

Foundry "X" reduces casting scrap from slag and dross by 65% and saves over \$500,000 annually

Casting scrap originating from slag or dross carry-over is often one of the leading causes of defective gray and ductile iron castings. Several foundries and consultants have stated that slag or dross defects ranks at or near the top in morning scrap meetings.

After informally surveying numerous gray and ductile iron foundries over the past half-dozen years, ASI has also found that most foundries rank slag or dross inclusions as one of the main causes of costly casting scrap. In many cases, the slag was never thoroughly removed from the melting furnace and was transferred directly into pouring ladles or pressure pour vessels. The slag that originates in the melting furnace and pouring vessels is in an "emulsified state" and in most cases, there is insufficient time available for these emulsified or insoluble particles or agglomerates to coalesce and "float to the surface" where upon they can be skimmed off and removed.

Many times these defects are referred to as dirt, dross, slag or other foreign substances that are imbedded in the surface, or just under the surface. Since the castings are either gray or ductile iron, weld repair is usually out of the question.

Even more problematical is that these defects show up in the cleaning room, after costly in-foundry processing has already been applied.

Since ASI has been marketing Redux EF40L flux, numerous foundries have reported the outstanding benefits they have seen from using EF40L flux. Foundries have reported significant savings in refractory wear, increased refractory life, the ability to unclog channel furnace loops and restore electrical resistance and reactance readings of inductors, ability to maintain a constant furnace volume by eliminating slag build up and, cleaner metal amongst others.

One of ASI International's customers was overjoyed with the results he achieved using ASI patented Redux EF40L flux, and has chosen to share his experiences with us. We'll name this foundry, Foundry X. With his permission and help, we were able to document how effectively Redux EF40L saved his foundry over \$500,000 a year by reducing casting inclusions and slag defects. Foundry X melts both gray and ductile iron in several large channel and coreless melting furnaces. Foundry X melts roughly 160 tons per day of both gray and ductile iron, producing a broad range of castings weighing from 50 lbs to several tons.

Prior to using Redux EF40L, total casting scrap due to slag had been running close to 1.26% on average, in spite of using filters on almost every casting. Alternately switching from ceramic foam to pressed then to extruded filters, and back showed no reduction in scrap rates associated with "dross or slag".

In mid-September of 2012, Foundry X started to use Redux EF40L, adding just 1 pound (5 pounds) per ton of metal in every 5-ton ladle, and quickly found that the incidence of defects associated with slag dropped to roughly 0.43%, a 65% reduction. In mid-October, Foundry X ran out of Redux EF40L, and almost immediately, casting scrap dramatically increased to pre-Redux levels. Upon re-ordering Redux and adding it at the same 5 pounds of Redux to each and every 5

ton ladle, scrap rates associated with slag again plummeted. The reduction in slag related casting scrap that Foundry X achieved 5 months of using Redux EF40 are shown in the accompanying graph.

Foundry X continues to use Redux on a daily basis to each and every ladle and has realized an estimated annual savings of over \$500,000 per year! During calendar year 2013, overall slag defects have averaged 0.38% of total production and Foundry X is continuing to make improvements in its melting and metal handling systems to reduce slag related defects even further.



