MET-INFO

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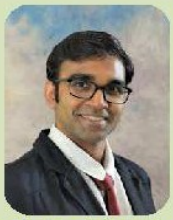

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OBITUARY

Shri P N Shali

With profound grief we inform our members that Shri P N Shali, Life Member of IIM, left for his heavenly abode on 20th December 2022.

Shri Shali was an active member of IIM. He was associated with IIM for about 50 years. He contributed immensely to the growth of IIM Delhi Chapter.

Shri Shali was Secretary of our Chapter in 1987-88 and 1988-89. He also held the position of Chairman of our Chapter from 1996-97 to 2001-02. His contribution to the MMMM events will always be remembered by the Chapter. He was an affable person. He has left an indelible mark in our Chapter. He will always be remembered by the posterity of the Chapter for his contribution to the Chapter's activities.

The Executive Committee of the Chapter prays to Almighty that his noble soul rests in peace.

Chapter Activities

Visit of Team from UK High Commission on December 13, 2022

A meeting was organized by IIM Delhi Chapter at SRTMI Office on December 13, 2022, where senior officials from UK High Commission and representatives from SRTMI and IIM - Delhi Chapter discussed scope of future R&D collaboration and partnership in the metal sector, with particular emphasis to iron and steel. The UK High Commission team was led by Mr. Sujith Thomas, Head of Advance Engineering and Manufacturing along

with Ms. Deepanjali Rai, Senior Trade & Investment Advisor. The following members from SRTMI/ IIM-Delhi Chapter participated in the meeting.

1. Mr. B D Jethra
2. Mr. K K Mehrotra
3. Dr. Ramen Datta
4. Mr. R K Vijayavergia
5. Prof. Jayant Jain
6. Prof. Lakshmi Narayan
7. Mr. Deepak Jain
8. Mr. Bhim Sain

It was felt that collaboration between the two countries in areas of mutual interest will be beneficial to the metal sector. It will help in enlarging the knowledge base, provide opportunity to interact with leading experts in the academia and industry, and trigger innovative, transformational research programs. The following broad scope of collaborative research activities were proposed by IIM-Delhi Chapter.

Organize Conferences/ Seminars on topical themes of mutual interest, where experts from UK academia/ industry will participate.

Facilitate linkages with academic institutes/industry in UK. Organize visit of eminent academicians/technologists to Delhi. Special lectures/Seminars will be organized by IIM-Delhi Chapter/ SRTMI/ IIT-Delhi.

Undertake collaborative research programs in areas of mutual interest.

The following areas of scientific co-operation/ collaborative research was discussed:

1. Extraction of lithium from ore and its processing to metallic lithium.
2. Cost-effective technology for processing of nickel from ore deposits.
3. Programs related to decarbonisation of the steel industry and achieving net zero carbon.
4. Introduction of digitalization and smart technologies such as AI, Machine Learning (ML), Graphics Processing Unit (GPU) in steel making and processing.
5. Cost-effective coating solutions for enhanced corrosion properties in steel bars for construction.
6. Application of robotics in steel industry.
7. Production and storage of hydrogen in large capacities.
8. Development of advanced coatings for elevated temperature and high abrasion resistance/ wear applications (IIT-Delhi).
9. Alloy development to reduce imports.

10. 3-D printing of components.
11. Waste water management with an aim to achieve zero liquid discharge.

World Crude Steel Production: Jan.- Nov.2022

World crude steel production for the 64 countries reporting to the World Steel Association (worldsteel) was 139.1 million tonnes (Mt) in November 2022, a 2.6% decrease compared to November 2021.

Top 10 Steel Producing Countries

Countries	million tonnes November 2022	% change Nov-22/21	million tonnes Jan - Nov 2022	% change Jan - Nov 22/21
China	74.5	7.3	935.1	-1.4
India	10.4	5.7	114.2	6.0
Japan	7.2	-10.7	82.3	-6.9
United States	6.4	-10.5	74.4	-5.5
Russia	5.6 e	-9.6	65.9	-7.0
South Korea	4.8	-18.1	60.6	-6.1
Germany	2.8	-17.9	34.2	-7.9
Türkiye	2.4	-30.7	32.5	-12.3
Brazil	2.6	-16.3	31.5	-5.9
Iran	2.9	3.9	27.9	8.5

e - estimated. Ranking of top 10 producing countries is based on year-to-date aggregate

China produced 74.5 Mt in November 2022, up 7.3% on November 2021. India produced 10.4 Mt, up 5.7%. Japan produced 7.2 Mt, down 10.7%. The United States produced 6.4 Mt, down 10.5%. Russia is estimated to have produced 5.6 Mt, down 9.6%. South Korea produced 4.8 Mt, down 18.1%. Germany produced 2.8 Mt, down 17.9%. Türkiye produced 2.4 Mt, down 30.7%. Brazil produced 2.6 Mt, down 16.3%. Iran produced 2.9 Mt, up 3.9%.

Source: WSA Press Release, 22 December 2022

'Green steel' on Commercial Scale is Decades Away in India

Environmentally-friendly steel on a commercial scale in India seems to be decades away, as the use of hydrogen to replace coal/coke based DRI/BF in production is a long way from being commercially viable.

The average age of existing blast furnaces in steel plants is 18 years in India – means it would be difficult to justify the costs of converting them to hydrogen-enabled "direct reduced iron" (DRI) facilities, even if hydrogen is commercially available in next 10-15 years.

The adoption of hydrogen in steel making – the replacement of blast furnace iron making with direct reduced iron – is something possible in the future. However, it is not something that is going to happen for another few decades. The reason is just costs.

Further for DRI to be economically sustainable in India, the price of green hydrogen should be US$1-2 per kilogram. The cost of green hydrogen, made by splitting water into oxygen and hydrogen using renewable energy, could take until 2050 to fall to US$0.7-US$1.60 per kg in most parts of the world.

DRI, which involves the removal of oxygen from the ore to produce iron without melting it, is much less carbon-intensive than that produced in blast furnaces.

Another way to sharply reduce carbon emissions in India's steel industries is to replace the blast furnaces with electric arc furnaces (EAF) fed by scrap steel. But progress here is likely to be gradual, because of the limited availability of scrap steel. Carbon footprint of steel produced by electric arc furnaces is around 75 per cent lower than that of blast furnaces.

India Remains Net Importer of Steel in Nov. 2022

India continued to be a net importer of steel in November, for the second consecutive month this fiscal, with imports at 600,00 tonnes, indicative of a global slowdown in the metal cycle and consistent pressure on the price of domestic offerings.

Imports exceeded exports of finished steel by 262,000 tonnes and rose 92 percent on y-o-y basis. Exports for November were 338,000 tonnes.

Finished steel offerings include non-alloyed, alloyed, and stainless steel.

This is the third month for the fiscal year – after July and October – when India turned net importer of finished steel.

On a month-over-month basis, imports saw a jump of over one percent. In October, shipments were at 593,000 tonnes.

Domestic prices were higher than the landed price of imports as many traders started looking at imports. Moreover, some previous orders are coming in, leading to a ramp-up of shipments. Most of these were booked earlier in the year and are now coming in. At the same time, Indian exports dried up because of the global slowdown and the export duty, making steel sold overseas costlier.

India removed duty on exports from November 19, 2022 (after it was imposed in May). But since it came "quite late in the month," there was no significant improvement in sentiment or export orders.

However, for the eight-month period (April-November) India remained a net exporter of steel. Imports were at 37,51,000 tonnes versus exports, which stood at 42,99,000 tonnes.

Non-alloyed steel imports in November witnessed a 113 percent rise to 391,000 tonnes (vs. 184,000 tonnes). The segments accounted for 65 percent of the shipments coming in. Non-alloyed steel is the prime export offering from India, but the downstream industries are relying on imports, which include cold-rolled and coated offerings.

On the other hand, alloyed and stainless steel offerings saw a 64 percent rise y-o-y during November, to 210,000 tonnes (vs. 128,000 tonnes).

In case of a month-on-month comparison, non-alloyed steel imports witnessed a 7.5 percent rise; while alloyed offerings saw a 9 percent drop.

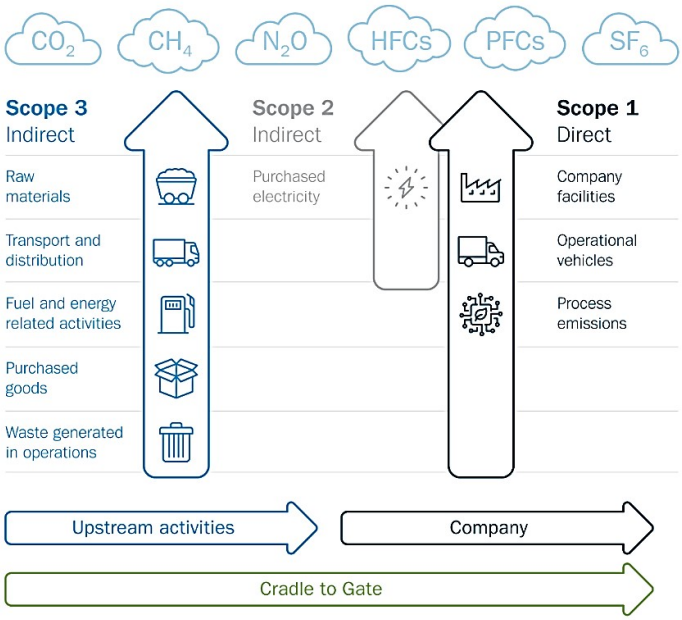
Source: The Hindu Businessline, December 8, 2022

Introducing Product-specific Carbon Footprint

Outokumpu claims to be the first stainless steel producer to provide a product-specific carbon footprint (PCF). This information, based on continuous production data, can help the customers to reduce their climate emissions.

There is a growing need for companies to reduce all indirect emissions from their value chain. Many are already calculating and reporting direct and indirect emissions. However, to calculate the complete CO_2 emissions down the supply chain it is essential to know the CO_2 impact of the materials they buy in – and that's why this product-specific information is vital.

Outokumpu claims to be currently the only stainless steel producer to report emissions from all three scopes. Making this specific data available means that the customers no longer need to rely on average industry figures for their own carbon footprint calculations. Instead, every batch of every steel grade Outokumpu produce will come with its own carbon footprint certificate. The calculation model used is based on continuous follow-up of production data.



Within their calculation, all Green House Gas (GHG) emissions are considered through the whole production chain (Scope 1, 2, 3) following the Cradle to Gate approach. The yield of each production is included. The values which will be printed are based on a 12 month rolling average and will be updated in a monthly interval. For the emission factors that is used for the input materials, they rely on data mainly from the *Eco Invent database*, and also from *Worldsteel* or other relevant industry associations.

From now on, Outokumpu customers will find the carbon footprint of their products on their product certificates alongside other properties such as yield strength, tensile strength and elongation, which are universally recognized as mechanical properties.

Outokumpu's own climate target is to reduce carbon dioxide emissions by 42% by 2030 from the base year of 2016. This translates to an emission reduction of 14% by the end of 2025 from the 2021 levels.

Source : https://www.outokumpu.com/news/2022/outokumpu-is-the-first-stainless-steel-producer-to-provide-a-product-specific-carbon-footprint-based-on-continuous-production-data-3184768

New Steel Coalition Promotes a Transparent and Climate-focused Standard to Measure and Reduce Carbon Emissions

An international group of leading steel manufacturers has formed a coalition to urge the United States and European Union to adopt a global emission standard that incentivizes steelmakers to use the cleanest steel production process available.

The new coalition – the Global Steel Climate Council (GSCC) – supports a global standard that accelerates the transition to low-emission steel and recognizes the potential of the recycled, circular steel model to reduce carbon emissions.

The United States and European Union are negotiating a new emissions standard for steel production. The GSCC asserts that any agreement should focus on the amount of emissions generated, not on how steel is made. The majority of the world's steel production is extremely carbon-intensive because it primarily relies on mined and processed coal, iron ore and limestone. However, other steelmakers – including those producing over 70% of all U.S. and over 40% of all European manufactured steel today – use electric arc furnaces (EAFs) that principally input recycled scrap metal to produce steel, generating significantly lower carbon emissions.

The global industry needs to build on the innovation that has already led to cleaner steel production in the United States because the green and digital economies around the world are going to be built with steel.

A "sliding scale" standard supported by high-emission steelmakers would set greenhouse gas emission standards ceilings up to nine times higher for extractive versus recycled products, penalizing EAF producers and permitting higher-emission steel to be erroneously labelled as "green." Under a sliding scale, two steel products could be classified as equally "green," even though one was produced by creating multiple times more carbon emissions than the other.

The primary focus of the GSCC is to establish a standard, focusing on the following guiding principles:

- Reducing GHG emissions from the global steel industry.
- Establishing a standard that is technology/production method agnostic.
- Establishing a standard that has a system boundary that includes Scope 1, 2 and 3 emissions.
- Establishing a standard that aligns with a science-based glide path to achieve a 1.5 degrees scenario by the year 2050.
- Providing relevant information on sustainable steelmaking to appropriate decision makers.

The GSCC single standard will encourage all producers to reduce their carbon emissions and create a level playing field for all manufacturers.

The Global Steel Climate Council, Inc. (GSCC) is a non-profit association organized to advance climate strategy by sharing best practices, establishing standards and advocating for carbon emissions reductions by members of the steel industry. The GSCC includes more than 20 members and supporters who are steel manufacturers, trade associations, end users, scrap metal suppliers and non-governmental organizations. GSCC's specific purposes are to focus on reducing greenhouse gas emissions from the global steel industry by supporting reduction methods that are technology agnostic, have a system boundary that includes Scope 1, 2 and 3 emissions and align with a science-based glidepath to achieve a 1.5 degrees Celsius scenario by 2050. The founding members of the GSCC are: the Steel Manufacturers Association, Nucor Corporation, CELSA Group, Steel Dynamics, Inc., Commercial Metals Company and the Institute of Scrap Recycling Industries.

Source: Global Steel Climate Council, Nov 17, 2022,https://www.prnewswire.com/news-releases/new-steel-coalition-promotes-a-transparent-and-climate-focused-standard-to-measure-and-reduce-carbon-emissions-301681330.html

BioIron™ Process

Rio Tinto has claims to prove the effectiveness of its low-carbon iron-making process using ores from its mines in Australia in a small-scale pilot plant in Germany, and is now planning the development of a larger-scale pilot plant to further assess its potential to help decarbonise the steel value chain.

The process, named as BioIron™, uses raw biomass instead of metallurgical coal as a reductant and microwave energy to convert Pilbara iron ore to metallic iron in the steelmaking process. BioIron™ has the potential to support near-zero CO_2 steel-making, and can result in net negative emissions if linked with carbon capture and storage. Over the past 18 months, the process has been tested extensively in Germany by a project team from Rio Tinto, sustainable technology company Metso Outotec, and the University of Nottingham's Microwave Process Engineering Group. Development work was conducted in a small-scale pilot plant using batches of 1,000 golf ball-sized iron ore and biomass briquettes. The biomass is from agricultural by-products such as wheat straw or canola stalks, or purpose-grown crops. The biomass is blended with iron ore and heated by a combination of combusting gases released by the biomass and high-efficiency microwaves that can be powered by renewable energy.

It is claimed that the results from this initial testing phase show great promise and demonstrate that the BioIron process is well suited to Pilbara iron ore fines. It's potential was confirmed in a comprehensive and independent technical review by Hatch, the global engineering, project management and professional services firm. Hatch noted the thorough work completed by the team and BioIron™'s capacity to reduce greenhouse gas emissions while converting Pilbara iron ore into iron and steel.

The BioIron™ process will now be tested on a larger scale, at a specially designed continuous pilot plant with a capacity of one tonne per hour. The design of the pilot plant is underway and Rio Tinto is considering suitable locations for its construction.

The BioIron™ process works using lignocellulosic biomass including agricultural by-products (e.g., wheat straw, canola stalks, barley straw, sugar cane bagasse) or purpose-grown crops. The biomass is blended with iron ore and heated by a combination of combusting gases released by the biomass and high-efficiency microwaves that can be powered by renewable energy.

Steelmaking accounts for 7-9 percent of the world's carbon emissions, and 66 percent of Rio Tinto's Scope 3 emissions. Finding low-carbon solutions for iron-making and steelmaking is critical for the world for tackling the challenges of climate change.

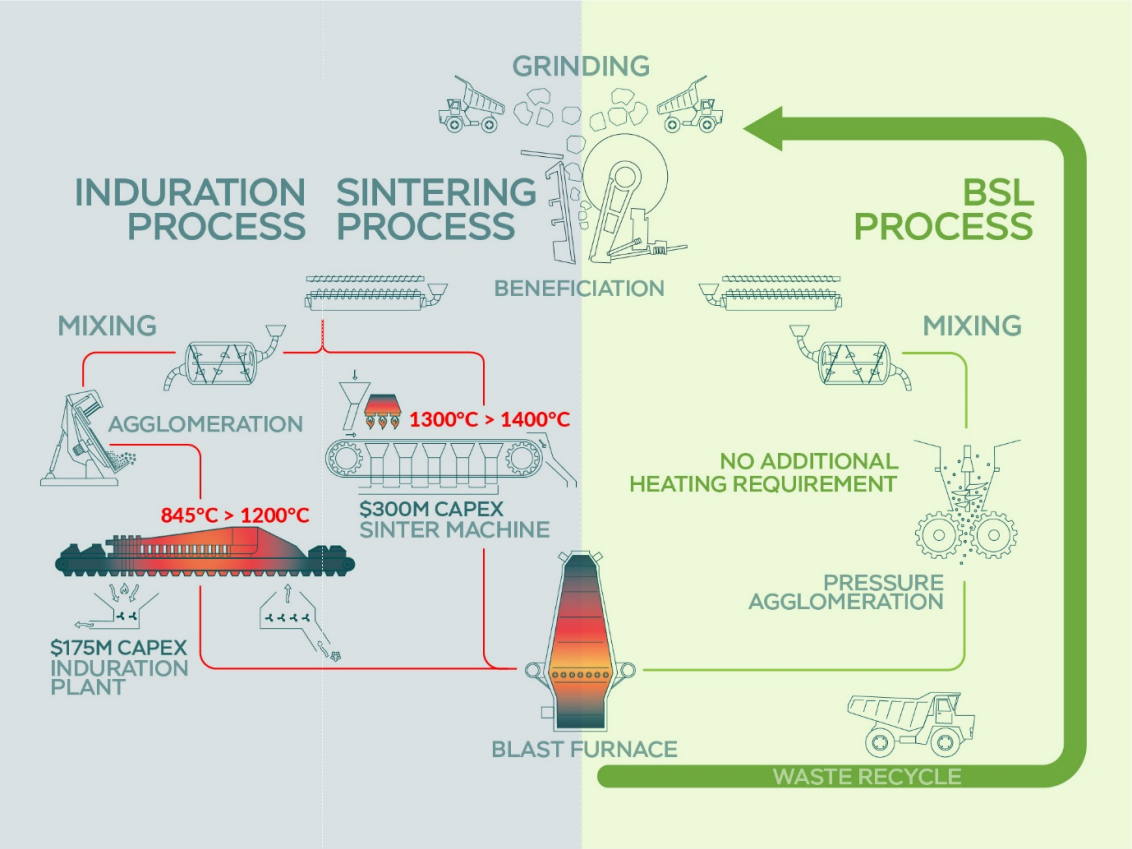
It is claimed that the BioIron™ process is well suited to Pilbara iron ore fines and is a highly efficient use of biomass as it is primarily used as a reductant, with microwave energy driving the iron ore reduction reactions to remove the oxygen from the iron ore.

Source: https://www.riotinto.com/en/news/releases/2022/rio-tintos-bioironproves-successful-for-low-carbon-iron-making; 22 November 2022

Process for Converting Primary Iron Ore and Waste Materials from Mines and Metal Processing into High Value Products

Binding Solutions Limited, a UK based company has developed an environmentally sustainable process for converting primary iron ore and waste materials from mines and metal processing into high value products with a low environmental footprint. It is claimed that the technology is commercially proven at a major steel plant in the UK where it has operated since 2013.

A new product is also being developed for electric arc furnaces (EAF) which has the potential to circumvent high energy induration and direct reduced iron plants that are central to many green steel technologies.



Fine materials produced at mines or found in historical and new waste dumps is agglomerated into pellets that can be handled by established production equipment. It is claimed that the patented process uses minimal heat and very limited energy compared to traditional methods (sintering and induration) to produce high quality agglomerated products. It is done by using a patented process to find the optimal way to agglomerate fine materials together. At the end of the process, monetisable products are created in the form of a pellet or briquette that are ready for use in a furnace.

No heat is used, unlike traditional induration and sintering processes which heat primary materials to over 1,200°C. As a result, this technology can deliver material cost savings and significant emissions reductions when compared to traditional methods for creating pellets, such as sintering and induration which require the construction of large, energy consuming facilities. The low-cost and modular nature of the process means that the technology also delivers reductions in capital investment costs of approximately 90% per 1 Mtpa of production when compared to traditional induration processes.

Technology can be applied to waste dumps, mined ores and pellets for the EAF.

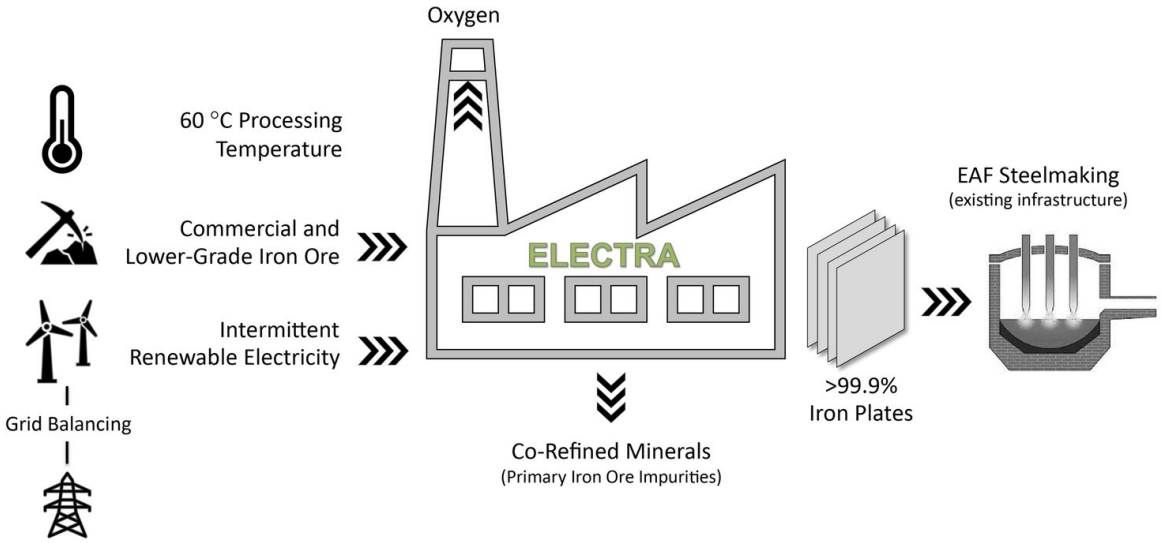
Source : Binding Solutions website

Low-Temperature Iron With Zero Carbon Emissions

Electra, a Colorado-based start-up is developing a process to produce carbon-free iron that can be used to make steel. The company uses renewable energy to refine low-grade iron ores into high-purity iron through electrochemical and hydrometallurgical processes. This material will be used in the steelmaking process to offset other high-quality metallics that come with higher greenhouse gas emissions.

Electra's process claims to result in zero carbon dioxide emissions. By comparison, approximately 70% of the steel produced globally is made with blast furnace technology, an extractive process fed by iron ore, coal, and limestone that emits about two tons of carbon dioxide for every ton of steel produced.

Electra process electrifies the refinement of low-grade iron ores to high-purity iron at 60°C (the temperature of coffee) by leveraging proven industrial-scale electrochemical and hydrometallurgical processes. Subsequently, pure iron can be converted to steel using electricity-powered arc furnaces (EAFs).



Iron ores are excruciatingly slow to dissolve, and when dissolved, iron is more unstable than impurities in the solution and difficult to extract with high efficiency from the solution.

First Electra cracked the code of dissolving iron ore and removing impurities while retaining iron in aqueous solution, thereby unlocking immense opportunity to use low-grade ores. These ores are treated as waste today because of high levels of phosphorus, silica, and alumina impurities. Using low-grade ores decreases our operating costs and creates economic value.

Electra process can start and stop production on demand and uses the lowest-cost, intermittent renewable electricity to reduce energy costs. Low-temperature processing also decreases capital and operational costs even more. The result is green steel that costs less than existing production methods powered by fossil fuels.

Source: https://www.theclimategroup.org/our-work/news/siemens-unilever-maersk-and-dfds-join-business-coalition-calling-2035-deadline-zero.

IHEC to Launch Green Hydrogen Flagship Programme in Inner Mongolia

International Hydrogen Energy Centre (IHEC) has been promoting the development of hydrogen energy. Establishment of the International Hydrogen Energy Metallurgy and Chemical Demonstration Zone, which is the world's first comprehensive demonstration project on green hydrogen production and its applications for the metallurgical and chemicals industries, is a IHEC flagship programme, which was developed with the Shuimu Mingtuo Group and Hualu. The zone's construction in Baotou, Inner Mongolia, is planned to start at the end of 2022 and should start its official operations in 2025.

The feasibility study report was completed in close cooperation with ThyssenKrupp Technology (Shanghai), the General Electric Power Planning and Design Institute, and Aerospace Changzheng Chemical Engineering. The research and engineering design of

the green ammonia is under development in close cooperation with Rhine Technology (Shanghai), TUV (Germany) and Hualu Engineering Technology.

The demonstration zone is intended to promote the formation of a green and low-carbon chemical industry chain and achieve comprehensive carbon neutrality in the metallurgical and chemical industries. The annual capacity of green hydrogen is expected to be 300,000 tons derived from building the country's largest 5-million-kilowatt wind power generation and 1.5 million kilowatt photovoltaic power. China's first set of 2×550,000 tons of direct reduced iron will be built using green hydrogen as a reducing agent. At the same time, using green hydrogen and air-captured nitrogen as raw materials, the project will produce an annual production capacity of 1.2 million tons of green ammonia synthesis.

ArcelorMittal Start Off-gas Recycling Plant

ArcelorMittal's integrated mill in Ghent, Belgium, has inaugurated a EUR200 million system that captures off-gases and converts them to ethanol.

The system, a first of its kind for the European steel industry, utilizes technology developed by project partner LanzaTech. The technology uses biocatalysts to transform carbon-rich waste gases from the steelmaking process and from waste biomass into advanced ethanol, which can then be used as a building block to produce a variety of chemical products including transport fuels, paints, plastics, clothing and even cosmetic perfume.

Once production reaches full capacity, the Steelanol plant will produce 80 million litres of ethanol, almost half of the total current advanced ethanol demand for fuel mixing in Belgium. The ethanol will be jointly marketed by ArcelorMittal and LanzaTech under the Carbalyst brand name, and the system will reduce the Ghent plant's annual carbon emissions by 125,000 metric tons.

Biomass as an Input into the Blast Furnace

ArcelorMittal Ghent will soon inaugurate another first for the European steel industry in the first quarter of 2023 - the €35 million Torero project, designed to process sustainable biomass (initially in the form of waste wood that cannot be used in other applications) for use as a raw material input into the blast furnace, hence lowering the volume of fossil coal used. This project will reduce annual carbon emissions in Ghent by 112,500 tonnes.

ArcelorMittal Ghent intends to add a second reactor to its Torero project over the next two years, hence doubling the size of the project.

The projects being undertaken in Ghent form an important part of ArcelorMittal's 2030 climate action roadmap, in which the Company is targeting reducing the carbon intensity of the steel it produces by 25 per cent globally, and by 35 per cent across its European operations.

Tata Steel Installing a New SBQ Mill at Jamshedpur Works

Tata Steel Long Products is installing a new SBQ bar and wire rod mill in Jamshedpur. The new mill will roll 150x150, 200x200 and 240x200 square billets into finished 20-90 mm dia round bars and wire rod from 5.5 to 25 mm dia. It will produce 500,000 tpy of bars and wire rod

The bar mill will consist of a reversible stand followed by 12 housing-less stands arranged in H-V configuration, a cooling bed equipped with hardness control by insulated covers and complete bar finishing services.

The wire rod line will feature an 8-pass finishing block and a Twin-Module Block -TMB followed by controlled cooling conveyor and V+H coil handing system. The high-tech equipment will be manufactured at Danieli quality workshops in Buttrio, Italy, and Sri City, near Chennai, in India. The investment will enable Tata Steel Long Products to broaden the Tata Steel product portfolio.

EU Reaches Agreement on Carbon Border Adjustment Mechanism

The European Union has reached a tentative agreement on a plan to tax imported goods whose manufacture produces high levels of carbon dioxide. The levy, called the *carbon border adjustment mechanism*, would be the world's first tax on the carbon content of imported goods. The EU is expected to adopt it in the coming weeks as part of a sweeping package of legislation that would step up the bloc's efforts to limit global warming.

According to the Council of the EU, the levy initially will cover a number of specific products in some of the most carbon-intensive sectors: iron and steel, cement, fertilizers, aluminum, electricity, and hydrogen, as well as some precursors and a limited number of downstream products. Indirect emissions would also be included in the regulation

The European Union reached an agreement to impose a tax on imports based on the greenhouse gases emitted to make them, inserting climate-change regulation for the first time into the rules of global trade. The deal between European national governments and the European Parliament ends more than a year of negotiations on the details of the plan.

Europe's carbon border tax aims to protect European manufacturers from competitors in countries that haven't regulated carbon-dioxide emissions. It would also use the bloc's economic heft to push countries to set a price on carbon - either through a tax or other means such as a cap-and-trade system; manufacturers from those countries would benefit from a deduction of that cost from the European tax when their goods arrive at the bloc's borders.

The plan - carbon border adjustment mechanism - would be the world's first tax on the carbon content. The mechanism is to be phased in gradually, beginning in October 2023. At first, importers would be obligated only to report carbon content, as a means to collect data. The levies would kick it later.

The legislation would require importers to register with authorities and seek authorization to import goods covered by the tax. Importers would have to pay a price per ton of carbon dioxide set by the carbon price in Europe's emissions-trading system. Europe's carbon dioxide allowance prices have risen sharply over the past two years to around €90, equivalent to $95, per ton because of expectations that the bloc would set a lower cap on overall emissions in the coming years.

The Wall Street Journal, 13 Dec. 2022

What is Carbon Border Adjustment Mechanism ?

At-a-glance

- Carbon border adjustments, also referred to as "carbon border adjustment mechanisms" (CBAM), are an emerging set of trade policy tools that aim to prevent carbon-intensive economic activity from moving out of jurisdictions with relatively stringent climate policies and into those with relatively less stringent policies.

- Border adjustments have the potential to increase the environmental effectiveness of climate policies, by averting shifts in economic activity that could lead to higher total greenhouse emissions — a phenomenon known as "carbon

leakage." They are also seen as a way of protecting industrial competitiveness by reducing the incentive for businesses to move production abroad.

- Border adjustments would typically apply fees on imported goods based on the greenhouse gas emissions generated during their production. Border adjustments can also include rebates or exemptions from domestic policies for producers that export their goods.
- Border adjustments face questions about their compatibility with World Trade Organization rules that aim to protect against discriminatory practices as well as the United Nations Framework Convention on Climate Change (UNFCCC).
- The European Union (EU) is pursuing a CBAM that would make the region the first in the world to enact such a policy and would be aligned with the carbon price the bloc applies through its emissions trading system (ETS).

What are carbon border adjustments?

Carbon border adjustments are known by many different names, including border carbon adjustments or border tax adjustments, but they all aim to achieve the same objectives: Address differences in the domestic climate policies, and the resulting emissions intensity of production, between trading partners. By accounting for these differences in climate ambition and emissions from the production of goods, carbon border adjustments are designed to protect industrial competitiveness and avoid shifting production — and emissions — to countries with dirtier processes or weaker environmental standards, which is known as carbon leakage.

Carbon leakage entails a geographic shift of production between countries without any net benefit to global greenhouse gas emissions, either through shifts in investment patterns, loss of market share for domestic industries to more emissions-intensive trading partners, or changes in energy markets that result in greater global emissions.

Carbon border adjustments apply fees on imported goods based on their emissions content and can also include rebates or exemptions from domestic policies for domestic producers that export their goods to markets abroad, especially to countries with laxer climate policies. As carbon border adjustments have typically been discussed, the price an importer would pay would be aligned with the domestic carbon price.

There are concerns that carbon border adjustments could amount to disguised protectionism, and they involve unsettled issues of trade policy that, if not carefully

designed, could provoke disputes in the World Trade Organization (WTO). Carbon border adjustments are also sometimes criticized as incompatible with the UNFCCC, particularly Article 3.5, which forbids measures that constitute "arbitrary or unjustifiable discrimination" or serve as a "disguised restriction on international trade".

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An International Conference on Lead & Lead Batteries - Energy Storage, E-mobility & Environment was organised by India Lead Zinc Development Association (ILZDA) on 5 & 6 December 2022 at New Delhi.

The Recommendations and Suggestions emanating from the Conference are as under:

Recommendations & Suggestions

1. It was felt that Indian Lead battery industry must go in for the next stage of improvements and make more and more of Advanced Lead Batteries to meet the expectations of emerging markets like e-mobility and energy storage.

2. Consortium for Battery Innovation (CBI) has assured the Indian industry that they will be too happy to assist them in technical advancements and modernisation.

3. The Indian Lead battery industry as well as Lead recycling sector should support the activities of Consortium for Battery Innovation and International Lead Association as members so as to derive long term benefits from their activities and services.

4. Brian Wilson from International Lead Association (ILA) as well as Daniel Askin from ESCA Tech Inc. will be happy to assist Indian recycling as well as Lead battery sectors in adopting best practices as well as monitoring the Lead levels of shop floor personnel.

5. Delegates placed on record their appreciation to ILZDA for bringing eight overseas technical experts as Speakers at the conference. This will certainly help the Indian Lead battery as well as Lead recycling sectors in getting the latest information and technology so that Indian industry could upgrade their processes and products for the domestic as well as global markets.

6. Mr. V.P. Yadav, Director, CPCB, after making a presentation on BWMR 2022, assured that CPCB will be too willing to work with the Indian Lead battery and Lead recycling sectors for improvements, if any, in BWMR and that both the CPCB as well as Indian industry must work together for successful implementation of BWMR.

7. In India, leakage or diversion of the used Lead Acid Batteries (ULABs) takes place from the dealers to the informal sector in order to plug this malpractice, SPCBs/SPCCs should register all the battery dealers in their states, both exclusive as well as non exclusive, and collect returns every six months on the number of new batteries sold, old batteries collected and where they have been sent for recycling. Only this can bring down the informal Lead recycling activity.

8. Similarly importers of new Lead acid batteries also should be monitored i.e., to whom they are selling and also collecting/procuring as many old batteries as the number of new batteries imported by them.

9. Delegates felt that BWMR should make "Responsibility of Dealers & Bulk Consumers" more explicit and direct. Only then diversion or leakage of collected Lead batteries can be prevented.

10 SPCBs/SPCCs have a large number of authorised Lead recyclers and all those units need to be audited in order to have only eco-friendly and energy efficient Lead recyclers in the country.

11. Recently the Delhi High Court issued an order restricting the use of Lead batteries in e- rickshaws. The organizers namely India Lead Zinc Development Association appealed to Niti Aayog for assistance in clarifying this subject through the concerned Ministry of Government of India.

12. Some states have imposed ban or restriction in use of Furnace Oil, making Lead Recycling uneconomical with use of alternate fuels. This has resulted in closure of Lead Recycling plants as well as diversion of Used Lead Batteries to the informal sector.

13. Seminar/webinar to be conducted for reduction of fluxes, disposal of separators, to reduce slag generation and to minimize Lead in slag.

14. Speakers from Luminous and Gravita India invited the delegates to their units for any knowledge sharing as well as guidance for upgradation.


ILZDA
International Conference on
LEAD & LEAD BATTERIES – ENERGY STORAGE, E-MOBILITY & ENVIRONMENT
5 & 6 December 2022, New Delhi
Supported by
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Farewell My Friend, Shali!

20th December 2022 brought a rude shock to the IIM fraternity, with the sad loss of a great personality, P. N. Shali. To me it was a personal loss, since I knew him from the mid-seventies. I had driven with him in his scooter to Green Park Market etc., when we both were young. I used to meet him frequently in Yojana Bhawan where he would host me a nice coffee, besides a hearty chat. Shali was a warm-hearted and affectionate person, always enjoying the company of his friends.

After retirement, he took over as Director, Engineering Council of India and started sitting in Jawahar Dhatu Bhawan. He would always come into my room, with a greeting "Jai Shri Ram" and spend an hour or so, discussing IIM, national politics etc.

For IIM, he was a devoted soldier from the seventies, having served the Delhi Chapter as a member and as Chairman, organising technical programmes and bringing out a newsletter "Dhatu Sandesh". Also he was very regular, attending IIM Council Meetings. We both travelled together to Kolkata on Rajdhani Express so many times to attend our Council Meetings. There are many more sweet remembrances.

Please keep smiling in the heaven, Shali Saab. May Almighty give you eternal peace and bliss.

L. Pugazhenthy