Technical Information

NIPPON SHOKUBAI

EPOMIN HM-2000

High molecular weight type Polyethyleneimine

High molecular weight type called HM-2000 was new lineup for the SP series.

EPOMIN	Number average Molecular weight
SP-018	1, 800
SP-200	10, 000
HM-2000	30, 000

*Molecular weight measurement: ebullioscopic method

Properties

Free Ethylenimine ..... less than limit of detectability (0.01ppm)

Resin content 93.0-95.0%

(Water content..... 5-7%, by Karl fischer method)

50% aqueous solution viscosity

..... 5,000-15,000 mPa•s 25℃, by B-type viscosity method

(Product viscosity: Approx. 350000mPa・s)

pH (5% aqueous solution) 10-12

Appearance ..... colorless or light yellow liquid

Solubility ..... water:completely soluble

ethanol:soluble (dissolved in a lower alcohol)

methanol:soluble

toluene:practically insoluble

Ratio of primary:secondary:tertiary amine

..... 34:35:31, by NMR method: ^{13}C

Specific gravity 1.04

Amine value ..... 18mmol/g・solid by acidimetry in methanol and acetic acid

Freezing point ..... <-20℃

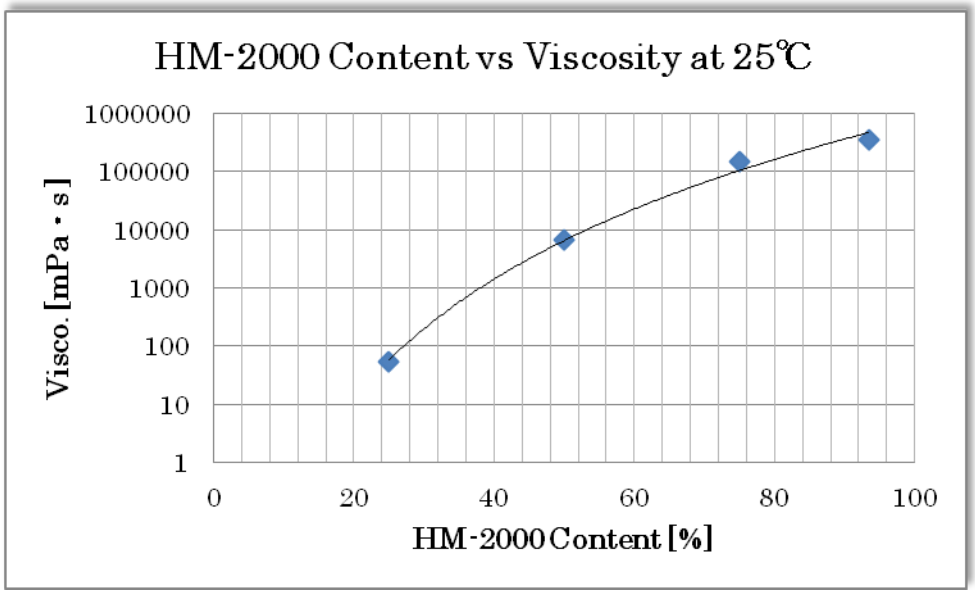
Decomposition temperature..... 314℃、by DSC method

CAS No:..... 9002-98-6 (Aziridine homopolymer)

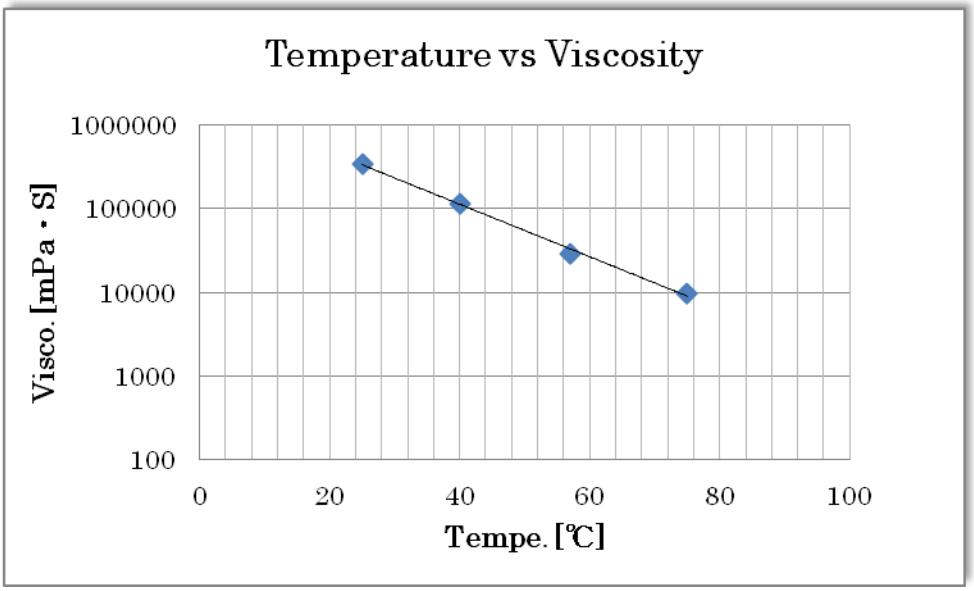
Viscosity Characteristic

◇HM-2000 is miscible in water at any concentration.

Viscosity depends on the concentration of HM-2000.



◇Viscosity of HM-2000 is greatly affected by its temperature.



Application

Adhesion promoter for printing inks applied to composite film
Adhesion promoter for poly vinyl alcohol, poly vinyl acetate and poly vinylbutyral,etc
Disperse fillers and pigments
Scavenge heavy metals (Chelate resin for mercury absorption)
Paper making agent
Scavenge malodor(Malodor binding agent)

Packagetype

Drum container (200L) :180kg
Plastic can container (18L) :16kg

Storage

HM-2000 is stable for about one year when stored at a cool and dark place.
However, its contact with air(oxygen and carbon dioxide)under high temperature may cause its quality degradation such as coloring and forming a film on the surface.

◇Applicable materials

Suitable materials;Stainless steel or in a variety of plastic (PVC,PE,PP,FRP‥)
Not suitable materials;Iron and Copper containing materials.

◇Storage condition

Keep away from direct sunlight, rain, heat and flame. Keep container closed and store in a dark and cool place when not in use.

Handling

HM-2000 requires careful handling because of its high hygroscopicity and absorbency (reactivity) of carbon dioxide in the air.

The drum container is inner-coated with synthetic resin. When heated long at high temperature (≧ 80℃), the container coating may come off and the product may be colored.

And it may form a surface film, as reaction with carbon dioxide. When there is a surface film, please use it after removing it.

When heat a drum container, please use hot water bath or thermostat room at ≦80℃, and please be careful to the expansion of drum container.

Plastic can container is made by high-density polyethylene, and heat-resistant temperature is 60℃. Please do the handling same as a drum container .

Please use a high viscosity container pump,when taken out from containers.

Regulatory information

EU - REACH (1907/2006) : Not applicable

U.S. - CERCLA/SARA: Not applicable

U.S. - OSHA: Not applicable

U.S. - TSCA (Toxic Substances Control Act) : Not applicable Inventory

Japan (ENCS) : Listed, Korea (KECL) : Listed, Australia (AICS) : Listed

Canada (DSL) : Listed, China (IECSC) : Listed, EU (EINECS) : Not listed

New Zealand (NZIoC) : Listed, Philippines (PICCS) : Listed

USA (TSCA) : Listed Registration EU (REACH) : Pre-registered

Restriction at export (Japan) :Not applicable

Note

Please refer to the Safety Data Sheet (SDS) that provides details of the safety of the product.

Revision 6: February 2016