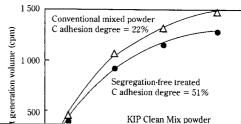
Iron Powders Expand Applications of Iron with Various Functions*

	Synopsis:		
	Kawasaki Steel started the integrated production of		
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ities by installing the second atomized iron powder plant in 1991, the second vacuum reduction plant in 1992, and Clean Mix plant in 1994 and 1999, thus making efforts to meet the diversifying needs of customers by developing new technologies and new products and expanding the production capacity.



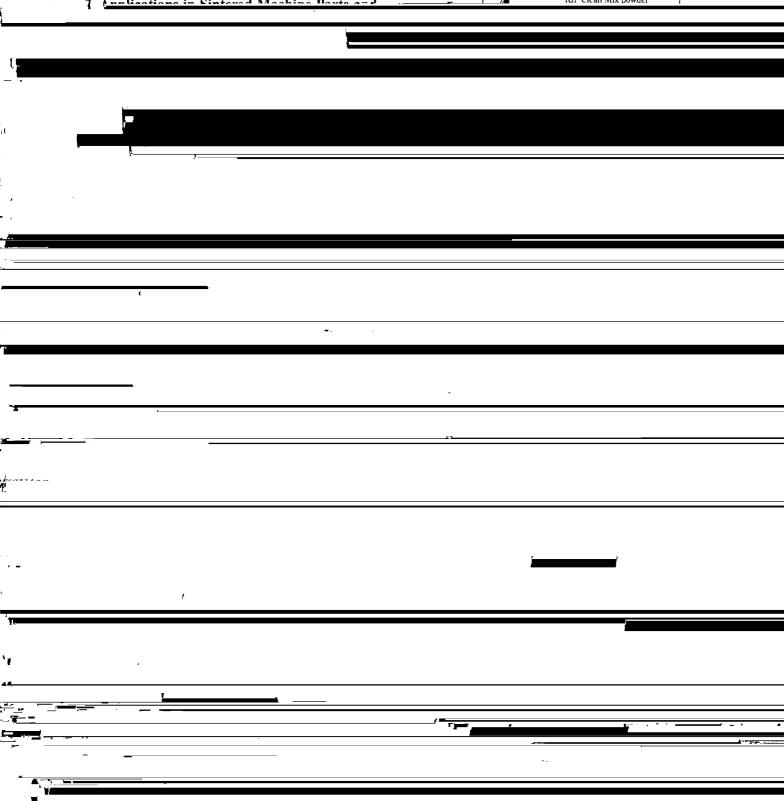


Table 1 Properties of powders and sintered compacts of the Cu segregation-free KIP Clean Mix powder Dimensional change during sintering

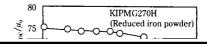
Table 2 Properties of powders and sintered compacts of KIP Clean Mix powders with wax lubricant

Powder	Apparent density (Mg/m³)	Tensile strength (MPa)	Impact value (J)	Dimensional change during sintering (vs. die cavity) (%)	Feature
KWAX-C	3.25	434	10	0.40	With wax lubricant only
KWAX-B	3.39	430	11	0.38	Without lubricant sticking with wax lubricant
KWAX-A	3.20	422	10	0.40	Conventional Clean Mix with wax lubricant
η μα	2.05	10.5	1 ^	3 C ·	*****

Specimen: $\phi 38 \times \phi 25 \times 10 \text{ t}$ Green density: 6.85 Mg/m^3

Sintering: $1\,130^{\circ}\text{C} \times 20\,\text{min}$ in endothermic gas

containing a zinc stearate lubricant. In KWAX-B and KWAX-C, the tensile strength and impact value of sin-



large specific surface area of a powder particle. In the reactions with the oxygen in the air, it is an oxidation inhibitor that absorbs the oxygen in the packaging of References K. Ogura: Kawasaki Steel Giho, 31(1999)2, 125
T. Kimura: "Powder metallurgy—Its History and Advances",