

THE NEWCAST PROCESS FOR CASTING MAGNESIUM FERROSILICON NODULARIZERS

GLOMAG[®] FLOTRET[®] GLOFLEX[®] INMOLD[®]

“Newcast” magnesium ferrosilicon nodularizers are produced exclusively at Globe Metallurgical’s Beverly, Ohio works. These advanced nodularizers are continuously cast on a water-cooled copper belt to a thickness of ½”. (Standard practice in the industry is to batch-cast slabs in individual pig molds to a thickness of 1½” or greater.)

Several complex phases are generated when magnesium ferrosilicon solidifies. These phases possess a wide range of densities, as well as freezing temperatures that span 1000°F. Therefore segregation is an acute problem in the production of magnesium ferrosilicon nodularizers, posing serious potential problems for foundries.

The rapid solidification inherent in thin casting produces a finer distribution of the various metallurgical phases and completely eliminates both forms of segregation (density and freezing temperature differences). This results in a far more homogeneous product with uniform chemical and metallurgical distribution throughout the cross-section. (See micrographs identifying the various phases on the following page.)

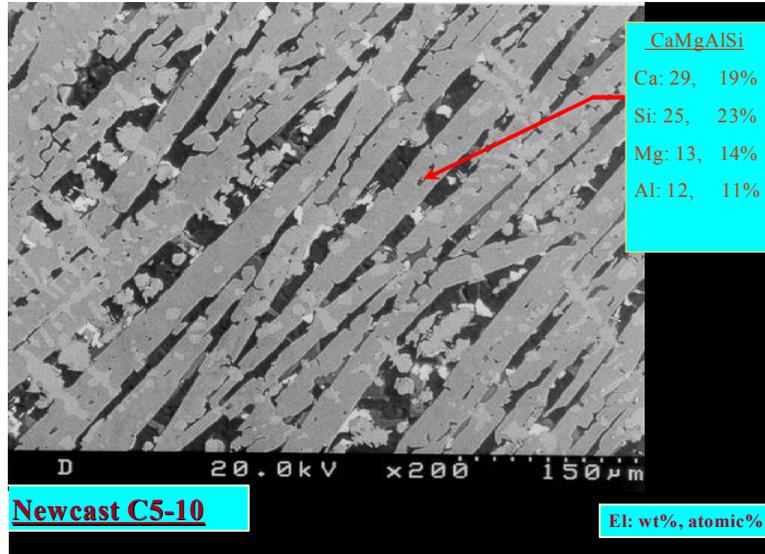
Casting ½” thick also yields enormous flexibility in alloy sizing and sizing uniformity. Reduced compositional segregation and uniformity of treatment alloy sizing decreases variation in treatment-to-treatment magnesium recovery scatter and enhances magnesium recovery in the production of nodular iron. It has been demonstrated, beyond any doubt, to several leading North American foundries that Newcast treatment alloy sized 5/8” by 8 mesh will outperform traditional cast nodularizers sized 1¼” by ¼” in Tundish and sandwich treatment processes. Reductions in treatment alloy usage of 10% and greater have been realized and documented by a number of foundries.

Globe has invested years, using the expertise of some of the most reputable research institutions in the U.S., in the development and refinement of the “Flocast” technology used in producing Newcast products. The family of Newcast nodularizers is by far a superior product for the processing of ductile iron.

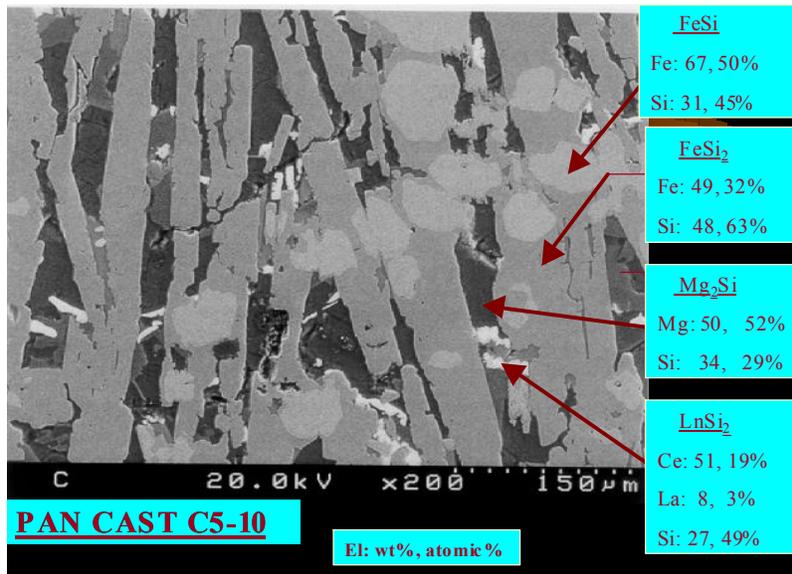
The chemical composition of Newcast alloys is customized to suit individual foundry requirements. Consequently, nodularizers are available in several different magnesium and rare-earth ranges. In addition specialized rare-earth blends can be tailored made for unique applications.

COMPARIVITE MICROGRAPHS STANDARD VERSUS NEWCAST NODULARIZERS

SEM NEWCAST structure



SEM conventional pan cast structure



The various phases identified are common to both casting techniques. However, NEWCAST structure above is more refined.

MATERIAL SAFETY DATA SHEET:

Available to Globe customers. Please ask your sales representative.

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