

Pumps used in slurry applications are subjected to heavy erosion due to the constant flow of extremely hard solids through the pump. Wilfley's proprietary MAXALLOY® 5A was developed specifically for these types of applications, combining unsurpassed hardness for wear resistance with superior toughness for durability.

Classification and Mechanical Properties

Specification	Average Hardness
ASTM A532 Class III, Type A	740 HBN

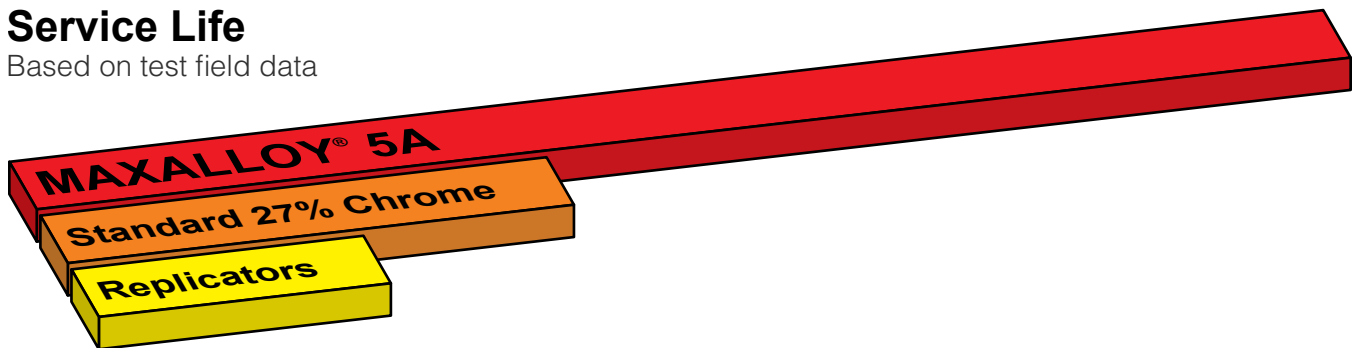
Chemical Composition

C Carbon	Mn Manganese	Si Silicon	P Phosphorus	S Sulfur	Cr Chromium	Ni Nickel	Mo Molybdenum	Cu Copper	Fe Iron
2.0 - 3.3	2.0 max.	1.5 max.	0.1 max.	0.06 max.	23.0 - 30.0	2.5 max.	3.0 max.	1.2 max.	Balance

Through special proprietary processing, chromium carbides are evenly distributed in a fully martensitic matrix with an average hardness of **740 HBN**. The microstructure is designed to avoid any retained austenite, delta ferrite and secondary carbides resulting in extraordinary wear performance. The proprietary processing also increases the pH range, which gives MAXALLOY® 5A a much lower corrosion rate as compared to commonly available high chrome irons.

Service Life

Based on test field data

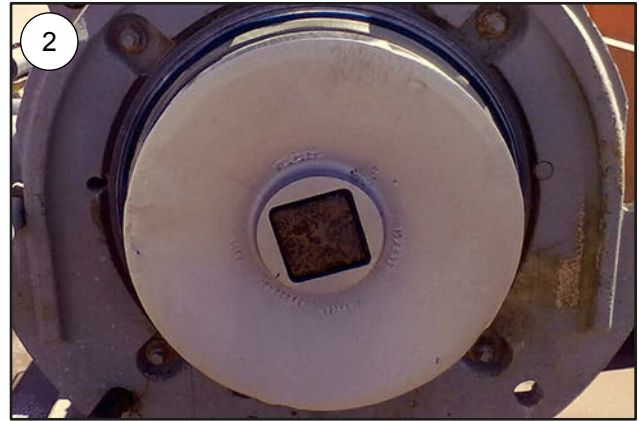


MAXALLOY® 5A

Impeller Wear in Tailings Application



Standard hard iron impeller after 40 service days



MAXALLOY® 5A impeller after 97 service days

Photo 1 shows the standard hard iron impeller after only 40 service days. Substantial wear can be seen on the impeller edge and vanes.

Photo 2 shows the new MAXALLOY® 5A impeller after 97 service days. The pump was reassembled and the impeller ran successfully for 135 service days, over 3 times longer than standard hard iron.

Case Wear in Garnet Mining Application

(Garnet hardness: 7.5 Mohs, 1,364 HV, 800 HBN)



Standard hard iron case after 5 service days



MAXALLOY® 5A case after 21 service days

Photo 3 shows the standard hard iron case after only 5 service days. Deep wear trenches are clearly visible in the case walls because of the lower fracture toughness and hardness. Significant corrosion can also be seen on the exposed surfaces.

Photo 4 shows the new MAXALLOY® 5A case after 21 service days. The wear pattern shows plastic deformation instead of wear trenches, indicating high and uniform hardness distribution through the pump case wall. The MAXALLOY® 5A case also shows no signs of corrosion.