NUCOR®
NUCOR-YAMATO STEEL COMPANY

Nucor-Yamato Steel Company
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Re: Fully Killed Steel

The Nucor – Yamato Steel Co. Mill Test Reports (MTR) state, "All Shapes produced by Nucor-Yamato Steel are cast and rolled to a fully killed and fine grain practice". This statement is printed on the MTR partly due to an ASTM requirement for A992 grade material, which is currently the bulk of steel products manufactured at Nucor – Yamato Steel, Co.. A statement of "Killed Steel" is required for all A992 steel products.

The term "*killed steel*" refers to a practice of the addition of certain elements, such as Aluminum (Al) or Silicon (Si), to a heat of molten steel with the aim of those elements combining with the dissolved oxygen present in the liquid steel to reduce the oxygen content to a minimum. This is to prevent potential subsequent reactions between carbon and oxygen during solidification. This is commonly referred to as "killing" or de-oxidation throughout the industry. This is an essential part of the melting and casting process, which also results in a semi-finished product relatively free of porosity or internal imperfections. Nucor – Yamato Steel, Co. uses Si as the primary de-oxidizer to kill the steel during the ladle refining process.

We trust that this information will answer your questions regarding the practice used at Nucor – Yamato Steel, Co. to achieve a fully killed steel. If we can be of any further assistance, please feel free to contact us.