

MANALOX[®] 318

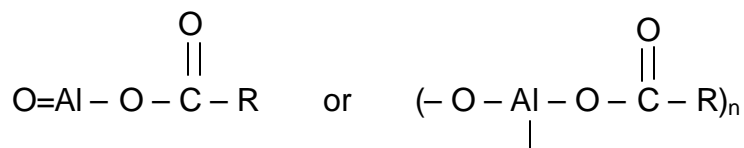
THICKENING AGENT FOR RESIN SYSTEMS

DESCRIPTION

Manalox 318 is a proprietary, cost effective oxoaluminum acylate with aromatic character, which is designed to provide both high viscosity and high yield value properties in lithographic printing ink vehicles. Manalox 318 is a versatile gellant that can be used over a wide temperature range, including high temperature applications, with less tendency to produce “seeds” than typical OAO gellants.

CHEMICAL FORMULA

It is theorized that the active ingredient in Manalox 318 can be represented as follows:



where "R" is aromatic in character.

PHYSICAL PROPERTIES

Appearance	Pale Yellow Liquid
Viscosity	~ 700 cps
Specific Gravity (25°C)	0.96
Active Material	> 50%
Aluminum Content	8.2 ± 0.1%
Flash Point (PMCC)	> 200°F

BENEFITS

- Suitable for high temperature applications
- No release of alcohol during the cook
- No “washout” of the structure when held for long periods at high temperature
- Produces rheological properties similar to Manalox[®] 230 (OAO)
- Less of a tendency to produce “seeds” in the varnish than OAO type gellants

USE INFORMATION

- Dilution:** Manalox 318[®] can be diluted with ink oil or monomer used in the resin vehicle. A standard dilution factor is 1:1, however care must be taken to not dilute the product such that the total aluminum is less than 4% which can lead to solubility issues with the ink oil.
- Temperature:** Manalox 318 is specially designed to be used in high temperature applications. At 170 – 175 °C, Manalox 318 develops viscosity within approximately 30 to 45 minutes. Manalox 318 does not react as quickly in the initial stages as does OAO, and therefore it has less of a tendency to produce "seeds" in the varnish. The use temperature range for Manalox 318 is from 150 °C to 180 °C.
- Use Levels:** The level of use varies according to the particular varnish formula and type of gel structure desired, but generally falls between 0.5 and 2.0%. Although not chemically equivalent, Manalox 318 can be evaluated as a potential replacement for Manalox 230 (OAO) or other oxoaluminum acylate type gellants. When using Manalox 318 as a replacement for OAO, it is important to utilize equivalent final % Aluminum concentrations in the addition slurry as shown in the table below:

Product	% Aluminum	Dilution (add:oil)	Final % Al
Manalox [®] 318	8.2%	52:48	4.25%
OAO	8.5%	50:50	4.25%

EXAMPLE OF BENEFITS (“Washout”)

- Wash out is characterized by a decrease in gel structure of the varnish when processed at elevated temperatures over an extended period of time.
- Wash out studies were run for Manalox 318 and OAO. The test varnish preparation was composed of phenolic modified resin and alkali refined linseed oil (ARLO). The gellants were diluted to an aluminum concentration of 5% prior to addition using Magiesol 47. 2% by weight of the gellant premix was added to the base varnish with constant agitation at 110 °C. The temperature was then increased to 175-180 °C and the yield of the gelled varnish was measured at the time intervals shown.

