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What's Inside

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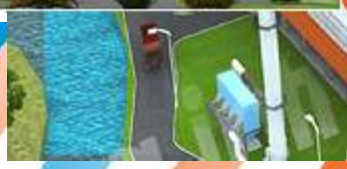

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ENVIRONMENT FRIENDLY STEEL

infocus/chn

Faster Growth of Low Carbon, Micro-Alloyed & HSLA Steels

Kamal Aggarwal
Hon. Sec. General, AIIFA

Introduction : Steel is one of the most important materials used by humanity, utilized in everything from trains to cutlery. Clearly, reducing the carbon dioxide emissions of steel would be important in the shift to a low carbon economy in the iron and steel industry, the largest industrial source of CO2 emissions due to the energy intensity of steel production. A range of technologies and measures exist for lowering CO2 emissions and production low carbon steel including minimizing energy consumption and improving energy efficiency, changing to a fuel and/or reducing agent with a lower CO2 emission factor generating nearly 1.9 tonnes of carbon dioxide for every tonne of steel produced and accounts for up to five per cent of total world carbon dioxide emissions.

Global total crude steel production In 2020 was 1877.5 million tonnes (Mt) where China, alone, accounted for 57% as the biggest steel producing country. China became the first country to produce over one billion tons of steel In 2008, 2009, 2015 and 2016 output fell in the majority of steel-producing countries as a result of the global recession. In 2010 and 2017, it started to rise again and continuing till now.

About 50% of total steel production is utilized by the construction industry. There are as many as 3,500 different grades of steel and each grade offers environmental, chemical and physical properties in unique ways to that grade of steel. Steel has undergone significant evolution through time and around 75% of all the types of modern-day steel were developed in the past 20 years. Much of total capacity is still produced in primary steel processes such as BOS, BOF etc., the need for steel with greater durability, heat- and corrosion resistance has led to the increased use of secondary technology processes These processes are able to achieve clean steel in ultra low levels of residual carbon, while at the same time retaining desired levels of other alloy materials.

Many European steel producers have reported significant falls in profits in recent time resulting due to weaker demand for steel during an economic downturn, disruption of traditional trade flows due to the ongoing trade war between the United States and China and the EU's subsequent safeguard measures.

Based on grade, low carbon steel is expected to continue leading the global market in coming years as Low carbon steel is a versatile metal with nearly 0.3% and below carbon content, which ensure that it is neither too ductile nor extremely brittle. Besides its versatility, low cost attached and easy manufacturing process have made low carbon steel among the most popular metals used for everyday jobs, from agriculture sector to heavy machinery industry.

The global carbon steel market size was valued at about USD 888 billion in 2020 and is anticipated to attain a CAGR of 3.4% from 2020 to 2027. Increasing focus on infrastructure development particularly in Asia Pacific countries is projected to drive the consumption of carbon steel products over the coming years. The Asia Pacific is likely to attract nearly 50% of infrastructure investment over the coming years. Countries such as India, China, and Southeast Asian countries are spending higher portion of their budget on infrastructure development to boost the overall economic growth as carbon steel finds numerous applications in infrastructure, wherein it is used in frame materials, pipelines, fencing, gates, and variety of structural sections.

Low Carbon & Low Alloy Steel:

It is grouped as Micro-alloyed and HSLA steels (High Strength Low Alloy Steels).

Micro alloyed steel were developed in the second half of twentieth century as biggest breakthroughs in the development of new steels where small amounts of niobium (Nb) or vanadium (V)or titanium (Ti) were added to achieve refining grain for retarding the recrystallization by precipitates of carbon-nitrides of these microelements which influence the final microstructure and properties of products.

1. To achieve yield stress of 410MPa, typical compositions (wt%) of micro-alloy steel : C 0.125, Mn – 1.35, Nb- 0.03, V 0.020 and
2. for higher yield strengths 450? MPa: C 0.06, Mn 1.55, Nb 0.05V 0.10

On the other hand, High-strength low-alloy (HSLA) steels contain **a small amount of carbon** (under 0.2%) like mild steels, and also contain small amounts of alloying elements like copper, nickel, niobium, vanadium, chromium, molybdenum and zirconium. High-strength low-alloy steel grades are designed to provide specific desirable combinations of properties such as **strength, toughness, formability, weld- ability, and atmospheric corrosion resistance.** These steels are used in industries like oil and gas pipelines, heavy-duty highway and off-road vehicles, construction and farm machinery, industrial equipment, storage tanks, mine and railroad cars, barges and dredges, snowmobiles, lawn mowers, and passenger car components. Bridges, offshore structures, power transmission towers, light poles, and building beams and panels are additional uses of these steels.

Low carbon steels are commonly specified as

1. Dead Mild Steel 0.05 %C - used for application as sheet/ strip pressing work, car bodies , tin plate & tubing industries.
2. >0.05-0.15 %C termed as mild steel - used also for sheet strip for pressing work , wire & rods, screws, concrete reinforcement bar ,
3. -0.15 %C termed as mild steel - used for manufacture of case carburizing quality grade steel products,
4. 0.1-0.3 termed as mild steel - used for manufacturing steel plate and section by rollingfor structural works.

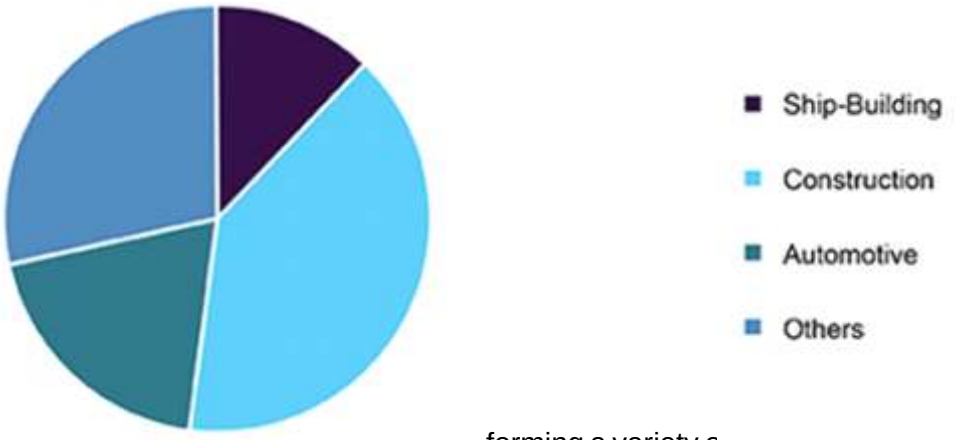
In terms of revenue, Global market share is about 8-10% of low carbon steel industry which is likely to be driven by a consistent increase in construction and infra-structure sectors by more spending and with moderate growth in the automotive sector over the coming years as the total value of the construction has consistently increased in the last 8-10 years. Further, non-residential sector accounted for about 50-60% and likely to play key role in rising demand for carbon steel products. The growth of non-residential sector is projected to be driven by government investment by replacing the old infrastructures, construction structures, and other transportation infrastructure.

Carbon steel products such as gears, ratchets, shafts, and transmission parts are anticipated to witness incessant demand on account of positive long-term outlook of the automotive sector. Based on type, the market has been categorized into low, medium, and high carbon steel. Low carbon steel is by far the largest segment and has observed highest penetration in various end-use industries all over the world. In terms of volume, the segment accounted for a market share of 90.7% in 2019 in total carbon steel production. Low carbon steel contains carbon content below 0.25 percent by weight. It is also referred as mild steel and can be used to create various shapes ranging from structural beams to flat sheets. It possesses versatile properties such as ductility, malleability, and cold forming abilities. It is available at a low cost compared to its counterparts.

Medium carbon steel contains higher carbon and manganese than low carbon steel, which makes it stronger but difficult to be shaped mostly used in engineering applications. Considering its characteristics such as high strength and good weld ability, it is preferred in the production of machine and car parts. Thus, the segment is likely to witness CAGR of 2.6% in terms of revenue.

Application Areas: Carbon steel finds application in shipbuilding, construction, automotive, and other applications such as energy, machinery, appliances, and material handling. The usage of steel in shipbuilding is owing to its mechanical properties and low cost. Carbon steel is of vital importance in the

ship-building industry, however, the decline in industry growth along with the preference towards substitutes such as aluminum alloys is anticipated to hinder product consumption in the shipbuilding sector. The construction industry held the largest volume share of 41.6% of the carbon steel market and this trend is anticipated to continue over the forecast period. Low carbon steel offers excellent forming and welding capabilities along with advantages such as no cracks on bending, flexibility, ductility, plasticity, and endurance in case of calamities like earthquakes, which make it a preferable choice in the construction industry. Carbon steel's strength in calamity situations is its major benefit, which prevents the building from collapsing and saving its occupants. Image below is the global industry-wise consumption.



Low carbon steels are produced with small quantizes of alloying element in range of 0.05 – 0.50 for improving mechanical properties where carbon content generally ranges from 0.04 – 0.30 and also Mn level 0.3-1.4%. Because of its lower price compared with other types of steel and used for construction purposes, besides products suit well in forming a variety of goods including flat-rolled sheets or strips. Low carbon steels can find application in wide range from house appliances in ships sides and wire, fencing, panel etc for good roll ability, malleability for fabrication to shapes. This grade is most popular in the steel pipe and tube market. Image below few Low Carbon Steel Products.

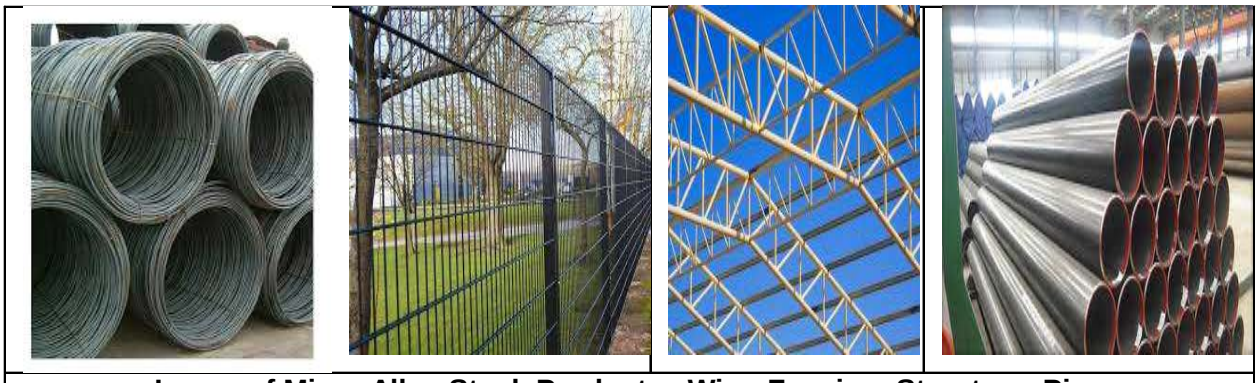


Image of Micro Alloy Steel Products –Wire, Fencing, Structure, Pipe

Image of High Strength Low Alloy Steel Products

Process Metallurgy & Influence of Elements: The performance of low carbon steel can be affected by the steelmaking process, addition of alloying elements and de-oxidation method. Steel is melted in EAF or IF and preferably followed by VOD or AOD for de-oxidation. The low carbon steel often endows with softer and weaker property which can make them easier to forge, roll,, fabricate.. Manufacturing technology of HSLA products in shapes plays an important role in the product function and product cost. Micro alloy (MA) or High Strength Low Alloy (HSLA) steels constitute an important category of steels estimated to be around 12% of total world steel production. They are used in every major steel market sector in many parts of the world and their development has played an important role in the expansion of certain key industries such as oil and gas extraction, construction, and transportation.

Carbon in the steel is one of the more potent and more economical strengthening elements having strongest influence upon harden ability of weld zone in fabricated parts and accordingly, it should be kept low as much as possible. In steel making keeping carbon more than 0.05% is practical when upper limit preferably recommended to keep below 0.15%, owing to the need of making 0.01 to 0.03% Nb solute at a quenching temperature of 900?C. to 1000?C., so as to cause Nb-carbide after tempering treatment. Nb of more than 0.05% scarcely contributed to strength steel. It is better to keep the element in the range of 0.005 to 0.05%.

Manganese of 0.50% which is the lower limit adopted in consideration of this point of steel making and of hot workability. Also, 1.60% Mn which is the upper limit is determined in consideration of weldability.

Up **to 0.8% Nickel** causes toughness of steel to increase and results in economical benefits. When **Copper** content is above 0.5%, nickel must be added simultaneously. More than 0.03% **Chromium** possibly causes strength and harden ability of steel to increase. **0.15% to 0.7% molybdenum** possibly causes strength of steel to markedly increase. However, when the content is more than 0.7%, weld ability of steel is spoiled and when the content is less than 0.15 strength of steel is harmed.

More than **0.1% Aluminum** decreases cleanliness and spoils weld ability of steel. Also less than 0.01% aluminum brings about a bad influence to addition of boron in steel making stage. In case **Silicon content above 0.7% harms** toughness and weld ability of steel. Up to 0.07% Boron possibly causes harden ability of steel to increase without a bad influence to toughness and workability of steel.

0.005% to 0.05% Titanium is a useful element for improving harden ability of steel and for increasing strength of steel owing to precipitation of Ti-carbide in the tempering treatment stage. **Nitrogen** content has a serious influence on combination of Nb-Ti-B as nitrogen has powerful affinity to the above three elements, particularly Ti, the content must be limited within the range in which it is impossible to form its nitride. **More than 0.007% Nitrogen** harms toughness of steel, owing to the formed Ti-nitride and causes Ti-carbide, which is effective for strength of steels. **Nitrogen content of the lower limit 0.002%** is markedly lowered according to keeping yield strength according to a restriction of steel making process. However, following ranges of alloying elements are preferred in keeping C, Mn, Ni, Cr, Mo and the like, are far less than values: ordinary high-strength steels.

Definition of Alloy, Low Alloy and Micro-Alloyed HSLA Steels

Alloy Steel	Signuficant quantities of alloying elements (other than Carbonand normal level of acceptance of Mn, Si etc.) for changing both Physical & Mechanical properties.
Low Alloy Steels	Steel containing less than 3.5% of alloying elements e.g, 2.25% Cr, 1% Mo
Micro-Alloy Steels	Steel conaining small amount of V, Nb and or Ti, individual elements less than 0.10% - also known as HSLA

High strength low alloy (HSLA) steels have been developed since the 1960s originally for large diameter oil and gas pipelines. The requirement was high strength as compared to mild carbon steel, combined with improved toughness and good weld ability.

HSLA steel typically contains 0.07 to 0.12% carbon, up to 2% manganese and small additions of niobium, vanadium and titanium (usually max. 0.1%) in various combinations. The material is preferably produced by a thermo mechanical rolling process, which maximizes grain refinement as a basis for improved mechanical properties.

Molybdenum has played an important role in the initial development. The addition of 0.1-0.2% molybdenum produces a fine grain structure of acicular ferrite and substantially enhances the precipitation hardening effects achieved with the other alloying elements.

Consequently, an estimated 2 million tons of Mo containing HSLA steels for pipelines have been produced worldwide during the 1970s, within the following percent range of chemical compositions:

Common composition range of HSLA steels, (wt.%)

Composition range of HSLA steels (%)				
C	Mn	Nb	V	Mo
0.06 - 0.12	1.4 - 1.8	0.02 - 0.05	0 - 0.06	0.2 - 0.35

High-strength low-alloy (HSLA) steels, or micro alloyed steels, are designed to provide better mechanical properties and/or greater resistance to atmospheric corrosion than conventional carbon steels. They are not considered to be alloy steels in the normal sense because they are designed to meet specific mechanical properties rather than a chemical composition.
In order to realize the full strengthening potential of micro alloying additions, it is necessary to use a soaking temperature prior to forging that is high enough to dissolve all vanadium-bearing precipitates. A soaking temperature above 1100°C (2010°F) is preferred. For Nb–Ti micro alloyed steel the single step austenite reheating temperature at 1150°C provides better austenite conditioning than the higher reheating temperature at 1240°C.
Complete dissolution of carbonitride precipitates occurs at 1140°C in a temperature interval between 1100 – 1200°C.

Typical Composition and Properties of Common Low Alloy Steels:

Alloying Elements	Yield Level 345 MPa	Yield Level 550 MPa
C	0.08-0.12	0.12-0.17
Mn	0.75-1.10	1.20-1.55
P	0.008-0.013	0.008-0.013
S	0.007-0.020	0.007-0.020
Si	0.05--.15	0.03-0.06
Al	0.03-0.06	0.03-0.06
V	0.03-0.07	0.10-0.14
N	0.006-0.012	0.06-0.012
Ce	0.02-0.06	0.02-0.06

Remarks: Low C steels are commonly specified as 1. Dead Mild steel 0.05%C used as strip/sheet pressing work, car bodies, tin plate or tubing industries. 2. Mild steel >0.05-0.15%C used also for similar application, wire/rod, screw, reinforcement bar, 3. 0.15 %C Mild steel used for manufacturing case hardening steel grades. 0.1-0.3% C used for manufacturing steel plates and sections in structural rolling mills.

Conclusion: **low-carbon steel** is manufactured using technologies and practices that result in the emission of significantly lower emissions than conventional production i.e. from electrical route like EAF or IF as .Mini steel plants having EAF or IF are developing, technologies that significantly reduce emissions from the core steelmaking process which have undergone a technological revolution in the last 30 years in a relatively short time almost replacing or developing new modern, cost effective, state of-the-art technologies. Low carbon steel provides incredible strength relative to a lower weight compared to other categories of steel. Adding alloys can give low carbon steel different properties without massively impacting weight, **worldsteel prefers and uses low-carbon steel as, like 'low-carbon electricity',**

The Role of Secondary Steel Sector in achieving $5 trillion economy by 2024

S.P.Singh
Dy Director (T), NISST

Introduction

Steel sector has been a major contributor to India's manufacturing output. Steel sector has contributed significantly towards India's economic development, with slightly more than two percent of its GDP. India is the world's second-largest producer of crude steel. In FY21, the production of crude steel and finished steel stood at 102.49 MT and 94.66 MT, respectively. In FY22, crude steel production in India is estimated to increase appreciably, driven by rising demand. Steel industry and its associated mining and metallurgy sectors have seen major investments and developments in the recent past.

The National Steel Policy, 2017 envisage 300 million tonnes of production capacity by 2030-31. Government is making efforts to increase per capita consumption of steel to 158 kg/per capita by 2030-31. The growth in the Indian steel sector has been driven by domestic availability of raw materials such as iron ore and cost-effective labour. Huge scope for growth is offered by India's comparatively low per capita steel consumption and the expected rise in consumption due to increased infrastructure construction and the thriving automobile and railways sectors. The steel sector has always strived for continuous modernisation of older plants and up-gradation to higher energy efficiency levels.

Indian steel industry is classified mainly into two categories - main producers and secondary producers. While main producers are large sector plants producing more than one million tons of steel per annum, the plants in secondary steel sector are mainly in MSME category.

Secondary steel sector:

Secondary steel sector comprises of various segment industries (sub sectors) producing Sponge iron, Electric arc (EAFs), Induction Furnace (IF) units, Re-rolling mills, Cold rolling mills, Galvanizing units, Wire drawing units, Tinplate producers, etc., with annual production capacity less than 1 million tons of crude steel. Each of the sub-sectors is quite fragmented but very much interrelated with one another, and together they meet the country's demand for large variety of value added steel products. These units produce crude steel mainly from steel scrap and/or sponge iron as input material. Major products of this sector are TMT bars, light and medium structural sections which are used mostly in housing, construction and infrastructure sectors. Units are generally small in size and scale of operation, as compared to the integrated steel plants, but able to cater to retail customers due to proximity to the consumer bases.

Contribution of secondary steel sector:

Indian secondary steel sector produced 38.5 million tons of crude steel in 2020-21 i.e 37% of total production of 103.54 million ton. Contribution to total finished steel production in 2020-21 of this sector was 40.88 million ton i.e. 42% of total national finished steel production of 96.20 million ton. In the long products' segment, contribution of this sector is approximately 55% in FY2021. It is also contributing significantly in the overall production of alloy steel, special steel and stainless steels. Secondary steel sector employs about 400,000 people, both directly and indirectly.

Strengths of Secondary Steel Sector:

The Secondary steel sector reaches out to millions of people in urban & rural areas and hence, is a major force in meeting steel demand. The sector has created it's niche in producing long products and special sections. Lower capital investment as compared to primary sector, lower overall environmental impacts, lower overheads, higher variety of sections and proximity to customers are some of it's key strengths of this sector. The sector

has an enormous potential for employment generation in the country. Secondary sector has an edge over primary sector because of lower capital & land requirements and distinguished capability to produce very special sections & customer base products. The sector is bound to play a major role in actualizing the vision of growth in steel production capacity of 300 million tons by 2030 set by Ministry of Steel, Government of India. Some of strength areas of secondary steel sector include the following:

- Flexibility to use variety of input materials
- Recycle scrap and other metallic wastes. Large user of iron ore fines/dust.
- Counters logistic bottlenecks
- Close to customers' door steps and caters retail customers
- Requires lesser land lock, thereby protects forest area and plantation
- Manufacturing capability of unique products, small sized products, need based tailor-made products, agricultural appliances, etc.
- Lesser capital requirement
- Generates local area employment and creates other business opportunities.
- Enhances entrepreneurs' base.
- Lesser damage to environment, lower water requirement and saves ground water.

The Role of Secondary Steel Sector in achieving $5 trillion economy by 2024

The secondary Steel sector is treading on a growth path and is expected to play a major role in steel production of India in the light of trends towards increased usage of scrap based steel production. Existing units in this sector are being modernized/ expanded. A large number of new production capacities are being added to meet the growing demand. The secondary sector has enormously improved it's performance in last two decades with regard to energy usage due to continuous institutional efforts and also interventions through energy efficiency projects funded by government for penetration of energy efficient technologies in this sector. The sector is installing secondary metallurgy equipments like LRFs, VDs to produce quality products. The sector has largely shifted from ingot casting to continuous casting of billets which has helped to get rid of many quality problems. The industry has started using cleaner fuels like PNG & producer gas which give better surface finish. Many tandem mills have come up in the sector, which not only help to increase productivity but also help in producing better quality products.

Government of India's initiatives like Make in India, Atam Nirbhar bharat, Vocal for Local, specialty steel production-linked incentive (PLI) scheme, Pradhan Mantri Awas Yojna, Developing Smart Cities, improved road and rail connectivity by building highways, bridges and dedicated freight and superfast rail corridors etc are few of the opportunities for this sector to perform better and smarter. “With the introduction of scrap recycling policy in the future, the contribution from secondary steel will further rise.

The sector is also getting Institutional Support to improve it's performance. National Institute of secondary steel technology (NISST) set up by Government of India is catering to technological development of the Secondary steel sector. The institute is serving the technological needs of the sector through training programmes/technical seminars, Process & Energy audits, technical consultancy and R&D projects.

Secondary Steel Sector is expected to receive more attention going forward, owing to changing National & International scenario with respect to shortage of quality raw materials like iron ore & coal, stricter environment laws for mining industry, shortage of water and non- agricultural land, higher capital costs for integrated steel production and likely boom in local availability of steel scrap with new transport policy of India. As increased usage of recyclable scrap for steel making and hence, increased role of

Secondary sector in contributing to steel scenario is beyond doubt. India being a developing country and focusing on infrastructure developments, this sector is poised for an accelerated growth. However, the sector needs to duly address issues like quality and efficiency for competitive advantage in global market. The sector needs to increase production of value-added steel in India to reduce import.

The production target for the secondary steel sector by 2025 is around 70-72 MT pa, comprising of arc furnace and induction furnace along with alloy and stainless steel producers under the category of secondary producers. Looking at the current scenario of around 40MT production by secondary producers through the above mentioned production, the expansion to be planned has to ensure doubling the production to 70 MT by 2024. As per estimates Secondary Steel Sector is expected to contribute about 35 – 40% of the crude steel capacity & production in 2030-31.

Manufacturing in India is driven by the key sectors such as Automobiles & Capital Goods and Steel is a key component for these sectors. There is enormous scope for increasing steel consumption in almost all sectors, e.g., infrastructure, automobiles, packaging, irrigation and water supply, engineering and capital goods, real estate and transportation.

As the steel sector in India contributes nearly two per cent of the country's gross domestic product (GDP). The Indian secondary steel industry is poised to play an important role increasing the GDP of India. As per estimates Secondary Steel Sector is expected to contribute about 35 – 40% of the crude steel capacity & production in 2030-31. Demand for pig iron for merchant use, such as for castings and supplementary metallic in the electric arc or induction furnaces, is projected to increase to 17 MT by 2030-31. Similarly, demand for sponge iron is projected to increase to 80 MT by 2030-31. It is projected that the sponge iron capacity may increase to 114 MT by 2030-31 with around 30% share of gas based capacities under increased environmental considerations and long term availability of gas. Considering the above facts it is expected that Secondary Steel Sector is likely to play a great role in achieving $5 trillion economy by 2024.

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AIIFA/009/2021-22 06/01/2022

To,
Smt Nirmala Sitharaman
Hon'ble Finance Minister of India
Ministry of Finance
Room No.134, North Block
New Delhi

Subject : **Proposal for charging GST on Steel Scrap procure from domestic market on RCM basis**

Respected Madam,

As you are kindly aware that, India is a unique country in the world where almost 60% steel is produced from the secondary steel sector which include Electric arc Furnace, Induction Furnace and Re-Rolling mills. There are **308 sponge iron producers** that use iron ore/ pellets and non-coking coal/gas providing feedstock for steel production; **47 electric arc furnaces & 1128 induction furnaces** that use sponge iron and/or melting scrap to produce semi-finished steel and around **1300 re-rollers** that rolls out semi-finished steel into finished steel products for consumer end use. Therefore, the secondary steel producers are equally important in Indian scenario. **(JPC AR 2018-19)**

According to the data published by Joint Plant Committee, Ministry of Steel, Government of India (Annual Statistics Report-**2018-19**), India produced over **110.92 million** tonnes of steel through **BF-BOF (45%), DRI-EAF (25%) & Scrap/DRI-EIF (30%) route**. In other words, **50 MT** of steel produced through oxygen route (**BF-BOF)** and remaining **60.92 MT** of steel produced through electric route (**DRI-EAF & Scrap/DRI-EIF).**

Out of **60.92 MT**, about **28 million** tonnes was supported by **sponge iron** as feed material. This leaves about **33 million tonnes** of steel to be served by way of **steel scrap**. At **1.1 tonnes** of scrap per tonne of crude steel, one may expect that to produce **33 million** tonnes of steel, one would need **36 million** tonnes of scrap. India imports about close to **7 million tonnes** of scrap and domestic generated scrap is around **15 million tonnes** which would leave us with a need to internally generate **over 14 million tonnes** of steel scrap annually and subsequently this figure is growing to grow three-fold by **2030.**

In terms of its raw material, metal scrap is one of the primary raw materials for the recyclers, especially in the Induction Furnace route. Further, out of the total GST collection from the domestic scrap market, the ferrous scrap segment is the largest contributor to the GST collection of the Government. At present the share of ferrous scrap in total domestic scrap market is more than **63 % amounting to INR 10,000 crores**. Considering the target set in the NSP-2017 and the trend to increase the steel production through scrap, it is anticipated that such amount would increase to **INR 35,000 crores by 2030**. Therefore, this sector is a significant contributor to the overall GST collections for the Government. The following table shows the raw materials generally used in IF route with HSN Code and tax thereon:

Product	HSN Code	Tax
Iron ore lumps, fines, pellets	2601	18%
Sponge Iron	7307	18%
Ferrous waste and scrap	7204	18%

Now, the major constraints being faced by these industries are procurement of scrap from domestic/local market. As issue of fake billings to claim ineligible tax credits by such sellers is one of the biggest challenges for tax authorities as well as industry also.While tax administrations are making their best possible efforts to curb the extent of evasion the very structure of the fraud and the endless length of the supply chain makes it very difficult to reach at the bottom of the truth well in time.

The typical modus operandi is to create a series of invoice-issuing supplier-entities taking tax credit from the immediately previous supplier and eventually making a supply to a rolling mill (manufacturer of iron and steel products). The really bonafide person in this chain is the manufacturer who will find it difficult to go missing. Other entities are created to provide a cover to the initiator who will go missing after having transacted a sizable business within a very short period of time and much before the arm of law reaches him.

The prescribed checks (like PAN/Aadhar) in the issue of GST registration are grossly inadequate to deal with the scale of the fraud. As a result, the tax authorities are approaching the eventual manufacturer (M) to make good the loss.

Keeping in view of the facts stated above, we would like to request you kindly take notice of the above hardships faced by the manufacturers in the secondary steel industry and if possible, create a separate HSN code for the ferrous scrap other than industrial scrap and charge duty on steel scrap procure from these sellers on RCM (Reverse Charge Mechanism) basis or brought down GST rate to 5% (2.5% each of CGSTS and SGST) whichever is possible. This measure will go a long way to curb tax evasion, boost revenue and provide relief to bonafide sections of the industry.

We well understand that successful implementation of any system is collective responsibility of both sides and we are always ready to do our part. But at the same time, we look upon to the Government to safeguard our interests from the mal-practices of junk dealers whose main motive is to exploit the provision of GST to their advantage.

Hope our request is duly considered by you,

Thanking You,

Kamal Aggarwal
Hon. Sec. General

AIIFA/009/2021-22

10/01/2022

To,

Mr. Arpan Gupta
Joint Director& Head
FICCI, Mines, Metals & Cement
M: 9810572331

Sub: <u>The Road Ahead for the Secondary Steel Sector- Challenges and Prospects</u>

Dear Sir,

1.0 The Indian steel industry is structured in between three broad categories based on route wise production viz. BF-BOF, EAF and IF. BF-BOF route producers have large integrated steel making facilities which utilize iron ore and coking coal for production of steel. Unlike other large steel producers, the Indian steel industry is also characterized by the presence of a large number of small and medium steel producers who utilize sponge iron, melting scrap and non-coking coal (EAF/IF route) for steelmaking. There are **308 sponge iron producers** that use iron ore/ pellets and non-coking coal/gas providing feedstock for steel production; **47 electric arc furnaces &1128 induction furnaces** that use sponge iron and/or melting scrap to produce semi-finished steel and **1392 re-rollers** that rolls out semi-finished steel into finished steel products for consumer end use.

2.0 **All India Induction Furnaces Association (AIIFA)** being the premier steel industry association of Electric Induction Furnaces in the world represents a major section of steel units, producing steel through this route. The role of AIIFA is to act as a bridge between the Government and the industry for driving various schemes, participating in the Government's research programs and ensuring capacity enhancement of its units. It also play a vital role to bring various issues of the industry with various related Ministries and concerned Departments and also create awareness of programs and policies of Central/State Government among the members of the association so that their knowledge could be enriched and also could help to adopt latest route of steel making/processing (EIF-Continuous Casting of Steel- Direct Rolling of Hot Billets into finished products) for production of quality steel and also for mitigation of GHG emission. The Association also work hard to enhance the capacity of the industry to compete in the Global Market. The association brings out monthly newsletter featuring important news on iron and steel industry and custom and excise related notification/circulars etc.

Reference to the trailing mail, below is a short snapshot of the Indian Secondary Steel Sector and the Challenges faced by this Industry:

3.0 **Outline and Significance of Secondary steel sector in the Indian Context**

The iron and steel sector are a strategically important sector for the developing economy of India as it contributes **2% to the overall national GDP**. Also, this sector provides abundant opportunities for employment in India. India has already been the **2nd largest producer** of steel in the world. At present, the per capita steel consumption in India is still quite low i.e., around **68kg** as compared to the global average of **208 kg**. This shows that the country has to go in a long way to achieve a reasonable level of steel consumption. To reach per capita consumption of around **160 kg**, India has set an ambitious target of steelmaking capacity of **300 MT** by year **2030-31**

Induction Furnace industry has been contributing very significantly in the overall production of steel in the country, both in quantitative terms and as percentage of total steel production. Crude steel production through induction Furnace route has been continuously increasing from about **4.3 MT (16%)** to **22.6 MT (32%)** in **2010-11** and finally to **33 MT (30%)** in **2018-19**. Contribution of the Induction Furnace sector is likely to be significant in years to come in making available quality steel at competitive price to the consumers in different geographical locations in the country.

Since, it has a number of advantages such as **low investment cost**, **land intensive** as compared to integrated steel producer, **agility to produce various profiles** of steel within a short time span, **low operating Cost**, providing greater **opportunity of employment** in rural areas to prevent un-necessary migration of people towards Metropolitan city etc. therefore, a special thrust is required to be given to look in to the barriers which are coming on the way for increasing the production from this sector.

In order to continue the growth trajectory and to meet the aforesaid optimistic target of steel production, this industry requires constant fiscal and policy support including the issues being currently faced. **Some of the major issues as being faced by this industry are as under**:

4A). Seeking rationalization in taxation of metal scrap under GST

According to the data published by Joint Plant Committee, Ministry of Steel, Government of India (Annual Statistics Report-**2018-19**), India produced over **110.92 million** tonnes of steel through **BF-BOF (45%), DRI-EAF (25%) & Scrap/DRI-EIF (30%) route**. In other words, **50 MT** of steel produced through oxygen route (**BF-BOF)** and remaining **60.92 MT** of steel produced through electric route (**DRI-EAF & Scrap/DRI-EIF).**

Out of **60.92 MT**, about **28 million** tonnes was supported by **sponge iron** as feed material. This leaves about **33 million tonnes** of steel to be served by way of **steel scrap**. At **1.1 tonnes** of scrap per tonne of crude steel, one may expect that to produce **33 million** tonnes of steel, one would need **36 million** tonnes of scrap. India imports about close to **7 million tonnes** of scrap and domestic generated scrap is around **15 million tonnes** which would leave us with a need to internally generate **over 14 million tonnes** of steel scrap annually and subsequently this figure is growing to grow three-fold by **2030.**

In terms of its raw material, metal scrap is one of the primary raw materials for the recyclers, especially in the Induction Furnace route. Further, out of the total GST collection from the domestic scrap market, the ferrous scrap segment is the largest contributor to the GST collection of the Government. At present the share of ferrous scrap in total domestic scrap market is more than **63 % amounting to INR 10,000 crores**. Considering the target set in the NSP-2017 and the trend to increase the steel production through scrap, it is anticipated that such amount would increase to **INR 35,000 crores by 2030**. Therefore, this sector is a significant contributor to the overall GST collections for the Government. The following table shows the raw materials generally used in IF route with HSN Code and tax thereon:

Product	HSN Code	Tax
Iron ore lumps, fines, pellets	2601	18%
Sponge Iron	7307	18%
Ferrous waste and scrap	7204	18%

Now, the major constraints being faced by these industries are procurement of scrap from domestic/local market. As issue of fake billings to claim ineligible tax credits by such sellers is one of the biggest challenges for tax authorities as well as industry also. While tax administrations are making their best possible efforts to curb the extent of evasion the very structure of the fraud and the endless length of the supply chain makes it very difficult to reach at the bottom of the truth well in time.

The typical modus operandi is to create a series of invoice-issuing supplier-entities taking tax credit from the immediately previous supplier and eventually making a supply to a rolling mill (manufacturer of iron and steel products). The really bonafide person in this chain is the manufacturer who will find it difficult to go missing. Other entities are created to provide a cover to the initiator who will go missing after having transacted a sizable business within a very short period of time and much before the arm of law reaches him.

The prescribed checks (like PAN/Aadhar) in the issue of GST registration are grossly inadequate to deal with the scale of the fraud. As a result, the tax authorities are approaching the eventual manufacturer (M) to make good the loss.

Keeping in view of the facts stated above, we would like to request you kindly take notice of the above hardships faced by the manufacturers in the secondary steel industry and if possible, create a separate HSN code for the ferrous scrap other than industrial scrap and charge duty on steel scrap procure from these sellers on RCM (Reverse Charge Mechanism) basis or brought down GST rate to 5% (2.5% each of CGSTS and SGST) whichever is possible. This measure will go a long way to curb tax evasion, boost revenue and provide relief to bonafide sections of the industry.

We well understand that successful implementation of any system is collective responsibility of both sides and we are always ready to do our part. But at the same time, we look upon to the Government to safeguard our interests from the mal-practices of junk dealers whose main motive is to exploit the provision of GST to their advantage.

4B). Severe crisis of raw materials hits struggling of secondary steel sector hard

Since, the acute shortage of iron ore aggravated the problems of Indian steel industry further affecting the steel production. The Indian steel industry is currently facing very testing times as the iron ore supply has been badly squeezed and at the same time, the prices of iron ore have shown an unprecedented rise in both national and international markets. However, today's condition is quite different as the industry is battling an acute iron ore shortage. India had already started stepping up its iron ore exports since last year to bridge the global supply gap, as flows from the world's two biggest producers–Brazil and Australia–were on a decline, the country never took stock of the domestic demand for the commodity at the resumption of mining activity post auctions.

However, in India, most of the sponge iron producers do not have captive mines of any of the raw materials like hematite, non-coking coal and limestone, which are used for sponge iron production. Therefore, they fully depend upon other agencies to get their raw materials. Now, the major constraints being faced by these industries are high price and non-availability of quality raw material. The right grade hematite of proper size has become scarce and very costly. Most of the high-grade non-coking coal has been earmarked for thermal power plants and only inferior grades like 'F' and 'G' are available, that too, in a limited quantity. Most of the units are producing sponge iron much below their capacity mostly due to want of proper raw materials.

It may be noted that, Odisha and Chhattisgarh put together have nearly 136 sponge iron ore units with a capacity of close to 24 million tons and a production of roughly 13-14 million tons. However, amidst the current raw material crisis situation the production is likely to cut down to as low as 7-9 million tons towards the end of the year. Many units have already shut down and others are operating at below 53% capacity. This has already lead to a huge workforce being displaced or working without with meagre salaries.

The availability of raw materials at competitive rates is imperative for the growth of the steel industry and to achieve NSP-2017 target. Thus, the availability of raw material in adequate quantity is one of the critical factors for the future growth for both EAF-IF sector and primary sector.

The whole value chain of secondary steel sector can revive only if the raw material is available in domestic market at viable prices. India's export of iron-ore to the neighbouring country during the first six months of the current fiscal was at **20 million tonnes**, an eight-year high, and export of iron ore pellets **was10 million tonnes**, while the domestic secondary steel producers are facing a dearth of raw materials and rising prices of it.

Since Iron ore fines and lumps attract export duty but due to free exports of pellets the large integrated players who are the major exporter of iron ore pellets takes the advantage of free export and are trying to create shortage of the basic raw material and push domestic prices. The use of pellets will result in steady growth of DRI industry as quality product can be produced to replace high grade steel scrap which is costly with fluctuating price.

As the condition of the steel units is deteriorating due to the raw material shortage, the state PSU NMDC which has an agreement to supply iron ore to partner FTA nations i.e., Japan and Korea are nearly pushing around 3 million tons per annum. The grades being exported under this agreement are also very superior which can be utilized by the domestic industry.

To sustainable growth of secondary steel industry and to make basic raw material available at affordable prices, we hope that the government will take notice of the above hardships faced by secondary steel industry and take necessary action to stop/ban the export of iron ore pellets and sponge iron or imposed 30% export duty on the same whichever is possible to save this industry.

After the pandemic, the cost of production between an integrated steel plant and the secondary players has much widened leading creating problem for secondary steel sectors and therefore this sector urgently needs the attention and support of government otherwise it is on the verge of collapse.

Thanks & Regards

Kamal Aggarwal
Hon. Sec. General

Steel Sector News

India: Covid surge, Europe key factors in Jan'22 for Indian mills

The brand new year unfolded to an onset of the third wave of the pandemic, leaving a taste of uncertainty in the mouth for the short term. Will there be localised lockdowns? How long will the peak last? Will demand drop? That apart, chip shortage, lower import demand from China, subdued domestic demand are issues that followed the steel industry into the New Year.

The record rise in gas prices in Europe had held out hope of industrial output curbs which would have fuelled India's export demand to the Continent. However, prices have dropped sharply for a week over the winter holidays after having soared by almost 400% last calendar. The reasons were warmer weather, higher supplies, stalled industrial activity due to the high prices and holidays.

Prices had soared on limited supply, and low storage and these fundamentals remain, goading many to feel the price drop will be short-lived, and that the rally is expected to sustain for the long term. As a result, many mills in Europe could stare at production cutbacks or temporary shut-downs.

This should be good news for Indian mills. Sporadic deals to Europe have begun taking place. The probable impact of the rising gas prices may dovetail with the quotas opening up from Europe for Q1CY'22.

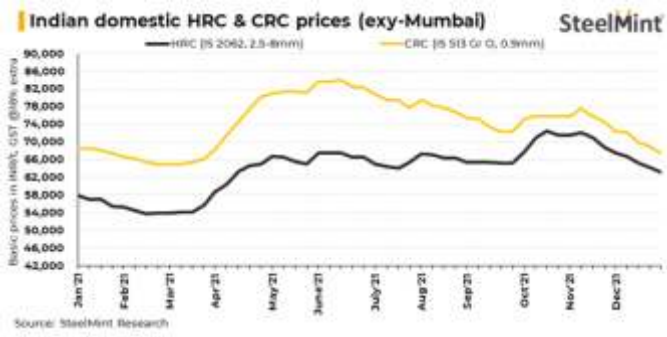
Production: India's January crude steel production is expected to be higher than the 9.6 million tonnes (mn t) seen in Nov'21, which was actually a 2% m-o-m drop. The levels in January will be higher, propelled by JSW Steel's commissioning of the 5 mntpa second phase of its Dolvi plant. The company reported a 10% y-o-y growth in its crude steel production in Nov'21 but this excluded the Dolvi output which will be factored in from the new calendar.

Demand: The Jan-Mar quarter is traditionally a good one for Indian mills because of the heightened demand from the infrastructure sector. Government projects often move toward closure as the financial year ends. Demand for construction steel thus escalates in this quarter. Total demand should be higher than the 8.47 mn t seen in Nov'21, as per JPC's provisional figures.

India's finished steel consumption dropped 8% in Nov'21 y-o-y and 3.2% m-o-m. There will be potential flat steel demand going ahead but the semi-conductor issue continues to trouble auto makers, sources inform.

Prices: The price scenario is hinging on which way natural gas moves in Europe. If the high prices sustain then Indian exports may pick up. At present, export realisations are much lower than domestic. For instance, current export realisations of around $725-730/t FOB translate into INR 54,000-55,000/t levels. On the other hand, domestic net sales realisations (NSR) of mills are ranging from INR 61,000-62,000/t. Thus, scales are currently tipped in favour of domestic sales by around INR 7,000/t ($93/t).

Therefore, there is scope of a downward correction in domestic prices, especially in flats although this is limited in longs because domestic infra construction demand is expected to be good.



Exports: India is unlikely to export in considerable volumes to destinations other than Europe in the short term, except for, may be, Vietnam (through which a lot of HRCs get re-routed to Europe after value-addition). But, again, the Europe factor will come into play. If Europe buys then considerable indirect exports push will come from other destinations.

Margins: Profit margins will likely be under pressure in January because of the declining trend in export prices and subdued demand so far. Domestic benchmark HRC prices recently slumped to a six-month low to INR 63,500-64,500/t ($848-862/t). Export offers were anywhere between $770-790/t CFR last week and have fallen even lower to $760/t CFR levels at present -- well below the $900/t CFR mark seen around July and definitely a plunge from the above $1,050/t CFR seen in May.

Outlook

There is scope of demand drop and downward correction in domestic prices if the third wave sees localised lockdowns.

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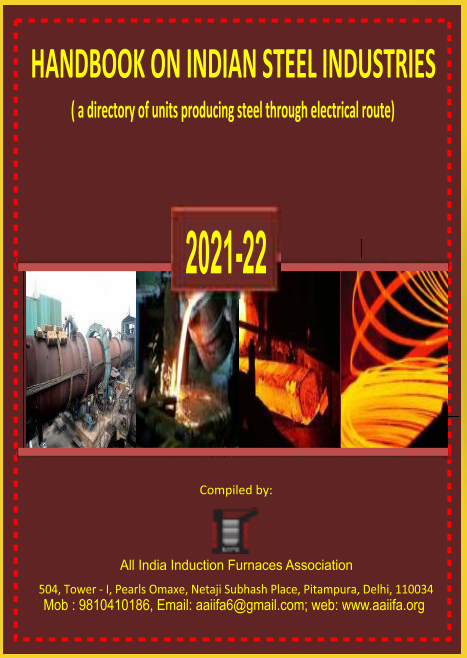

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