

Improve Magnesium Treatment of Ductile Iron with **Elkem's LAMET[®] Nodulizer and TOPSEED[™] Cover Alloy**



For a **Delayed, Quieter** Reaction that Leads to:

- Less Spillage, Fume, and Slag
- Higher Magnesium Recoveries
- Consistent Nodular-Graphite Structure
- Improved Quality at Lower Costs

Ductile-iron foundries can now efficiently treat, inoculate, and pour ductile iron from the same ladle using Elkem's LAMET[®] nodulizer and TOPSEED[™] cover alloy. This combination gives a much quieter reaction with less spillage, fume, and slag. In addition, Elkem's metallurgically trained sales representatives can help design process adjustments that increase magnesium recoveries and lower costs compared to conventional-treatment practices. These adjustments reduce temperature losses, allow faster filling, delay the release of magnesium, significantly improve magnesium recoveries, and give desired ductile-iron microstructures.

Reaction **Delayed**

Foundries using Elkem's LAMET[®] nodulizer and TOPSEED[™] cover alloy will notice that the magnesium reaction does not take place until after the ladle is filled with iron. Once it starts, the reaction takes up to twice as long as in conventional practices. The slow reaction increases the amount of magnesium that can be recovered from Elkem's LAMET[®] nodulizer. As a result, ductile-iron foundries using this practice get a well-inoculated iron with good nodularity. By treating, inoculating, and pouring from the same ladle, foundries can also reduce the temperature of the iron poured from the furnace. This improves magnesium recoveries and increases the life of furnace linings.

See the **Difference!**

In typical photos below, the new, improved practice using Elkem's LAMET[®] nodulizer and TOPSEED[™] cover alloy is compared with a conventional practice using magnesium ferrosilicon and 75% ferrosilicon. The photos were taken 15 seconds and one minute, respectively, after iron started to pour into the treatment ladle.

Conventional Treatment



- 1.1% Magnesium-Ferrosilicon
- 0.7% 75% Ferrosilicon
- 1.5% Steel Cover + Flux
- Conventional Pocket

VS.

New, Improved Treatment



- 1.1% LAMET[®] Nodulizer
- 1.0% TOPSEED[™] Cover Alloy
- No Steel Cover or Flux
- Improved Pocket

Continued on reverse side.

See the Difference!

	Conventional Treatment	New, Improved Treatment
Time to Fill Ladle	33 seconds	26 seconds
Start of Reaction	13 seconds*	51 seconds*
End of Reaction	One minute, 10 seconds*	Three minutes, 9 seconds*
Total Reaction Time	57 seconds	Two minutes, 9 seconds
Magnesium Content of Iron	0.034%	0.047%
Magnesium Recovery	72%	99%
Iron-Treatment Temperature	2,680 deg. F	2,560 deg. F.
Tap Weight	2,600 lbs.	2,600 lbs.

*after start of metal pouring

Note that magnesium reaction in the new, improved practice started over half a minute later than the reaction in the conventional practice. In fact, the ladle was full and was moved away from the furnace for almost half a minute before the magnesium started reacting. Since magnesium reacted with the iron for over two minutes, almost 40% more magnesium was recovered in the improved practice compared to conventional treatments



Knowledgeable Technical Support

Your Elkem Foundry Alloys representative can work closely with you to redesign your ductile-iron treatment practice to maximize the benefits available from using Elkem's LAMET® nodulizer and TOPSEED™ cover alloy. For example, foundries can often use low-magnesium Elkem's LAMET® nodulizer as a pound-for-pound replacement for high-magnesium nodulizers, reducing treatment costs substantially. Savings snowball due to large reductions in slag volumes that lower furnace- and ladle-lining costs and defect losses while improving productivity. To get the process started, please contact us below:

In the U.S.A.

Elkem Materials Inc.

P.O. Box 266
Pittsburgh, PA 15230
Tel: 1-800-848-9795
Fax: 1-412-299-7238
E-Mail: customerservice@elkem.com

In Canada

Elkem Metal Canada Inc.

1685 Main Street West
Hamilton, Ontario L8S 1G5
Tel: 1-905-572-7273
Fax: 1-905-572-6741
E-Mail: ham.sales@elkem.com