MN ALLOYS are mostly used in steelmaking and foundry activities. Some 30 % of the manganese used today in steelmaking is still used for its properties as a deoxidant and a sulphide former. In this last case it combines with sulphur avoiding the formation of iron sulphides, which sulphides are low melting point phases which become liquid at hot rolling temperatures and which, consequently, generate surface cracking. The other 70 % of the manganese is used purely as an alloying element. Steels usually contain from 0.2 % to 2 % Mn depending on grades as Mn is the cheapest alloying element among those which enhance some key mechanical properties like strength and toughness. In the specific case of stainless steel, it can substitute expensive nickel in some austenitic grades called 200 series. There are two families of Mn alloys called ferro-manganese (FeMn) and silico-manganese (SiMn). Silico-manganese adds additional silicon which is a stronger deoxidizer and which also helps to improve some mechanical properties of steel. In each family carbon is controlled and is lowered when producing ‘‘refined’’ grades. Nitrogen, Boron, Titanium, Phosphorus are elements which can be controlled depending on requested specification

SILICOMAGANESE

SiMn

CHEMICAL COMPOSITION

Typical grades available. Other grades are on request. Valid for sizes > 10 mm

Grade	Mn Min.	Si Min.	C Min.	P Min.	S Min.
SiMn	65	16	2.0	0.3	0.03

SIZING

Standard sizing:

10 – 50 mm (90%)

PHYSICAL DATA

Density: 6.1 g/cm3

Bulk density: approx. 3200 kg/m3

Angle of repose: 40° - 60°

(depending on size of material)

Melting range: 1060°C – 1285°C

PACKING

SiMn is usually delivered as bulk. Packing in big bags and other packaging is on request.

ORIGIN OF PRODUCT

SMAL -India

CHARACTERISTICS

- Si-Mn is available as metallic lumps with a silver/grey appearance. It is usually free from extraneous contaminations such as slag and non-metallic inclusions etc
- Si-Mn is non-flammable and non-hazardous solid material. It has a flash point which is higher than 93°C.
- It is insoluble in water, oil, and acetone.
- The alloy is chemically stable under normal conditions

Effects of the addition of silicomanganese to steel:

- Both Mn and Si play an important role in the manufacturing of steel as deoxidizing, Desulphurising, and alloying agents
- Si is a deoxidizer, aiding in making steels of uniform chemistry and mechanical properties. As such, it is not retained in the steel, but forms SiO2, which separates from the steel as a component of the slag.
- Also, manganese is likely to boost the rate of carbon penetration during the carburizing process