

KAWASAKI STEEL TECHNICAL REPORT

No.46 (JUNE 2002)

"Environment-friendly Steel Products" and
"Environment Preservation Technology"

High Flowability Low Furnace-Pollution Segregation-Free Iron
Based Powder Containing No Metallic Soap Lubricant

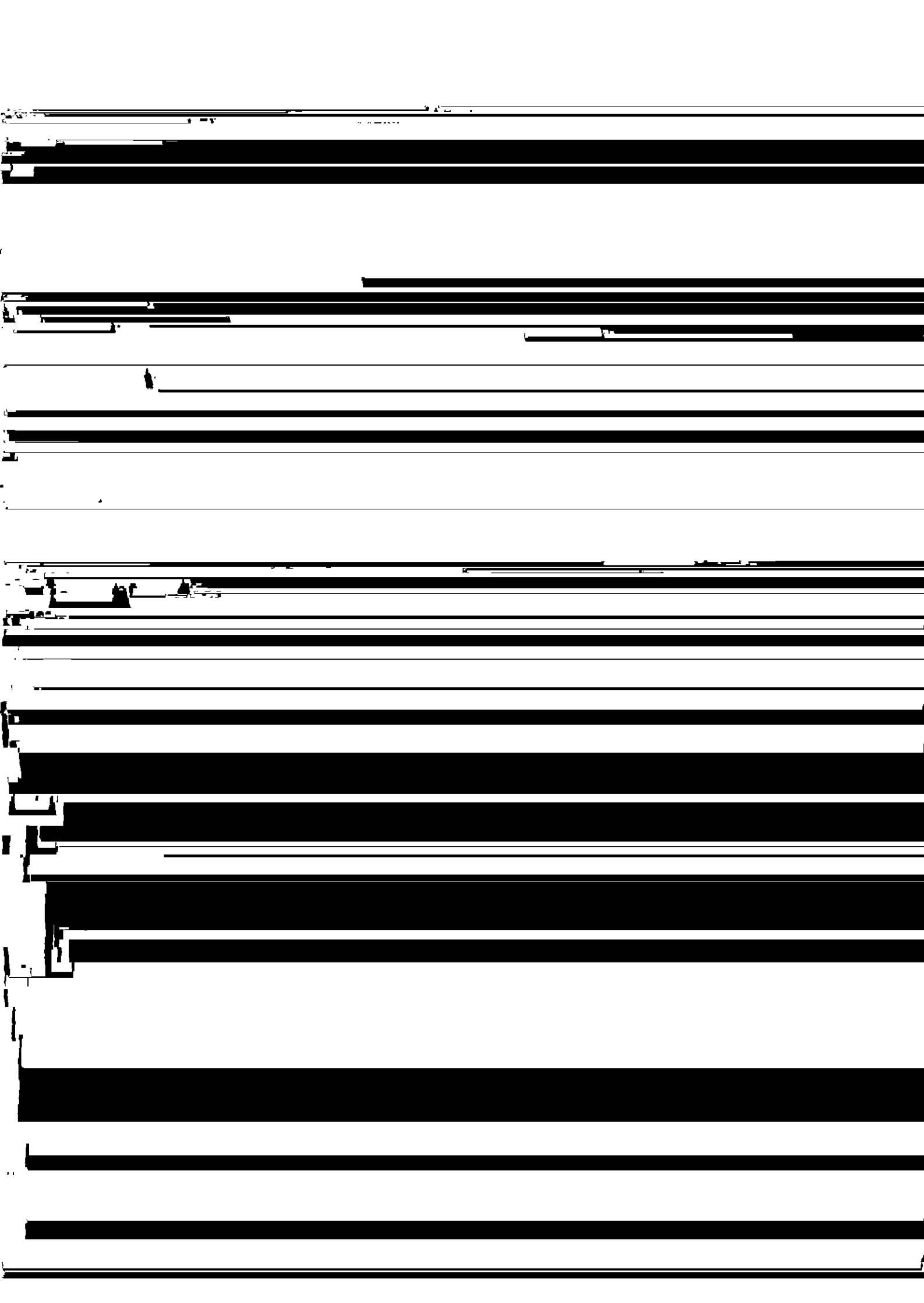
Satoshi Uenosono, Yukiko Ozaki, Kuniaki Ogura

Synopsis :

A new type of segregation-free iron based powder containing only wax as a lubricant completely and free from metallic soap, CLEAN MIX (KWAX-C), has been developed to improve flowability and productivity in sintering process to lighten the burden in the maintenance of furnace. The flow rate of CLEAN MIX (KWAX-C) is almost equal to that of the conventional segregation-free iron based powder containing wax lubricant, CLEAN MIX (KWAX-A) and the index of flow blocking is smaller by 62%. The powder characteristics; such as compressibility, Rattler value and ejection force of CLEAN MIX (KWAX-C), and the mechanical properties, such as tensile strength, Charpy impact value and dimensional changes during sintering of the compact made of it, were almost equal to those of the conventional segregation-free iron based powder containing wax lubricant.

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The body can be viewed from the next page.



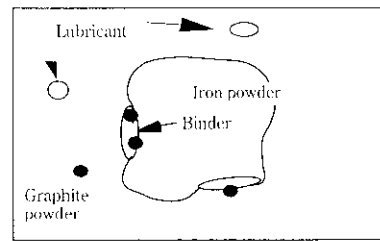
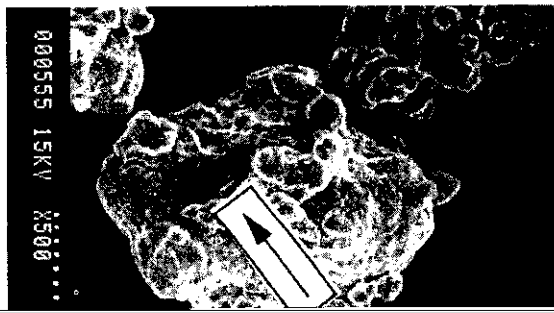


Fig. 2 Illustrative description of the segregation-

Table 2 Electrostatic charge measured and electrostatic force calculated

Table 3 Van der Waals force calculated

Combination	Charge	Electrostatic force	Combination of powder	van der Waals force (10^{-11} N/particle)
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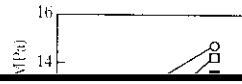
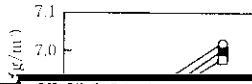
er vapor
on based

0.08
0.06

Conventional segregation-free powder using zinc stearate

8

UWCV A / Conventional



zinc stearate type segregation-free premixed powder and
the conventional wax type KIP Clean Mix, KWAX-A.