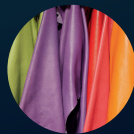


ACTIVITY
REPORT
2019



icda^{cr}
INTERNATIONAL CHROMIUM
DEVELOPMENT ASSOCIATION

INTERNATIONAL CHROMIUM DEVELOPMENT ASSOCIATION

Founded in 1984, the ICDA is the authoritative voice of the chromium industry. Its members represent over 100 companies worldwide in the chromium industry value chain.

The ICDA and its members promote chromium's value and sustainability. Driven by the highest ethical standards, we are committed to sharing best practices, the association works to unite the industry around the common goal of continuous improvement.

We are guided by our mission and values:

- > Acting responsibly to protect people and our environment
 - > Developing the market sustainably
 - > Sharing scientific and technical information
 - > Serving our members
 - > Providing benchmark knowledge
-

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“

We are committed to growing the ICDA service offering year on year and ensure it becomes increasingly relevant for all our members.

”

Phoevos Pouroulis,
ICDA President
(CEO, Tharisa Minerals)

Renewal, as well as continuity, defined 2019. Renewal because members elected a new Council for the 2019-2021 term. Council members elected for the first time will bring innovative ideas to help us grow beyond our comfort zone. Continuity because we are following our strategy to increase our services to members and build a stronger ICDA.

In 2019, we harvested the first benefits of this new strategic approach. We set policy based on strict governance principles, commitment to the highest environmental and ethical standards, and industry safeguarding across the entire chromium value chain. We have enforced the revised by-laws, applied our code of conduct and are finalizing an ethics charter.

We are committed to growing the ICDA service offering year on year and ensure it becomes increasingly relevant for all our members.

Projects delivered and commissioned in 2019 include publishing research on China's ferrochromium industry, launching a toxicological update for chromium compounds, and conducting a market study on the non-stainless metallurgical applications of chromium.

You will find more details throughout this report on the different projects undertaken by the ICDA.

We have a new corporate identity in line with our values and we will further develop user-friendly services

The ICDA's 35-year anniversary celebrations started with the second edition of our Chinese New Year Dinner that took place in Chengdu. Its resounding success confirmed the association's popularity in China.

We hosted for the first time a conference in Victoria Falls, Zimbabwe with a record attendance of over 250 delegates. The Chromium 2020 event in New Delhi fittingly and successfully closed our first 35 years.

I would like to thank members for renewing their trust in the elected Council team for the 2019-2021 term. I also commend my colleagues on the ICDA's Council and the Committee chairpersons for their continuous dedication.

We trust you will find this report insightful and we look forward to sharing key milestones for the ICDA and our industry in the next edition.



“

Our industry will thrive in the next 35 years if we work together to show how chromium plays a major role in sustainable applications.

”

Sheraz Neffati
ICDA Executive Director

A new chapter began in 2019 for the ICDA. We celebrated our 35th anniversary and elected new leadership for our organization. My team and I aim to rapidly advance our development to create a stronger association for the next generation of chromium industry leaders. Some of the main objectives for the coming years include:

- > Per our code of conduct, continuously place strictest governance and ethics rules at the heart of the ICDA
- > Scale up financial and human resources to conduct research in sustainability and further regulatory matters and pursue our continuous development of best practices in health, safety, and the environment
- > Protect all chromium uses and provide maximum support to every sector across the chromium value chain
- > Support existing and new markets in close cooperation with end-users organizations
- > Publish regular expert market research papers not only on chrome ore, ferrochromium, and stainless steel but also other market segments

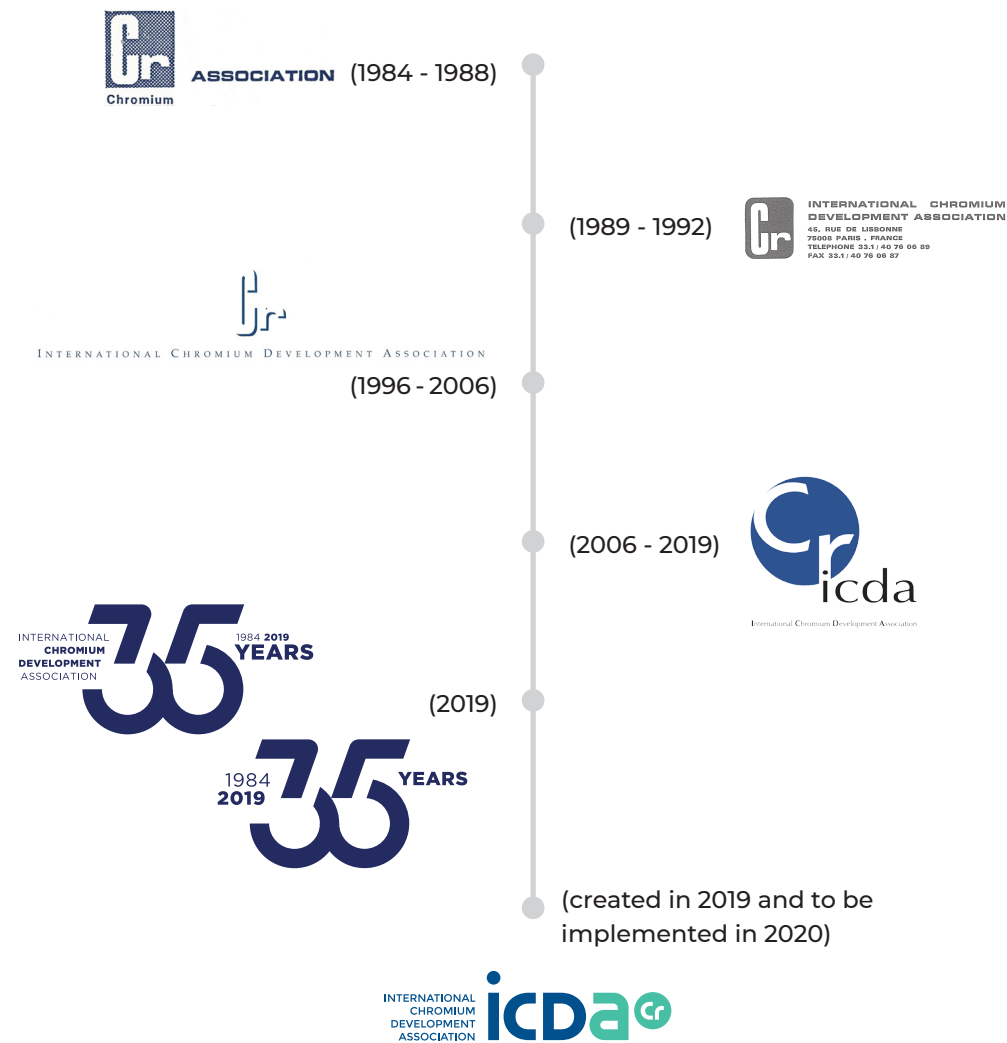
- > Reinforce the ICDA's presence worldwide, particularly in China, and remain the leading voice of the chromium industry
- > Stand as the reference for industry conferences and networking opportunities
- > Develop the most relevant services for members and listen to industry needs

A group of visionary leaders in the industry, who believed that we are stronger together, created the association. We are committed to following our founders' lead. Our industry will thrive in the next 35 years if we work together to show how chromium plays a major role in sustainable applications.

I am looking forward to writing part of this history with you and thank our members, the ICDA Council, Management, Vice President and President for their trust and support.

35 YEARS OF ICDA

The ICDA has grown and developed over the last three and a half decades into the indisputable reference for the chromium industry. In 2019, we celebrated our past achievements and looked at the future we want to create for the new generation of industry leaders.



THE COUNCIL

The ICDA ordinary members voted for their new Council representatives under ICDA rules. The newly-elected Council will have a 2-year term to oversee the association's activities. The term began on May 7th, 2019 and will end at the 2021 Members' Meeting.

The ICDA's new Council unanimously agreed to renew Phoevos Pouroulis as President and Yasar Ozdirek as Vice President. It has also agreed unanimously to co-opt Anglo American (South Africa) and Elementis Chromium (USA) for the Council to represent accurately ICDA's membership. These two companies are involved, respectively, in UG2 and in chrome chemicals.



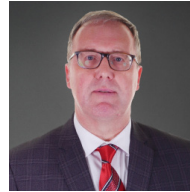
Phoevos Pouroulis
ICDA President
Tharisa Minerals, South Africa



Yasar Ozdirek
ICDA Vice-President
Yildirim Group, Turkey



Seyda Caglayan
Afarak
Turkey



Michael Haw
AMG Superalloys
United Kingdom



Jill Wolfe
Anglo American
South Africa



Carl Landuydt
Aperam
Luxembourg



Debby Huang
Ehui Group
China



Eric Waldmann
Elementis Chromium
USA



Dr. Gerhard Pariser
ELG Haniel GmbH
Germany



Konstantin Pravednikov
ERG
Russia



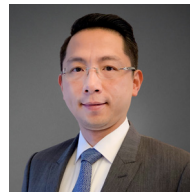
Sven Friedrich
Glencore
Switzerland



Deepak Kumar Mohanty
IMFA
India



Mike Techow
Lanxess
South Africa



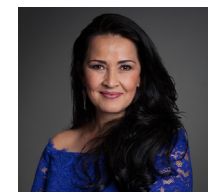
Jonathan Qiu
Mintal
China



Yuji Kubo
NSSSC
Japan



Martti Sassi
Outokumpu
Finland



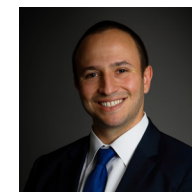
Zelda du Preez
Rand York Minerals
South Africa



Graham Price
Samancor
South Africa



M.C. Thomas
Tata Steel
India



David Kramer
TELF AG
Switzerland



Dmitry Pastour
Unichrome AG
Switzerland

THE STRATEGY SESSION

Strategy sessions have been held after Council elections for the past 8 years, an exercise that has proven both necessary and useful. Council Members volunteer some of their time to oversee ICDA actions per the mandate given to them by the ordinary members.

Strategy sessions are held in the months following the Council's election. Participants review what has been accomplished in the previous term and set objectives in light of existing and future challenges.

This session is also an excellent way to introduce how the Council works to the newly-elected members, to create the team spirit necessary to collaborate effectively during these two years, and to assign missions.

Since 2017, new leadership at various levels has helped to create sound foundations for the ICDA. It allows us to assess our strategy continuously to ensure we are relevant and able to deliver the best services to our members. For two days, the Council worked in subgroups on specific issues and reported ideas during plenary sessions that also offered excellent opportunities for dialogue and strategy planning.

The decisions taken and prioritized build the ICDA's road map for the next two years.

GOVERNANCE



HSE AND SUSTAINABILITY



CHINA



MARKET RESEARCH



MARKET DEVELOPMENT



COMMUNICATIONS AND CONFERENCES





HEALTH, SAFETY & THE ENVIRONMENT

Dr. Juha Ylimaunu, *Health Safety Environment Chairperson*
(General Manager Environment, Outokumpu)

Sound health, safety, and environmental performance is a critical success factor for ICDA members. Society increasingly demands information on product safety throughout their life cycle. The sustainability of our markets will depend increasingly on respecting the highest health, safety, and environmental standards.

- > Appointment of George Kowalczyk (BSc, MSc (enzymology), MSc (toxicology), ERT, DABT, Cchem FRSC) to update the Health Risk Assessment Report for Metallic and Trivalent Chromium Compounds (Finnish Institute of Occupational Health – 2006). We aim to make available the latest toxicological facts about chromium's different forms and to publish comprehensive fact sheets.
- > Kick-off of the Life Cycle study assessing the emission footprint of high carbon ferrochromium production.
- > Participation in the EU critical raw material exercise to promote the importance of chromium for society and to protect our industry.
- > Monitoring the new European Cobalt Hazard Classification in partnership with Team Stainless and Eurofer to prevent stainless steel from being classified as containing a CMR substance. Cobalt is naturally present as a trace element in stainless steel alloys, but not bioavailable in stainless steels.
- > Updated review of the toxicity of stainless steel given the chemical hazard classification (EU CLP / GHS) and a review of the proposed occupational exposure limit/reference values—and their applicability—for air impurities formed during the production of stainless steel.
- > Best practice for the safe use of ferrochrome slag in road construction: Following the release of the study step 1, a high-level ICDA Member country delegation visited the Kemi Circular Economy Center (Finland) to further knowledge in the safe use of ferrochrome slag.
- > Southern African HSE Committee Meeting hosted by Samancor Chrome and chaired by Derek Baker (Tharisa) took place in Middelburg on March 28-29th, 2019.
- > European and CIS HSE Committee Meeting hosted by ICDA and chaired by Dirk Radermacher (Elektrowerk Weisweiler GmbH - Afarak Group) took place in Paris on September 17-18th, 2019.



MARKET RESEARCH

Greg Taurog, *Market Research Chairperson*
 (Executive: New Business, Tharisa Minerals)

We developed new services in 2019 besides the weekly market updates and quarterly data analyses. We plan to publish at least two in-depth market studies per year (such as the recent China Ferrochromium report) and to develop our own information sources to provide our members with expert views every month.

- > Review of data collection processes to ensure on-time quarterly publications
- > Survey to assess the quality of ICDA market research services and to adapt to members' needs
- > Publication of a comprehensive study analyzing the ferrochromium and related markets in China in light of socio-economic and geopolitical facts
- > Monthly expert interviews exploring a topic in detail



COMMUNICATIONS

Zelda du Preez, *Communications Chairperson*
 (CEO, Rand York Minerals)

Two years ago, We shifted from the chrome ore committee to communications since our activities were increasingly focusing on supporting the ICDA in developing its brand. We invited new participants to the group. We are developing valuable services to

members on which we need to communicate compellingly. Creating a united world community is also one of our main objectives.

- > Year-long celebration of the ICDA's 35th anniversary with targeted communications and events
- > Increase in our social media presence and launch of partnerships with relevant industry news providers
- > Support for the 4th edition of the South African Chrome Industry Dinner in Johannesburg on September 5th, 2019, with over 800 attendees
- > Launch of a new logo and corporate identity for the association in line with our values and commitment to sustainability
- > Release of the ICDA mission and values video giving a 2-minute perfect review of who we are and what is driving us
- > Preparation of an event application to be made available to conference participants in 2020



MARKET DEVELOPMENT

Yuji Kubo, *Market Development Chairperson*
(*Head of Division General Manager, NSSSC*)

Chromium is never used alone. It is an essential ingredient with intrinsic properties such as providing remarkable resistance to corrosion, extreme temperatures, and to wear and abrasion.

Our working group is focusing on chromium's main application, which is mainly—but not only—in stainless steel. We are reviewing our approach to study non-stainless alloys and innovative developments that need chromium for sustainable applications.

- > Review of the ICDA market development strategy
- > Commissioning a study to identify demand, end uses, main markets and prospects for chromium in non-stainless metallurgical applications (alloy engineering steels, tool and high-speed steels, nickel-chrome alloys)
- > Change in leadership and a new approach for Team Stainless, including updating the communications strategy and defining new project selection guidelines for (value, quantifiable results for our industries, creating a new market or protecting an existing one).



CHINA

Jonathan Qiu, *China Chairperson*
(*Chief Operation Officer, Mintal*)

Since the China Committee was launched, we have seen increased local interest for the ICDA. The association is steadily building its presence in China and being recognized as a much-needed actor in the Chinese chromium industry ecosystem.

We plan to hold a strategy session to review our approach and assess our industry's needs in China, in sustainability, health and safety, the environment, and market development.

- > The 2nd ICDA Chinese New Year Dinner took place in Chengdu, a growing success with about 140 attendees from the China chromium industry value chain. The participants praised the event as an excellent opportunity to network and to understand the benefits of the association through discussions with local members and association's representatives
- > Development of ICDA local partnerships and improved communications in China
- > Plan for a local strategy session and a reorganization of ICDA activities locally to meet the needs of its membership in China



CHROME CHEMICALS AND METAL

Mike Techow, *Chrome Chemicals and Metal Chairperson*
(Global Marketing Manager, Lanxess)

Chemical grades of ore are used in many strategic applications for which chromium is the best available choice. Our group focuses on promoting the continuous and sustainable use of chromium chemicals, encouraging best practices, and providing guidance for responsible production, disposal, and uses.

- > Strategy session led by independent consultants to agree on a road map consistent with the needs of chrome chemicals and metal members of the ICDA
- > Close cooperation with the different parties involved in protecting the use of the chromium trioxide in Europe; the ICDA became a member of CETS (the European Committee for Surface Treatment) and both organizations have committed to working together to safeguard the chrome plating sector
- > Monitoring the Cr III oxide CoRAP classification with the Chromium Compounds Consortium
- > Promoting the value of chromium as an efficient tanning agent and supporting the application of best practices; the ICDA joined the Leather Working Group, a not-for-profit organization that developed an environmental audit protocol for tanneries and has so far audited over 700 members

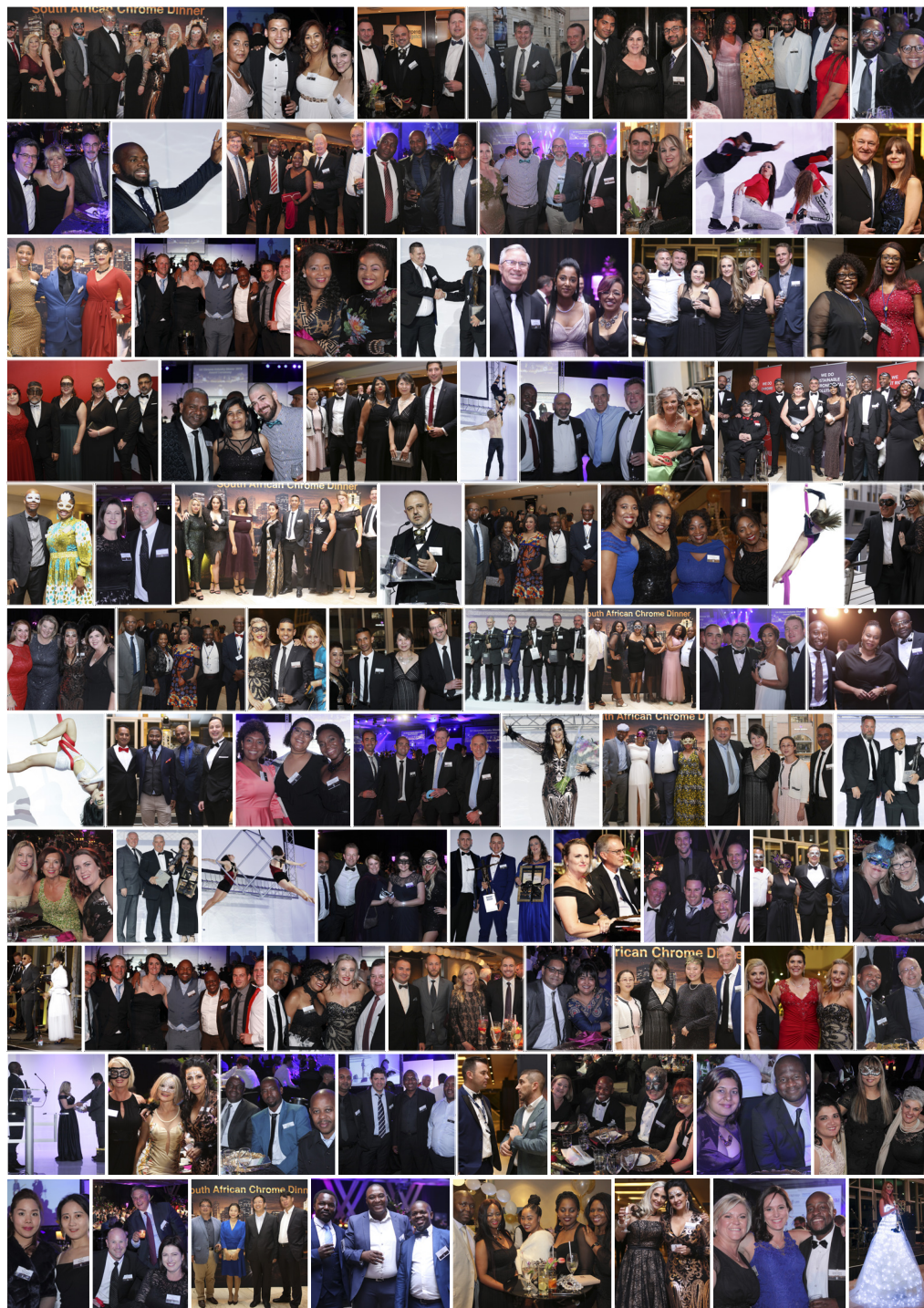
ICDA Chinese New Year dinner - February 26th, 2019 - Chengdu, China



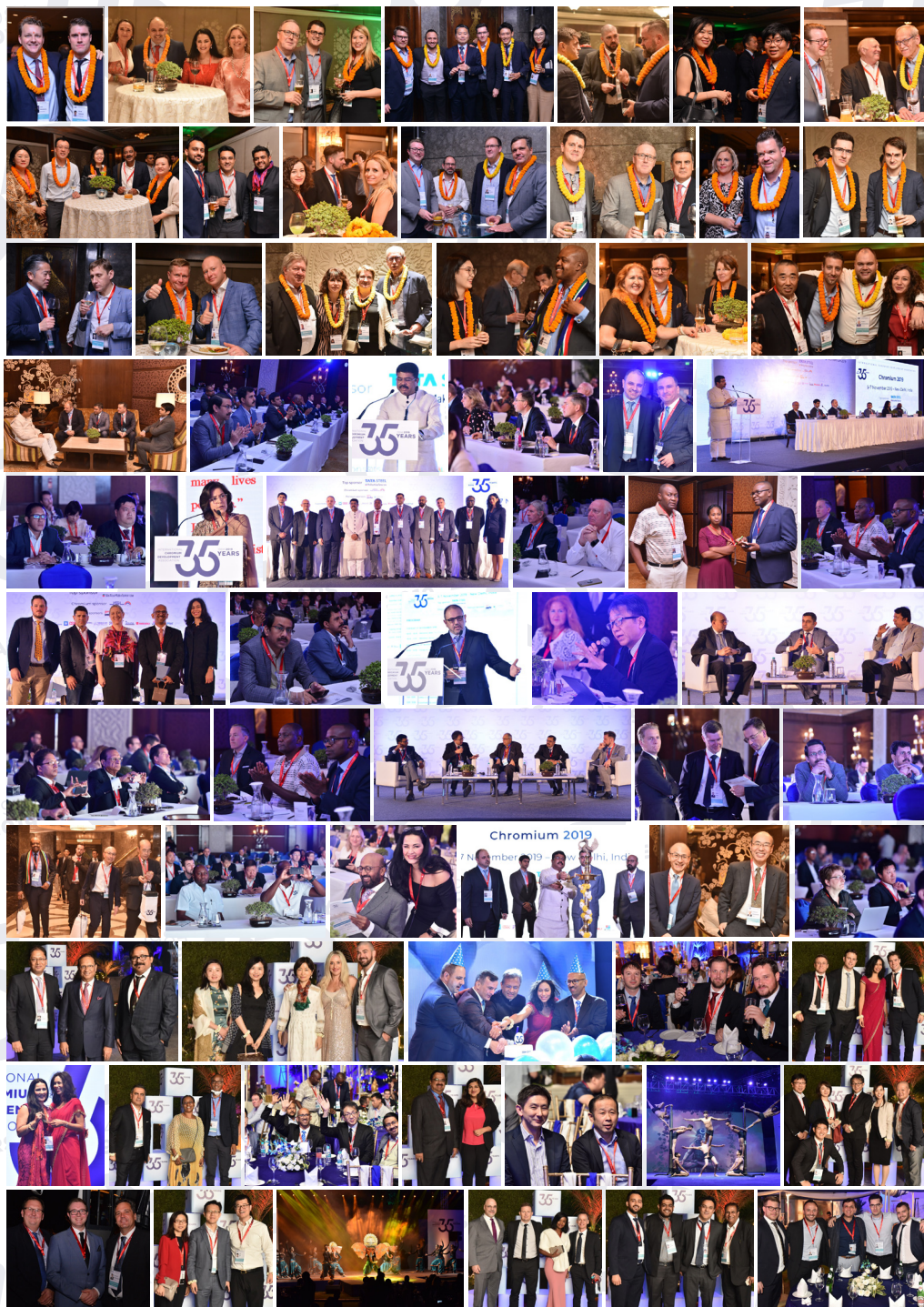
35 years of ICDA - May 7-9th, 2019 - Victoria Falls, Zimbabwe



The 4th South African Chrome Industry dinner - September 5th, 2019



ICDA Chromium 2019 - November 5-7th, 2019 - New Delhi, India



ORDINARY MEMBERS

Acerinox S.A. (Spain)

Afarak Group (Finland)

Aktyubinsk CCP / Networld Trading Ltd. (Turkey)

Al Tamman Indsil Ferro Chrome LLC (Oman)

Albchrome (Albania)

AMG Superalloys UK Limited (United Kingdom)

Anglo American Platinum Limited (South Africa)

Aperam S.A. (Luxemburg)

Balasore Alloys Ltd. (India)

Befesa Scandust AB (Sweden)

China National Minerals Co., Ltd. (China)

Chongqing Changyuan Group Limited (China)

Chongqing Minfeng Chemical Co., Ltd. (China)

CRONIMET Group (Germany)

DCX Chrome - Groupe Delachaux (France)

Dedeman Madencilik Sanayi ve Ticaret AS (Turkey)

Ehui Group Limited (China)

Elementis Chromium (USA)

ELG Haniel Trading GmbH (Germany)

ERG Sales AG (Switzerland)

Eti Elektrometalurji A.S. (Turkey)

Ferbasa (Brazil) **NEWLY JOINED**

Ferro Alloys Corporation Ltd. (FACOR) (India)

Glencore (South Africa)

Hernic Ferrochrome (Pty) Ltd. (South Africa)

Hubei Zhenhua Chemical Co., Ltd. (China)

Indian Metals & Ferro Alloys Ltd. (IMFA) (India)

JFE Material Co., Ltd. (Japan)

Jindal Stainless Limited (India)

Kraomita Malagasy (Madagascar)

Lanxess (Pty) Ltd. (South Africa)

Masa Chrome (Pty) Ltd. (South Africa)

Merafe Resources Limited (South Africa)

Minerals Technologies (South Africa)

Mintal Group Chrome Industry Science and Technology Co., Ltd. (China)

Misrilall Mines Private Limited (India)

Nippon Chemical Industrial Co., Ltd. (Japan)

Nippon Steel & Sumikin Stainless Steel Corp. (Japan)

Novotroitsk Plant of Chromium Compounds (Russia)

Ore & Metal Company Ltd. (South Africa)

Outokumpu Chrome Oy (Finland)

RFA International LP / ChEMK (Switzerland)

RusChrome GmbH (Germany)

Samancor Chrome (South Africa)

SCHMOLZ + BICKENBACH AG (Europe)

Shanxi WanYang International Trading Co., Ltd. (China)

Sibanye Stillwater (South Africa) **NEWLY JOINED**

Sichuan Yinhe Chemical Group Co., Ltd. (China)

Soda Sanayii A.S. - Sisecam Group (Turkey)

Stork Vienna (Austria) **NEWLY JOINED**

Tata Steel Limited (India)

Tharisa Minerals (Pty) Ltd. (South Africa)

Tsingshan Holding Group Company Ltd. (China)

VISA Steel Limited (India)

Vishnu Chemicals Limited (India)

Yildirim Group / Eti Krom A.S. (Turkey)

Xin Gang Lian Metallurgy Co., Ltd. (China)

Zimasco (Pvt) Ltd. (Zimbabwe)

ASSOCIATE MEMBERS

Asia Steel & Metals Ltd. (Hong Kong, China)

Baometal Minerals International Trade Limited (China)

BF International Limited (Japan)

Barplats Mines (Pty) Limited (South Africa)

CellMark Metals / Sonaco Trading AB (Sweden)

COFERMIN Chrome GmbH & Co. KG (Germany)

Cometal SA (Spain) **NEWLY JOINED**

EK-Company (EKC.AG) (Germany)

F.W. Hempel Intermétaux S.A. (Switzerland)

Glorychem GmbH & Co. KG (Germany)

Gunvor Singapore Pte Ltd. (Singapore)

HANWA Co.,Ltd. (Japan)

Inter Alloys, S.L. (Spain)

Jackson Minerals Co., Ltd (China)

Joy Hammer Investment (Shanghai) Co., Ltd (China)

Marubeni Tetsugen Co., Ltd. (Japan)

Metal Partner GmbH (Germany)

Mitsubishi Corporation (Japan)

Mitsui & Co. Ltd. (Japan)

Noble Resources Int. pte. Ltd. (Singapore)

North American Minerals Chrome Sales Ltd. (USA)

Ore Alloy Development Corporation Ltd.(China)

Pacific Linkage (China) Limited (China)

Pelagic Resources (Pty) Ltd. (South Africa)

Possehl Erzkontor GmbH Co KG. (Germany)

Prince (USA)

PURMETALL GmbH & Co. KG (Germany)

Qunxian International Trade Co., Ltd. (China)

Rand York Minerals (Pty) Ltd. (South Africa)

“RMK” Ltd. (Russia)

Sojitz Corporation (South Africa)

Southern Development Ltd. (SODEVCO) (UAE /USA)

Sumitomo Corporation (Japan)

TELF AG (Switzerland)

The Department of Mineral Resources (South Africa)

Tianjin Maxore International Trade Co. Ltd. (China)

Traxys North America LLC (USA)

UniChrome AG (Switzerland)

Vopelius Chemie AG (Germany)

AFFILIATE MEMBERS

Access World (Switzerland)

Canada Natural Resources Ministry (Canada)

Chongqing Angruiyue Science and Technology. Co., Ltd. (China)

CMMP (France)

Cromochimica Industriale SRL (Italy) **NEWLY JOINED**

Exxaro FerroAlloys (Pty) Ltd. (South Africa)

F.W. Winter Inc. & Co. (USA)

LBH Mozambique (Mozambique)

Magotteaux International S.A (Belgium)

Metal Line Projects (South Africa)

Monteagle Logistics Limited (South Africa)

New Sokao (Belgium)

Outotec Oyj (Finland)

Savroc Oy (Finland)

SIBELCO (France)

SNCZ (France)

Tenova Mining & Minerals (Pty) Ltd. (South Africa)

Uvan Hagfors Teknologi AB (UHT) (Sweden)





INTERNATIONAL CHROMIUM DEVELOPMENT ASSOCIATION



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