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Welcome to DCI's POWERMELT. We hope this quarterly newsletter will provide helpful information about silicon carbide, its applications, and our company.

Inside this issue:

Benefits of Using SiC over FeSi	1
Advantages of Using POWERMELT HP	1
Technical Support	2

Watch for the following features in upcoming issues:

SiC in Electric Melt Applications

SiC in Steel

POWERMELT

Benefits of Using SiC over FeSi

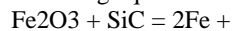
Why use silicon carbide (SiC) in your melt operation instead of ferrosilicon (FeSi)?

Whether in a coreless furnace or cupola, the benefits of using SiC over FeSi are numerous. In this article, however, we are going to focus on the use of SiC brick in the cupola.

Silicon carbide briquettes can be produced in chemistries ranging from 75% down to 25% SiC. The briquettes containing higher SiC content are used in cupola operations that do not have a high demand for carbon while the 36% SiC, for example, is used in high steel charge operations where the carbon demand is higher.

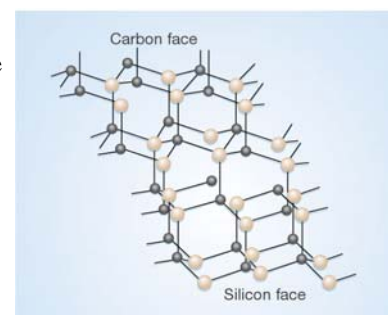
Silicon carbide dissolves rather than melts in the cupola stack, which leads to better silicon recoveries in the iron. Since SiC does not oxidize it passes through the high oxidation zone of the bed to dissolve in the iron in the well.

Silicon carbide is a very potent deoxidizer that is illustrated by the following equation:



The oxide in question is commonly referred to as "Red Rust". If the scrap being charged is rusty, the presence of SiC reduces the oxide to yield free iron (Fe) units. SiC attacks FeO and MnO, liberating the Fe and the Mn from the oxide, returning them to the bath, and raising the melting point of the slag. This, in turn, leads to a reduction in slag-related defects in the castings.

Silicon carbide is unique in that it contains two essential elements which are of great interest and benefit to the



cupola, and it provides an inexpensive source of both silicon and carbon. In the case of 36% SiC briquettes, the financial benefits are quite remarkable as a high percentage (25%-30%) of free graphitic carbon present in these briquettes allows for significantly lower coke usage (17%-25%). Keep in mind, the free carbon must be of graphitic nature in order to realize this type of coke savings. Note the equation: FeO

Cont. on Back Page

Advantages of Using POWERMELT HP

DCI's POWERMELT HP is a proprietary product developed for use in treatment or transfer ladles. This is not a by-product or a blend, but a premium grade 97% SiC product that took over six months to develop in order to select the optimum size and exact chemistry.

POWERMELT HP is meant to maximize your benefits in the following areas:

- Improve Your Mag Alloy Recovery
- Increase Fade Time
- Enhance Nodule Count
- Lower Shrink, Chill, and Slag Defects

Although it is rare for any one foundry to realize all of the aforementioned benefits, one is certain to benefit from one or more. For samples, please contact your DCI representative (see list on page 2).



- SiC briquettes for cupola melting
- SiC grain for electric melting
- SiC experts for customer support
- ISO 9001 : 2000 Registered
- Central U.S. location provides 1-2 day truck deliveries
- Rail service available

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Benefits of Using SiC over FeSi

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+ SiC = Fe + Si + CO. The FeO is formed at higher temperatures, which is typically observed inside the cupola. Upon formation it is reduced back to iron (Fe) units and simultaneously one will observe silicon pickup (Si).

Due to the reduction in FeO and MnO, the melters refractory life is greatly increased, which allows for longer operating campaigns. Since the amount of slag gen-

erated is reduced there is a reduction in disposal costs. A more consistent chemistry is realized. Less inoculant is required to achieve the desired graphite nodularity in ductile iron or Type A graphite in gray iron.

When using SiC instead of FeSi, there exists a tremendous amount of flexibility in developing the SiC product that best compliments your cupola practice. Again, although 36% and 65% SiC products are the industry stan-

dards, Dauber Company can create products that range from 25% to 75%. Obviously, the same does not apply to FeSi.

At Dauber Company, where SiC is the only product briquetted, the personnel, management, and ownership are committed to providing the foundry industry with the most consistent quality product; the most efficient delivery; the very best in packaging; and the ability to react on JIT-type notice.

DCI adds Horsepower to its Technical Support Team

Dauber Company, Inc. (DCI) has always been committed to supplying the foundry industry with not only the very best in quality products and service, but in technical assistance. However, over the past few years that endeavor has been taken to a whole new level.

John Basich and his DuoMet International, Inc. organization joined forces with DCI in the mid 1990s. John is a Metallurgical Engineer with over 37 years of manufacturing and recycling experience in the foundry industry. John also brings to the table the appropriate skills and knowledge in the application of the "Quality Sciences."

John's wide range of experience adds value to virtually every foundry he visits. Having held positions within both the ferrous and non-ferrous industries, ranging from Melt Shift Foreman to General Manager, John understands all facets of running a high quality melt facility.

DuoMet International has been in existence since 1991 and was initially created to provide on-site training and consulting in both the Metallurgical and Quality Science fields. Since the late 1990s,

John has provided valuable technical service/assistance on behalf of DCI at numerous North American foundries. In fact, John is considered one of the world's top Metallurgists in applying SiC to both cupola and electric furnaces.

Besides the services of John Basich, DCI added another racehorse to the stable in early 2006 when Ernie Tesch joined the team as a Cupola Consultant.

Ernie brings nearly 35 years of cupola operational experience to DCI having dedicated the majority of his career to running TK-Waupaca Foundry's Plants 2 & 3 melting operations. Ernie can boast of being one of the first cupola operators to effectively apply SiC brick to the cupola and has long been recognized as an industry leader in charge make-up and maximization of silicon recovery. In addition, he has played a primary role in testing and refining cupola Refractories.



With his wealth of knowledge, Ernie brings melt trouble shooting and problem solving capabilities to DCI. As Ernie said during a recent conversation, "Correct chemical composition and analysis don't guarantee a value-added situation for our customers due to the many intangibles within their respective operations".

Ernie helps customers work through the cause and effect of operational problems and delivers maximum value whether they are looking for increased tonnage, lower cost per charge, or longer refractory life. No doubt, Ernie Tesch has seen it all and can use that incredible knowledge base to help fine-tune other melt operations.