Université de liège
ABRASION 2011
ABRASION WEAR RESISTANT ALLOYED WHITE CAST IRON FOR ROLLING AND PULVERIZING MILLS
LIEGE, BELGIUM, AUGUST 21-24, 2011

# Microstructure Characterization Trial of High Vanadium Castings for Crushing Machine Parts of Rice Husk

Takateru Umeda[1, a] and Hirunlabh Chatchai [1, b]

[1] Sahaviriya Steel Industries PCL, Bangsaphan, Prachupkirikhan, 77140, Thailand

[a] umedat@ssi-steel.com, [b] chatchaiH@ssi-steel.com

**Abstract.** Vanadium is a principal solute element of high speed steel type cast iron of which composition is around 5 mass%. The alloy provides high hardness and ductility suitable for usage of hot rolling roll of steels and pulverizing mills. Rice husk is well known to have enough energy through combustion for power generation. The energy density is rather low so usually to increase its apparent density by crushing. Severe crushing of rice husk which is composed of silica resulted in wear or breakage. High vanadium cast iron of around 10 mass% has been recently developed including Cr, Nb, Mo, W and Ti. In this report microstructure characterization was performed to reveal the characteristic feature of the alloy structure. The alloy was hyper-eutectic in which primary phase was MC carbide and followed by lamellar type eutectic.

***Keywords:*** *high vanadium cast iron, rice husk crusher part, MC carbide*