IntMPE A15DPLX CORROSION/EROSION MATERIAL

ABSTRACT

An erosion and corrosion resistant ferro chromium alloy comprising the following composition, in wt %, 34-50 chromium, 1.5-2.5 carbon, up to 5 manganese, up to 5 silicon, up to 5 molybdenum, up to 10 nickel, up to 5 copper, up to 1% of each of one or more micro-alloying elements selected from the group consisting of titanium, zirconium, niobium, boron, vanadium and tungsten, and balance, iron and incidental impurities.

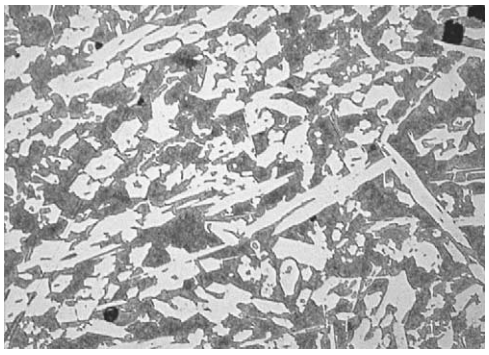
The alloy has a micro structure comprising eutectic chromium carbides in a matrix comprising one or more of ferrite, retained austenite and martensite, as herein defined. Optionally, the micro structure further comprises on of primary chromium carbides, primary ferrite or primary austenite in the matrix. The hardness (HRC45) is 421.0 Bhn for chill cast hyper eutectic chrome white iron.

intMPE A15DPLX is a premium erosion/corrosion alloy. The alloy has much improved chemical resistance to phosphoric and sulphuric acids. In general the corrosion resistance of **A15DPLX** is similar to **CD4MCU** in concentrations of the above acids up to 30% and it has good resistance to acids containing chlorides. It was designed for use in formation of parts for lining pumps, impellers, pipes, nozzles, mixers and similar devices which, in service, can be subjected to mixtures containing a corrosive fluid having abrasive particles.

Typical applications for such parts include flue gas desulphurization, in which the parts are exposed to **sulphuric acid** and **limestone**, and **fertilizer production**, in which the parts are exposed to **phosphoric acid**, nitric acid and gypsum in elevated temperatures.

The level of chromium in the alloy suggests that the alloy should exhibit good corrosion resistance characteristics. However, the performance of such alloys from the corrosion resistance viewpoint is not entirely satisfactory.

intMPE A15DPLX material has improved erosion and corrosion resistance superior to **CD4MCU** when compared. In acidic environments is by accelerated corrosion due to the continuous removal of the passive corrosion-resistant layer by erosive particles in the fluid stream.



SERVICE RECOMMENDATIONS

A15DPLX can be used in Phosphoric and Sulphuric acid duties where erosive wear is a problem. The alloy has good wear resistance. The alloy can also be used in acidic slurries containing high chloride levels. In phosphoric acid duties, the amount of Fluosilicic acid present determines overall corrosion (depends on the service temperature).