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Aluminum – Iron – Phosphorus Tablets

New Product for Silicon Refinement

KB Alloys introduces a new aluminum based master alloy in tablet form to provide refinement of the primary silicon structure in hypereutectic aluminum – silicon alloys. The benefits of this product for use in foundry applications include:

- Provides excellent refinement in low copper alloys without the usual contamination caused by the use of CuP.
- Dissolution at 750°C or below within 5 minutes as compared to 30 – 60 minutes with CuP.
- Can be added directly to the casting furnace rather than melting furnace to minimize losses.
- Good phosphorus recoveries as high as (50 – 60%)
- Inert phosphorus content
- Easy to handle tablets
- Fume free additions
- Complete Si phase refinement
- Can be used as a trim addition as P is lost when pre-refined ingot is melted

AlFeP is produced in 250-gram tablets 2 3/8in (60mm) in diameter and 1 1/4in (32mm) in length.



The chemistry is as follows:

P – 4.5 – 5.5%
Fe – 14.0 – 15.5%
Si – 0.40% max
Mn – 0.60% max
C – 0.04% max
Others/each - < 0.10%
Balance – Aluminum

Packaging is in 200lb (180kg) steel drum

Hypereutectic Al-Si casting alloys are usually supplied pre-refined with a higher than required P level as it is lost on re-melting. Free P in the alloy leads to a viscous, dirty, high oxide alloy. As AlFeP gives consistent recoveries of 50-60%, the P level is much easier to control and means less free P in the alloy and hence a cleaner melt that is easier to cast.

KBAlloys' production process promotes maximum P recovery from an inert product. The process yields a product containing Al and Fe₃P and, on addition to molten aluminum, an exothermic reaction takes place. The P dissociates itself from the Fe to form AlP and FeAl₃. The FeAl₃ dissolves while the AlP acts as the refining mechanism.

Foundry practice has shown the product to give prompt dissolution and consistent recoveries. Prompt dissolution at normal casting temperatures promotes efficient energy consumption, while consistent recoveries allows efficient use of P so as to produce a cleaner and more free flowing alloy.

For additional information or technical assistance please call toll free or visit our website.



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