

## Use of Granulated Pig Iron (GPI) in the Electric Arc Furnace (EAF)

- Steel production in the EAF continues to grow worldwide.
- EAF operators prefer to use GPI to blend with scrap and other metallics due to its high Fe and energy (C, Si) content, low gangue and chemical purity, rapid melting properties as well the for easy and automated handling, being possible to top-feed the EAF.
- GPI should not be considered as a scrap substitute but rather as a source of clean iron units that can be used to supplement and enhance the scrap charge.



## Benefits of Using GPI in the EAF

- **High purity, low gangue** allows for the production of steel products requiring low residual content or the use of a higher proportion of lower cost scrap in the charge mix
- Known and consistent chemistry, same as the source blast furnace iron
- Chemical energy, C & Si, delivered rapidly due to the large surface area promotes early liquid pool formation, foaming slag, faster melting and thus increased productivity
- **Continuous feeding to the furnace** through top feed in 5th hole of EAF
- Easy to handle manually and ideal in automatic operation, GPI is an inert material
- Melts faster than Pig Iron at lower temperature and faster dissolution
- Promotes foaming slag in EAF
- Early liquid pool formation
- Can also be used in BF, BOF and induction furnaces





GPI Physical Characteristics		
Bulk density	~ 4000 kg/m <sup>3</sup>	
Size distribution (main)	3 - 50 (5 - 25) mm	
Granule shape	Deformed spherical	
Angle of repose	> 30°	
Material handling	Inert during handling	

GPI General Chemical Specifications		
Producer & trade name	SSAB GPI	TATA Ferroshots™
Country	Sweden	India
Element	Min - Max (wt%)	Min - Max (wt%)
Fe	94 - 95	94 - 95
С	4 - 4.9	4.0 - 4.75
Si	0.25 - 1.1	0.50 - 1.30
Mn	0.15 - 0.3	0.03 - 0.13
Р	max 0.045	0.08 - 0.13
S	max 0.020	0.010 - 0.060
Other (Cr,Ni, Mo,V, Ti, Cu)	remaining	remaining



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