

KAWASAKI STEEL TECHNICAL REPORT

Development and Application of High-Purity

Hexagonal Boron Nitride (h-BN) Powder*

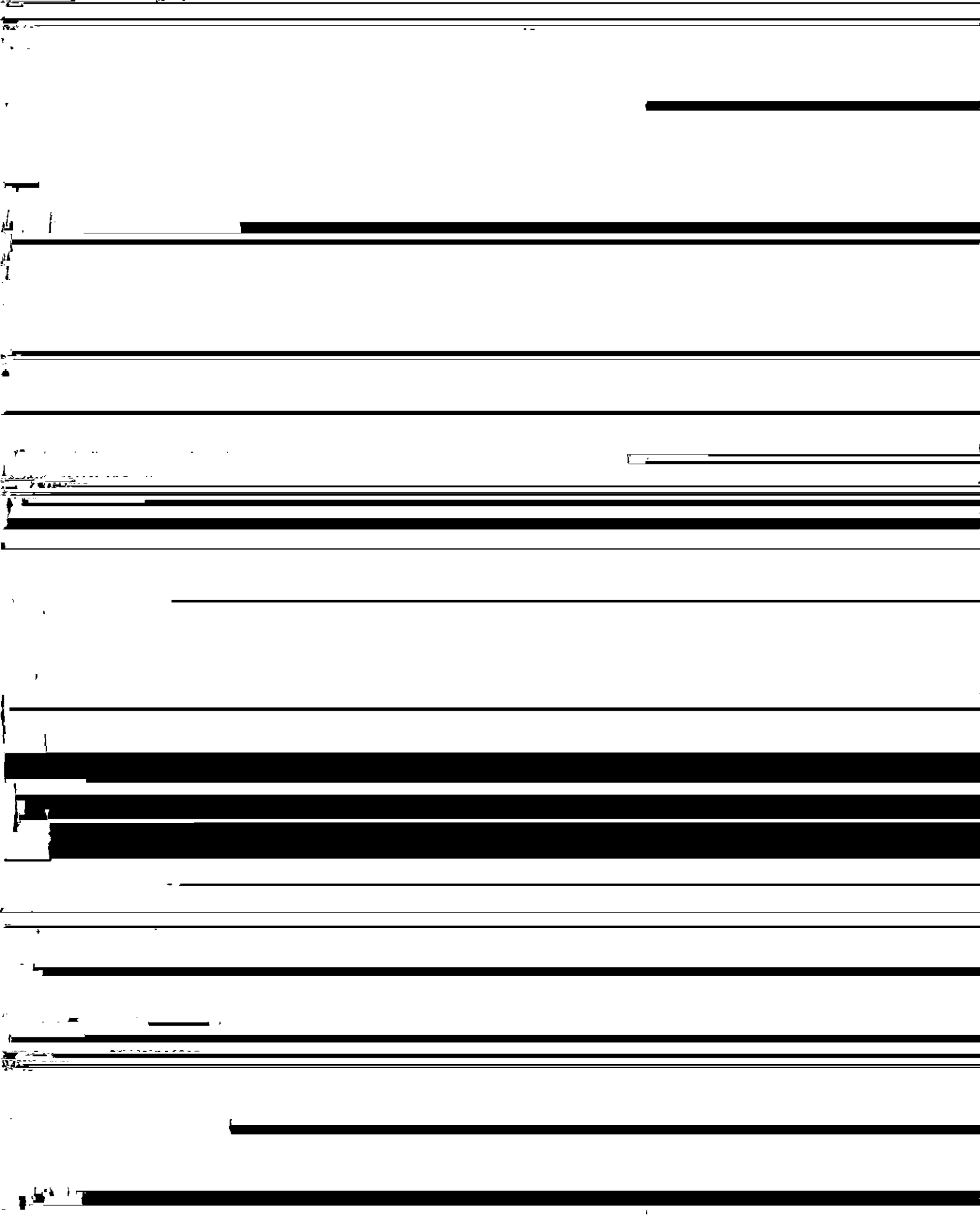
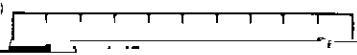
Synopsis:

and molybdenum disulfide (MoS_2). However, h-BN of-

complex. At the same time, the degree of purity which

1200

12



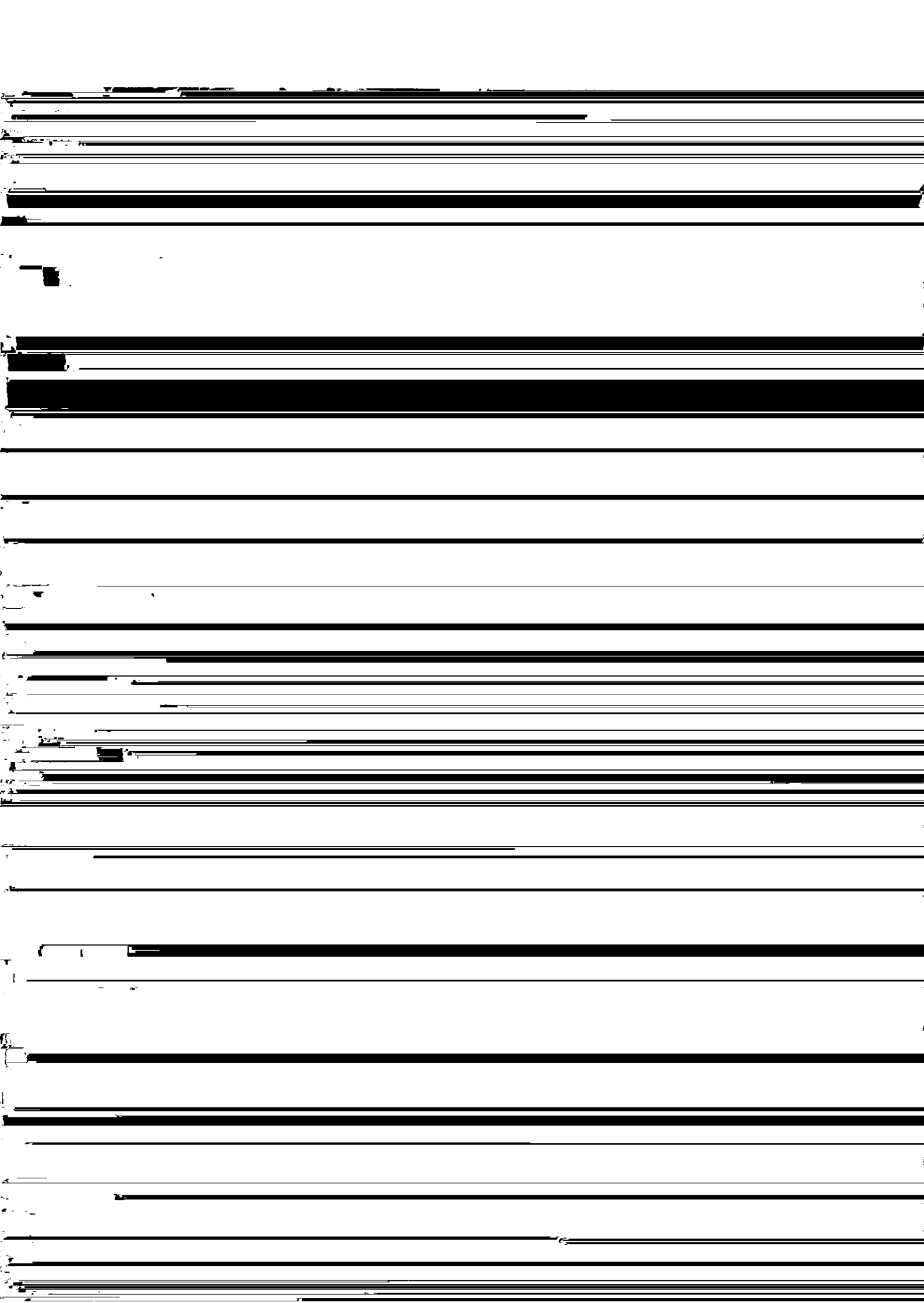


photo of h-BN for lubricant and mould release use;
Photo 2 (b) is a ceramics grade product for sintering.

Table 5 Properties of h-BN powder for cosmetics
(compared with conventional powder)

Property	h-BN powder	Conventional powder
Particle size (nm)	100-200	100-200
Surface area (m ² /g)	10-20	10-20
Crystal structure	Hexagonal	Hexagonal
Hardness (GPa)	0.1-0.2	0.1-0.2
Thermal stability (°C)	2000	2000
Chemical stability	High	High
Biocompatibility	High	High
Dispersion stability	High	High
Adhesion	Low	Low
Wear resistance	High	High
Friction coefficient	0.1-0.2	0.1-0.2
Moisture absorption	Low	Low
Electrical conductivity	Low	Low
Thermal conductivity	High	High
Optical transparency	High	High
Acoustic transparency	High	High
Mechanical strength	High	High
Chemical resistance	High	High
Thermal expansion	Low	Low
Thermal contraction	Low	Low
Thermal shock resistance	High	High
Thermal stability (°C)	2000	2000
Chemical stability	High	High
Biocompatibility	High	High
Dispersion stability	High	High
Adhesion	Low	Low
Wear resistance	High	High
Friction coefficient	0.1-0.2	0.1-0.2
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Mechanical strength	High	High
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Thermal expansion	Low	Low
Thermal contraction	Low	Low
Thermal shock resistance	High	High

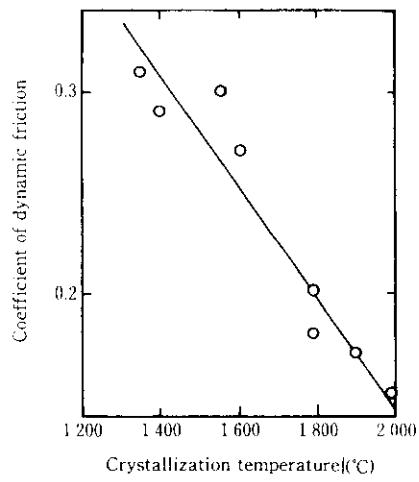


Fig. 4 Effect of crystallization temperature on the

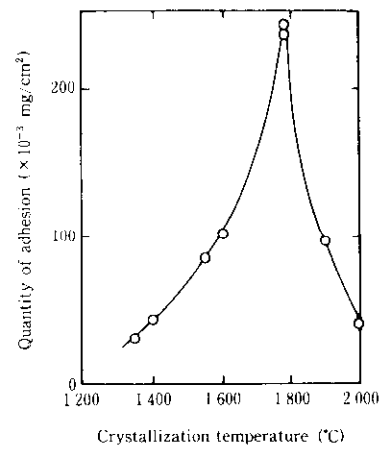
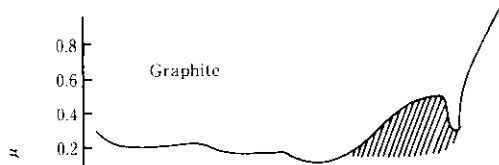


Fig. 6 Effect of crystallization temperature on the

powders for cosmetic applications. In ease of applica-
 tion, the new material is superior to spherical nylon



promising. Conventional graphite/organic binder type coatings may cause carburization defects in products due to the reaction between aluminum and graphite, and deterioration of the working environment due to the decomposition gas released by the organic binder.

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5 Conclusions

is uniformly dispersed in water, silicon oil, or an organic solvent have been developed as high-tem-

Hexagonal DNT (6 DND) - C...