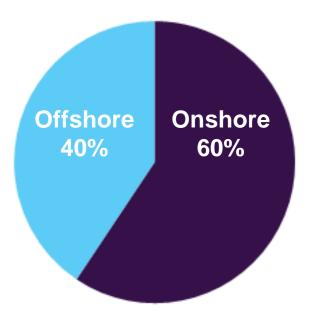
### **Drilling fluids market**

Market value estimated to grow from US\$7.6bn to US\$10.01bn by 2025

Oilfield chemicals market: regionial share by value



Drilling fluids market: onshore v offshore

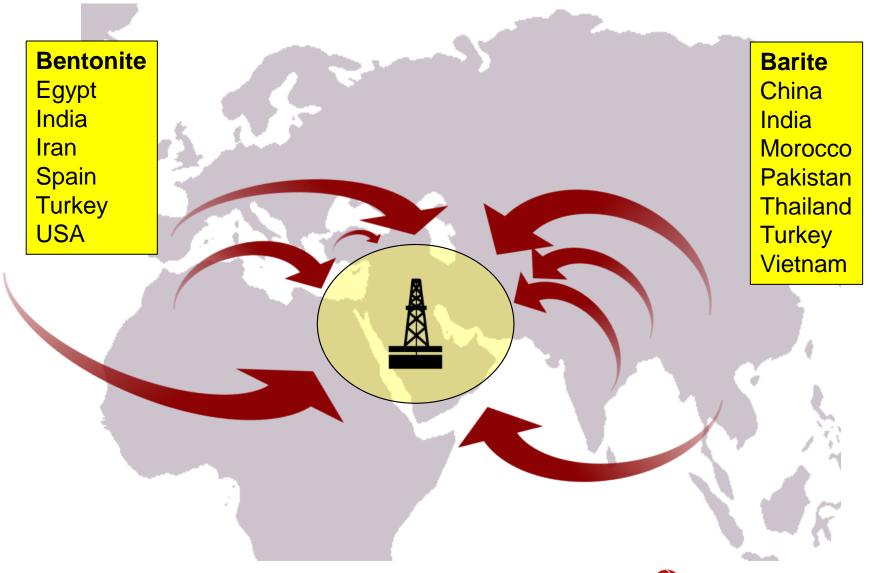


Source: Grand View Research 2017





### Middle East oilfield mineral sources: examples



### Middle East rig count Jan. 2018

|              |      | THIS MON | TH    | VARIANCE        | L    | AST MONT | H     |      | LASTYEA  | 3     |
|--------------|------|----------|-------|-----------------|------|----------|-------|------|----------|-------|
| Country      | Land | OffShore | Total | From Last Month | Land | OffShore | Total | Land | OffShore | Total |
| Middle East  |      |          |       |                 |      |          |       |      |          |       |
| ABU DHABI    | 37   | 12       | 49    | 2               | 38   | 13       | 51    | 32   | 16       | 48    |
| DUBAI        | 0    | 2        | 2     | 0               | 0    | 2        | 2     | 0    | 2        | 2     |
| IRAQ         | 54   | 0        | 54    | -3              | 51   | 0        | 51    | 41   | 0        | 41    |
| JORDAN       | 0    | 0        | 0     | 0               | 0    | 0        | 0     | 0    | 0        | 0     |
| KUWAIT       | 53   | 0        | 53    | 0               | 53   | 0        | 53    | 44   | 0        | 44    |
| OMAN         | 55   | 0        | 55    | 0               | 55   | 0        | 55    | 59   | 0        | 59    |
| PAKISTAN     | 0    | 0        | 0     | 19              | 19   | 0        | 19    | 21   | 0        | 21    |
| OATAR        | 3    | 3        | 6     | 0               | 3    | 3        | 6     | 5    | 5        | 10    |
| SAUDI ARABIA | 92   | 19       | 111   | 4               | 98   | 17       | 115   | 110  | 15       | 125   |
| SUDAN        | 0    | 0        | 0     | 0               | 0    | 0        | 0     | 0    | 0        | 0     |
| SYRIA        | 0    | 0        | 0     | 0               | 0    | 0        | 0     | 0    | 0        | 0     |
| YEMEN        | 0    | 0        | 0     | 0               | 0    | 0        | 0     | 0    | 0        | 0     |
| TOTAL        | 294  | 36       | 330   | 22              | 317  | 35       | 352   | 312  | 38       | 350   |

| North Africa | <b>a</b> |   |    |   |    |   |    |    |   |    |
|--------------|----------|---|----|---|----|---|----|----|---|----|
| ALGERIA      | 50       | 0 | 50 | 5 | 55 | 0 | 55 | 52 | 0 | 52 |
| EGYPT        | 17       | 5 | 22 | 0 | 19 | 3 | 22 | 18 | 6 | 24 |
| LIBYA        | 0        | 1 | 1  | 0 | 0  | 1 | 1  | 0  | 1 | 1  |
| TUNISIA      | 0        | 0 | 0  | 0 | 0  | 0 | 0  | 1  | 1 | 1  |
| TOTAL        | 67       | 6 | 73 | 5 | 74 | 4 | 78 | 71 | 8 | 78 |

Source: Baker Hughes 2018



#### Conclusions: Reasons to be cheerful

- Oil price and GDP drivers very positive to boost energy demand, especially in ME, China, India.
- Hydrocarbons still majority share of energy mix, with gas increasing to around a 25% share at expense of coal and oil
- EVs are coming, but too early to have more than limited impact
- Rig activity is rising and upstream investments, with some caution, returning
- Rapid rise in power demand in ME to be met by gas as preferred energy source, driving exploration and development of unconventional resources
- Oil service majors very upbeat for 2018/19 outlook, especially USA but also international hotspots including ME
- Positive prospects for oilfield minerals demand!



#### **Programme – Tuesday Morning**

| INTRODU         | CTION   OVERVIEWS   |
|-----------------|---|
| 09.00           | Introduction & Market Overview Ismene Clarke, Director & Mike O'Driscoll, Director, IMFORMED, UK  |
| 09.30           | The complexity and functionality of oil based drilling fluids and their mineral additives Michael Tate, Technical Sales Manager, RheoMinerals Inc., USA |
| 10.00           | COFFEE  |
| BARITE<br>11.00 | Sustainability in drilling barite specifications John Newcaster, Director Southwest, The Cumberland Group Inc., USA                                     |
| 11.30           | Barite supply from Turkey and Middle East markets Fatma Akgun, Deputy General Manager-Business Development, Ado Mining, Turkey                          |
| 12.00           | LUNCH   |

#### **Programme – Tuesday Afternoon**

#### **PROCESSING**

- 14.00 A revolutionary new concept in barite and bentonite processing: Mobility and Modularity Jean-Francois Maréchal, Managing Director, Poittemill, France
- 14.30 Processing developments for oilfield minerals
  Herve Guicherd, Director Business Development Minerals, ST Equipment & Technology LLC,
  France
- 15.00 PANEL DISCUSSION: Key challenges for the oilfield mineral market outlook
  Mike O'Driscoll, Director, IMFORMED, UK
  Jean-Francois Maréchal, Managing Director, Poittemill, France
  Herve Guicherd, Director Business Development Minerals, ST Equipment & Technology LLC, France
  John Newcaster, Director Southwest, The Cumberland Group Inc., USA
  Pickard Trepess, Managing Director, FRAC PT FZE, UAE
- 15.45 Refreshments & Close of Day 1

#### Status & outlook for the market

#### **Moderator**

#### Mike O'Driscoll

Director, IMFORMED, UK

#### **Panellists**

#### Jean-Francois Maréchal

Managing Director, Poittemill, France

#### **Herve Guicherd**

Director Business Development Minerals, ST Equipment & Technology LLC, France

#### John Newcaster

Director Southwest, The Cumberland Group Inc., USA

#### **Pickard Trepess**

Managing Director, FRAC PT FZE, UAE

#### **PLEASE JOIN IN!**

Questions & comments most welcome from the audience

Please state your name & affiliation



#### **Programme – Wednesday Morning**

| PROPPAN | ITS   |
|---------|---|
| 09.00   | Proppant utilisation and outlook in the Middle East Pickard Trepess, Managing Director, FRAC PT FZE, UAE                              |
| 09.30   | The Good, the Bad and the Ugly of ceramic proppant manufacturers in China Viviana Trevino, President, Changqing Proppant Corp., China |
| 10.00   | COFFEE  |
| POZZOLA | N   GILSONITE   |
| 11.00   | Natural pozzolanic material and its application in oil well cementing   |
|         | Dionysios Kotinis, General Manager, Imerys Minerals Arabia LLC, Saudi Arabia  |
| 11.30   | Iranian Gilsonite supply and application in oilfield markets  |
|         | H. Nezam Zadeh, Managing Director, Payapa Setak Inc., Iran  |
|         |   |

#### **Attending Companies**



Ado Mining

Alrasheed

Ashapura Group

Bastion Capital

Broychim

**Changqing Ceramic Proppant** 

**Delmon Company Ltd** 

**Ecutec** 

FRAC PT FZE

Garuda Group

Great-Chem Mineals Trading Co. Ltd

Guangxi Metals & Minerals Import & Export

Group Corp

Guizhou Saboman Imp & Exp. Co. Ltd

Guizhou Tianhong Mining Co. Ltd

Imerys Minerals Arabia LLC

**IMFORMED LTD** 

Kaolin AD

MA'ADEN Saudi Arabian Mining Co.

Model Industrial Company Ltd

Omya International AG

**Outlook General Trading** 

Oxford Business Group

Payapa Setak Inc

Poittemill

Rescom Holdings

RheoMinerals

**RP Minerals** 

Rua Bulgaria

Saudi Carbonate Company Ltd

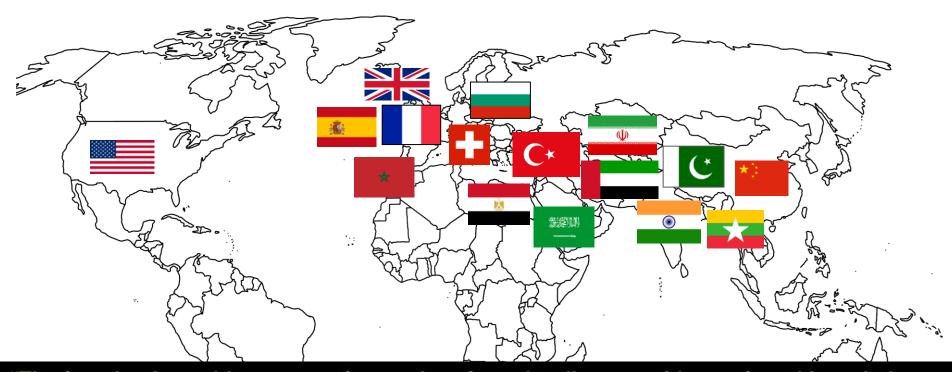
ST Technologies

Steinbock Barite

Steinbock Minerals

The Cumberland Group Inc

Viking Shipping



"The fact that I am able to come time and again and walk away with new found knowledge keeps me coming back"

Jerry McNamara, VP Operations, RheoMinerals Inc., USA

"Really provided good insight on this market and drivers"

Kumar Chenniappan, Senior Marketing Specialist, MA'ADEN, Saudi Arabia

# OILFIELD MINERALS & MARKETS FORUM Middle East 2018 Picture Gallery IMF@RMED **IMF®RMED**



## Missed attending Oilfield Minerals & Markets Forum Middle East 2018?

A set of presentations (as PDF) maybe purchased: Price £500 – please contact:

Ismene Clarke, T: +44 (0)208 224 0425; M: +44 (0)7905 771 494; E: <u>ismene@imformed.com</u>

Ensure you don't miss out on news and updates for the next **Oilfield Minerals Forum!** 

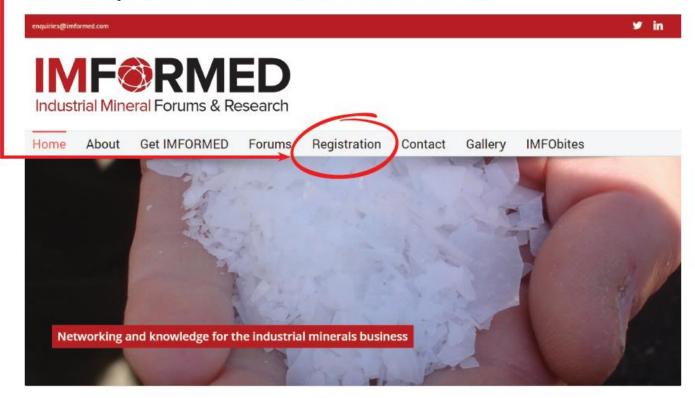
Register here for news, articles, and Forum updates







Need help? Please contact Ismene here on-site











Networking and knowledge for the industrial minerals business





- Launched in January 2015
- Extensive experience & reputation
- Market research
- Specialist conferences







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

|  |                      |                           |                               |   |                                 |                                  |                            |           |                             |                             | MAD  | KETS2       |                            |               |           |              |           |            |         |                              |              |                         |                            | /  |  |  | I   |  |  |
|--|----------------------|---------------------------|-------------------------------|---|---------------------------------|----------------------------------|----------------------------|-----------|-----------------------------|-----------------------------|--|-------------|----------------------------|---------------|-----------|--------------|-----------|------------|---------|------------------------------|--------------|-------------------------|----------------------------|--|--|--|---|--|--|
| MINERAL¹   |                      |                           |                               | / /                                     |                                 |                                  | /                          |           | / /                         |                             | MAR  | VE I 2.     | Hon                        |               |           |              |           |            |         |                              |              |                         |                            |  |  |  | KEY SPECIFIED   |  |  |
| *Derivative<br>**Synthetic   | ١.                   | indshe's                  | Sorbents                      | anarkets                                | Centent                         | s arries                         | enkals Cor                 | net uctor | ndies Deter                 | gents edror                 | Selected the   | ration clar | ME retarded                | And India     | Friction  | as / 6       | taller DY | red origin | A Great | S. Polyni                    | at attack    | nies .                  | le dint                    | MINERAL¹ 'Derivative "Synthetic  | MAIN RAW M   | ATERIAL FEEDSTOCK(S) <sup>3</sup>  | CHEMICAL<br>COMPONENT(S) <sup>a</sup>   | WORLD<br>PRODUCTION <sup>6</sup>                                       | MAIN SOURCE<br>COUNTRIES <sup>6</sup>  |
| VITIMINA.  |                      | 4                         | Pro                           |   | 0 0                             | •                                | 0                          |           | 0                           | Ø. /                        |  | •           |                            | 40            | 6, 6      |              |           |            | 0       | Qu                           | 40           | dr.                     | - AL                       |  | Bausite  |  | Al <sub>2</sub> O <sub>3</sub>  | 6000   | China, USA, Germany  |
| ANDALUSITE   | 0                    |                           |                               |   | •                               | Ť                                |                            |           |                             |                             |  |             |                            | •             | Ť         |              |           |            |         |                              | •            |                         | Ah                         | NDALUSITE  | Countr   |  | Al <sub>2</sub> O <sub>3</sub>  |  | South Africa, France, Peru   |
| ANTIMONY TRIOXIDE*   |                      |                           |                               | •                                       | •                               | •                                |                            |           |                             |                             |  | •           |                            |               | •         |              |           |            |         |                              |              | _                       | AN                         | NTIMONY TRIOXIDE   | Stibnite   |  | Sb <sub>2</sub> O <sub>2</sub>  |  | China, Russia, Tajikistan  |
| ASBESTOS   |                      |                           |                               |   |                                 |                                  | •                          |           |                             |                             |  |             |                            |               |           |              |           |            | •       |                              |              |                         | AS                         | SBESTOS  | Chrysotile   |  | n.a.  | 20,000   | Russia, China, Brazil  |
| ATTAPULGITE  |                      | •                         | •                             |   |                                 |                                  |                            |           |                             | •                           | •  |             | 0                          |               |           |              | •         |            |         |                              |              |                         |                            | TTAPULGITE   |  |  | n.a.  |  | USA, Senegal, Spain  |
| BADDELEYITE  |                      |                           |                               |   | •                               |                                  |                            | 0         |                             | •                           |  | 0           |                            |               |           | 0            | 0         |            |         | 0                            | •            |                         |                            | ADDELEYITE   |  |  | ZrO <sub>2</sub>  |  | Russia   |
| BARYTES (BARITE) BAUXITE   | •                    |                           |                               | 0                                       |                                 | •                                |                            |           | - 1                         | 0                           |  |             | 0                          | 0             | 0         |              | •         | •          |         |                              | •            |                         |                            | ARYTES (BARITE)<br>AUXITE  |  |  | BaSO <sub>4</sub>   |  | China, India, Morocco<br>China, Guyana, Greece   |
| BENTONITE  | •                    |                           | 0                             |   | 0                               | 0                                |                            | 0         |                             |                             |  |             | 0                          |               |           |              | •         | 0          | 0       |                              | •            | -                       |                            |  | (also Hectorite serves s                           | imilar markatsi  | Al <sub>2</sub> O <sub>2</sub><br>n.a.  |  | USA, China, India  |
| BORATES  |                      | Ť                         | •                             |   | •                               | •                                | 0                          |           |                             |                             |  |             | 0                          |               |           | 0            | 0         |            |         |                              | 0            |                         |                            |  | Borax; Colemanite; Ker                             |  | B <sub>2</sub> O <sub>3</sub>   |  | Turkey, USA, Chine   |
| BROMINE  |                      |                           | •                             | 0                                       |                                 | •                                |                            | 0         |                             | •                           | ,  |             | 0                          |               |           | 0            | •         |            |         |                              |              |                         | BA                         | ROMINE   | Brines; Seawater; Salt I                           | akes   | n.a.  | 750  | Israel, USA, Jordan  |
| CALCIUM CARBONATE  | 0                    |                           | •                             |   | •                               |                                  | •                          | 0         |                             | •                           |  |             | 0                          |               | •         |              | 0         | •          |         | •                            |              |                         |                            | ALCIUM CARBONATE   | Limestone; Dolomite; N                             | farble; Chalk  | CaCO <sub>2</sub>   | ≥12,000,000  |  |
| CELESTITE  |                      |                           |                               |   | •                               |                                  |                            |           |                             |                             |  |             | 0                          |               | •         | 0            | 0         | 0          | 0       |                              |              | T                       |                            | ELESTITE   |  |  | SrSO <sub>4</sub>   |  | China, Spain, Mexico   |
| CHROMITE   |                      |                           |                               |   | 0                               | •                                |                            |           |                             |                             |  |             |                            | •             |           | •            |           | •          | 0       |                              | •            |                         |                            | HROMITE  |  |  | Cr <sub>2</sub> O <sub>3</sub>  |  | South Africa, Turkey, Oman   |
| DIAMOND (INDUSTRIAL)   | 0                    | •                         | 0                             | 0                                       |                                 |                                  | •                          | 0         |                             |                             |  |             | 0                          |               |           |              | ^         | •          |         |                              |              | -                       |                            | IAMOND (INDUSTRIAL)  |  |  | n.a.<br>SiO,  |  | DR Congo, Russia, Australia<br>USA, China, Denmark   |
| DOLOMITE   | 0                    | -                         | 0                             | 0                                       |                                 | •                                |                            | 0         |                             | ٠,                          |  |             | 0                          |               |           |              | 0         | •          | 0       |                              |              | (                       |                            | OLOMITE  |  |  | CaO:MgO   | 2,000  |  |
| FELDSPAR   | 0                    |                           |                               |   |                                 |                                  | i                          |           |                             |                             |  |             | Ŭ                          |               |           | ı.           |           | •          | •       |                              |              |                         |                            | ELDSPAR  |  |  | Al <sub>2</sub> O <sub>2</sub> K <sub>2</sub> O <sub>2</sub> Na <sub>2</sub> O                                    |  | Turkey, Italy, China   |
| FLUORSPAR  |                      |                           |                               | 0                                       |                                 | •                                |                            |           |                             |                             |  |             |                            |               | 0         | •            |           |            |         |                              |              |                         |                            | LUORSPAR   |  |  | CaF,  |  | China, Mexico, Mongolia  |
| GARNET   | •                    |                           |                               |   |                                 |                                  |                            |           |                             |                             | •  |             |                            |               |           |              |           |            |         |                              |              |                         |                            | ARNET  |  |  | n.a.  |  | India, China, Australia  |
| GRAPHITE   |                      |                           | 0                             | •                                       | 0                               |                                  |                            |           | - 1                         | 0                           |  | 0           | _                          | • •           | _         | •            | 0         |            | 0       |                              | •            | 1                       |                            | RAPHITE  |  |  | С   |  | China, Brazil, India   |
| GYPSUM   |                      |                           | •                             | •                                       |                                 |                                  | •                          |           |                             |                             |  |             | 0                          |               | 0         |              |           |            | 0       |                              |              |                         |                            |  | Anhydrite  |  | CaSO <sub>4</sub>   |  | China, USA, Iran   |
| LMENITE  | 0                    |                           |                               |   | 0                               | •                                |                            | 0         | 0                           |                             |  |             | 0                          |               |           | 0            | 0         | •          | •       | •                            | (            | ) (                     |                            | MENITE   | Brines; Caliche nitrate                            |  | TIO,  |  | Australia, South Africa, China<br>Chile, Japan, USA  |
| IRON OXIDE   | 0                    |                           | •                             |   |                                 | •                                |                            |           |                             | 0                           | •  |             |                            | 0             |           | 0            | 0         | 0          |         |                              |              | -                       |                            |  |  | agnetite: Micaceous IO: Ochre: Umber                                       | Fe,O,   |  | India, Pakistan, Spain   |
| KAOLIN   | 0                    |                           | 0                             |   |                                 |                                  | •                          | 0         | _                           |                             | •  |             | 0                          |               |           | •            | 0         | •          | •       | •                            | • (          |                         |                            |  | Kaolinite; Halloysite                              | agrieute, micaceous IO, Octile, Olliber                                    | ALO,: SIO,  |  | USA, Germany, China  |
| KYANITE  | 0                    |                           | -                             |   |                                 |                                  |                            | -         |                             |                             |  | 0           |                            | • 0           |           |              | -         | 0          |         |                              | •            |                         | ) KY                       | YANITE   |  |  | Al <sub>2</sub> O <sub>3</sub>  |  | USA, India, Brazil   |
| LIME.  |                      |                           | •                             |   |                                 | •                                | •                          |           |                             | •                           |  |             | 0                          |               | •         | •            | 0         |            |         | 0                            |              |                         |                            |  | Limestone; Dolomite; C                             | halk   | CaO   |  | China, USA, India  |
| LITHIUM  |                      |                           |                               | • 0                                     |                                 |                                  |                            |           |                             |                             |  |             | 0                          |               |           | 0            |           |            | 0       |                              |              |                         |                            |  | Spoclumene; Petalite; Lepin                        | folite; Brines; Salt lakes; Hectorite; Zinnwaldite                         |   |  | Australia, Chile, China  |
| MAGNESITE  |                      | 0                         | •                             | •                                       |                                 |                                  | •                          |           |                             |                             |  |             |                            |               | 0         |              |           | 0          |         | 0                            |              | )                       |                            | AGNESITE   |  |  | MgCO,   |  | China, Russia, Turkey  |
| MAGNESIA*  |                      |                           | 0                             | •                                       | 0                               |                                  | 0                          | 0         | -                           | 0                           |  | •           | 0                          | 0 0           |           |              |           | 0          | 0       | 0                            | • (          | ) (                     |                            |  | Magnesite; Serpentinite<br>Pyrolusite; Psilomelane | e; Brucite; Dolomite; Seawater; Brines                                     | MgO<br>Mrc MnO <sub>s</sub>   |  | China, Russia, Turkey<br>China, South Africa, Australia                                    |
| MICA   |                      |                           | U                             | ٠.                                      |                                 | •                                | U                          | 0         |                             | 0                           | ,  |             |                            | 0 0           | 0         | •            | •         |            | •       |                              | ٠,           |                         | MI C                       |  | Muscovite; Phiogopite                              |  | n.a.  |  | China, Russia, USA   |
| MULLITE**  |                      |                           |                               |   |                                 |                                  |                            |           |                             |                             |  |             |                            | •             |           |              | Ť         | Ť          |         |                              | •            |                         |                            |  | Alumina; Bauxite; Kaoli                            | n; Kyanite; Pyrophylite  | Al <sub>2</sub> O <sub>2</sub>  | 1,000  | USA, China, Brazil   |
| NEPHELINE SYENITE  | 0                    |                           |                               |   | •                               | 0                                | 0                          |           |                             |                             |  |             |                            |               | •         | 0            |           | •          | •       |                              | - (          |                         | NE                         | EPHELINE SYENITE   |  |  | Al <sub>2</sub> O <sub>2</sub> : K <sub>2</sub> O; Na <sub>2</sub> O  | 5,600  | Russia, Canada, Norway   |
| NITRATES   |                      |                           | •                             |   | 0                               |                                  |                            |           |                             |                             |  |             | 0                          |               | 0         | 0            |           |            |         |                              |              |                         |                            |  | Caliche ore: Nitratine                             |  | NaKNO <sub>2</sub>  |  | Chile  |
| OLIVINE  | •                    |                           | 0                             |   | 0                               |                                  | •                          |           |                             | C                           |  |             |                            | •             |           | •            |           | 0          |         |                              | •            | _                       |                            |  | Dunite; Serpentine                                 |  | MgO   |  | Norway, Japan, Spain   |
| PERLITE PHOSPHATE  | 0                    | 0                         | •                             |   | 0                               | 0                                | •                          |           |                             |                             | •  | 0           |                            | 0             | 0         | 0            |           | •          | •       |                              | 0            | -                       |                            | ERLITE<br>HOSPHATE   | Fluorapatite                                       |  | n.a.<br>P <sub>2</sub> O <sub>4</sub>   |  | China, Greece, Turkey<br>China, Morocco, USA   |
| POTASH   | 0                    |                           |                               | 0                                       |                                 | ·                                | 0                          |           | 0                           |                             |  | 0           | 0                          |               | 0         | 0            | 0         |            |         |                              |              |                         |                            |  | Carnalite: Kainite: Lang                           | heinite: Sulvite   | K,O   |  | China, Morocco, USA<br>Canada, Russia, Belarus   |
| PUMICE   | •                    | 0                         | •                             |   |                                 | _                                | •                          |           |                             |                             | 0  |             |                            |               |           |              | -         | 0          | 0       |                              |              | _                       |                            | UMICE  | Contracting Foreign                                | eenmer oy me   | n.a.  |  | Turkey, Italy, Saudi Arabia  |
| PYROPHYLLITE   |                      |                           | 0                             | 0                                       |                                 |                                  | 0                          |           |                             |                             |  |             |                            |               |           |              |           | 0          | 0       | 0                            | • (          |                         | PY                         | YROPHYLLITE  |  |  | n.a.  |  | South Korea, Japan, Pakistan   |
| QUARTZ*  |                      |                           |                               |   | •                               |                                  |                            |           |                             | •                           |  |             |                            |               | •         |              |           |            | •       |                              | 0            |                         |                            | UARTZ*   |  |  | SiO <sub>2</sub>  |  | USA, China, Norway   |
| RARE EARTHS  | 0                    |                           |                               | 0                                       |                                 | _                                |                            |           |                             | •                           |  |             | 0                          |               | •         | •            |           |            |         |                              |              |                         |                            |  | Bastnaesite; Monazite;                             | Xenotime; Ionic clays  | RE oxides   |  | China, Australia, USA  |
| RUTILE   |                      |                           |                               |   | 0                               |                                  |                            | 0         | 0                           |                             |  |             | 0                          |               |           | 0            |           | •          | •       |                              |              |                         |                            | UTILE  | Listes   |  | TIO,  |  | Australia, Sierra Leone, South Africa  |
| SEPIOLITE  |                      | •                         | 0                             |   |                                 | •                                |                            |           |                             | •                           | 0  |             | •                          |               |           | 0            | 0         | 0          |         | 0                            | - 0          |                         |                            | EPIOLITE   | Haire  |  | NaCl<br>n.a.  |  | China, USA, India<br>Spain, Turkey, USA  |
| SEPIOLITE<br>SILICA SAND   |                      | •                         | U                             |   | •                               | •                                |                            |           |                             |                             |  |             |                            | •             |           | 0            | •         | •          |         |                              |              |                         |                            |  | Quartz   |  | n.a.<br>SiO,  |  | Spain, Turkey, USA<br>China, USA, Italy  |
| SILICON CARBIDE**  | •                    |                           |                               |   | •                               |                                  |                            |           |                             |                             | 0  |             |                            |               |           | •            |           |            |         |                              | •            |                         |                            |  | Silica+Coke  |  | SIC   |  | China, Norway, Japan   |
| SILLIMANITE  | 0                    |                           |                               |   |                                 |                                  |                            |           |                             |                             |  |             |                            | 0             |           |              |           |            |         |                              | •            |                         | SII                        | ILLIMANITE   |  |  | Al <sub>2</sub> O <sub>3</sub>  | 62   | India  |
| SPINEL"  |                      |                           |                               |   | •                               |                                  |                            |           |                             | 0 0                         |  |             |                            |               | 0         |              |           | 0          |         | _                            | •            |                         |                            |  | Magnesia+Alumina                                   |  | MgO; ALO,   |  | China, Germany, USA  |
| SODA ASH   |                      |                           | 0                             |   |                                 | •                                |                            |           | •                           | C                           |  |             | 0                          |               | •         | 0            | 0         | 0          |         | 0                            |              |                         |                            | ODA ASH  | Trona; Nahcolte                                    |  | Na <sub>2</sub> CO <sub>3</sub>   |  | USA, Turkey, China   |
| SODA ASH" SODIUM SULPHATE  |                      |                           | 0                             |   |                                 | •                                |                            |           | •                           | C                           |  |             | 0                          |               | •         | 0            | 0         | 0          |         | 0                            |              | -                       |                            |  | Salt+Limestone+Coke<br>Mirabilite; Thenardite      |  | Na <sub>2</sub> CO <sub>3</sub>   |  | China, Russia, Germany<br>China, Spain, Mexico   |
| SULPHUR  |                      |                           | •                             |   |                                 | •                                | 0                          |           | •                           |                             |  |             | 0                          |               | •         | 0            |           | 0          |         | 0                            |              |                         |                            |  |  | ry-product; Native sulphur   | Na <sub>2</sub> SO <sub>4</sub>   |  | China, Spain, Mexico<br>China, USA, Russia   |
| TALC   |                      |                           | 0                             |   |                                 |                                  | •                          | •         |                             | 0                           | )  |             | 0                          | C             |           | L.           |           | •          | •       | •                            |              |                         |                            | ALC  | . ,  | , p  | n.a.  |  | China, India, USA  |
| VERMICULITE  |                      | •                         | •                             |   |                                 |                                  | •                          |           |                             |                             |  | 0           |                            | 0             |           | 0            | 0         | 0          | 0       |                              | 0            |                         | VE                         | ERMICULITE   |  |  | n.a.  | 400  | South Africa, USA, China   |
| WOLLASTONITE   |                      |                           | 0                             | 0                                       | •                               |                                  | •                          |           |                             |                             |  |             |                            |               | 0         |              |           | •          | •       |                              | (            | ) (                     |                            | OLLASTONITE  |  |  | n.a.  |  | China, India, USA  |
| ZEOLITES <sup>11</sup>   |                      | •                         | •                             | 0                                       |                                 |                                  | 0                          |           | •                           | •                           | •  |             |                            |               |           |              |           |            |         | 0                            |              |                         | _                          |  | Clinoptifolite; Chabazite                          | e; Mordenite   | n.a.  |  | China, South Korea, USA  |
| ZIRCON   | •                    |                           |                               |   | •                               |                                  |                            |           |                             |                             |  |             |                            | •             |           | 0            |           |            |         |                              | •            | (                       |                            | IRCON  |  |  | ZrO <sub>2</sub>  |  | Australia, South Africa, China   |
| ZIRCONIA*  |                      |                           |                               |   | •                               | •                                |                            | 0         |                             | •                           |  | 0           |                            |               |           | 0            |           |            |         | 0                            |              |                         |                            |  | Zircon; Baddeleyite                                |  | ZrO <sub>2</sub>  |  | China, USA, Japan  |
|  | nd common            | cial terms (              | eg. esbestos                  | , boratus), which                       | h are traded t                  | er their non-                    | metallungit                | a .       | n.a. rot app                | dicable to co               | nical compens<br>urbin minerals                                      | eds with    | rely more on               | physical prop | erbes     | A. Toron     | and the   |            | 3.10    | addten, a                    | bout in the  | systems                 | Ra,50, 83                  | 99% 90.) quartz<br>iby-product from rayon , borates, littl                 | turn, HC greduction                                | Creator & Editor: Nike O'De  | tscoll - mike@tmformed.com   Ac<br>Imform   | ivertising/More copies: Ismana Cl<br>ned.com                           | arke - Ismen e@Imformed.com  |
| <ol> <li>main induntrial minerals and rocks, an<br/>walue, also included and indicated as<br/>(eg. clumbs, time), and synthetic minerals.</li> </ol> | STOWN BY<br>HEBS MAN | Heading of<br>Nachared to | Ter al produc<br>om minerals, | its derived by pr<br>, recks, and other | ockssing from<br>or metarists p | n intheras an<br>ig. silicon car | fici recks<br>rbide, spine | 9 .       | sturces ind                 | fuding USGS<br>with a creat | of annual work<br>, 865, Roskill,<br>cing countries<br>ad world prod | MFORMED O   | estimates<br>burnical goal | s renkadia    | descendes | eter of outs | et Webs   | inticates  | 10.a    | atural za eli<br>nele E pro- | or, high wal | e syntholi<br>ich about | ic speller in<br>29m topas | tges procussing<br>are used in agrimentats, chamicals, o<br>es is monessed | detargents, environment                            | Mineral Market Medical CHMFCFMED 2015 without prior written consent from M | i. All rights reserved. No part of th<br>IFORNED, Unauthorized and for u  | is chart may be reproduced, stor<br>nilcensed copying of any part of t | ed, transmitted, in any form or by any means<br>he chart is in violation of copyright law. |
| <ol> <li>major (*) and nitror (*) interest cons<br/>specific to certain nitrerals.</li> </ol>  | athing mar           | mata by val               | Life; not so                  | motive, free                            | are many of                     | ir niscelas                      | edin men                   |           | abundant a<br>refers to ins | nd widerpro                 | ed world prod  | cton        |                            |               |           |              |           |            | 13.0    | stant India                  | tifal Clamos | t, syrthut              | ic diamond                 | es is precessed<br>i production is about 4,400m carets                     |  |  | information are faithe and includity contact at the time<br>MED stack two of list thy to any person or ony starts |  | is conglistion no warranty with respect to its accuracy, conglishment                      |
| 3. If applicable, the main levelshoot raw to   | нияри                | Electron .                |                               |   |                                 |                                  |                            |           |                             | py                          |  |             |                            |               |           |              |           |            |         |                              |              |                         |                            |  |  | D marry's spint BCO  |   |  | пришения при при   |

- 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 !!

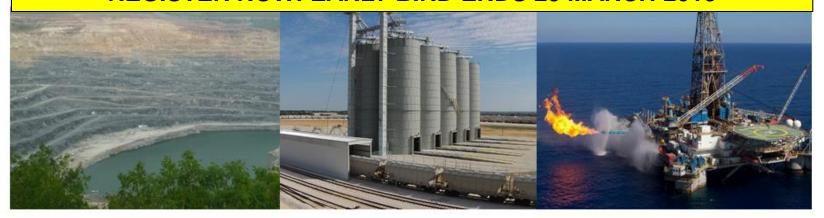




## OILFIELD MINERALS & MARKETS FORUM HOUSTON 2018

Hilton Houston Post Oak, Houston, 6-8 May 2018

#### **REGISTER NOW! EARLY BIRD ENDS 23 MARCH 2018**



#### Supply and demand trends for industrial minerals in the oilfield market

Welcome Reception Sponsor

Sponsor

Exhibitors













Supporting Partners













#### **Confirmed speakers**

#### Outlook for oil and gas supply and demand

Uday Turaga, CEO, ADI Analytics Inc., USA

#### Oilfield mineral demand and outlook in drilling fluids

Veronica Brown, VP of Supply Chain, QMax Solutions Inc., USA

#### The most common INCOTERMS mistakes that shippers and importers make

John Newcaster, Director Southwest, The Cumberland Group Inc., USA

#### Logistic challenges: rates rise as demand and regulatory constraints bite

Richard Dodd, President, RDC Logistics, USA

#### An emerging new frac sand supplier for Asia-Pacific markets

Murray Lines, Managing Director, Stratum Resources, Australia

#### North American proppants market trends and developments

Joel Schneyer, Managing Director, Minerals Capital & Advisory Practice, Capstone Headwaters, USA

#### Overview and outlook for the barite supply market

The Barytes Association, UK

#### Chinese barite supply, and the recent impact of environmental controls

Rita Hu, General Manager, Guizhou Saboman Imp. & Exp. Co. Ltd, China

#### Exploration and development of barite at Surprise Creek, British Columbia

Rene Bernard, Director, Mountain Boy Minerals Ltd, Canada

#### Evaluation of drilling grade barite: methods and mineralogy

Andrew Scogings, Consultant, Australia

#### Oilfield well cements: raw material demand

Claudio Manissero, President, ChemCognition LLC, USA

#### Separation technology for oilfield minerals: solutions for testing and mobility

Steve Gray, Consultant, ST Equipment & Technology LLC, USA

#### A revolutionary new concept in oilfield mineral milling: Mobility and Modularity

Jean-Francois Maréchal, Managing Director, Poittemill, France



## Oilfield Minerals'



## Rockin' Rodeo Reception

5.30-7.30pm Monday 7 May 2018



**Bucking Bronco Country & Western Band** 

Relax, let your hair down, enjoy a Texan Sundowner







#### **Conferences in 2018**



InterContinental Regency, Bahrain, 5-7 February 2018

## MINERAL RECYCLING FORUM 2018

Radisson Blu Hotel, Cologne, 15-16 March 2018 Secondary raw material sources, supply, processing, and markets

## OILFIELD MINERALS & MARKETS FORUM HOUSTON 2018

Hilton Houston Post Oak, Houston, 6-8 May 2018

### MAGF®RUM 2018

Magnesium Minerals & Markets Conference Grand Elysée Hotel, Hamburg — 17-19 June 2018

## CHINA REFRACTORY & ABRASIVE MINERALS FORUM 2018

Regal International East Asia Hotel, Shanghai, 10-12 September 2018

## FLUORINE FORUM 2018 Hotel Wellington, Madrid 15-17 October 2018

**CALL FOR PAPERS | SPONSOR/EXHIBIT OPPORTUNITIES** 



# Participate Learn Enjoy