Shin-Etsu Microsi, Inc.

VINYBLAN® for Flame-Proofing

Since vinyl chloride is the main ingredient in VINYBLAN, it has excellent flame resistance and can be utilized as a binder in the flame resistance finishing of all kinds of textiles / non-woven fabrics. It can be used in various application methods, including spray, gravure, foaming and dipping.

Why is VINYBLAN good for Flame – Proofing?

- **It has excellent flame retardancy.**
- **It has excellent miscibility with various hybrid emulsions, e.g. urethane, acrylic etc.**
- **It has excellent miscibility with flame retardants, e.g. brominated flame retardant (Non-Deca-BDE).**
- **It enables you to use less flame retardant.**

Grades

Grade	Solid Content (%)	VC (%)	Viscosity (mPa·s)	PH	Particle Size (nm)	Tg (℃)	MFT (℃)	LOI *1	Features
690	54	80	200	8.5	200	46	60	25	Film is soft. It doesn't turn yellow when heated.
902	50	80	300	8.5	500	60	80	25.5	Film is semi-hard.
900	40	90	200	7.5	330	70	Min. 80	27.5	Film is hard. It doesn't turn yellow when heated.
985 *2	37	100	50	6	70	80	Min. 80	31	Highly Flame- Resistant Type

*1 LOI（Limited Oxygen Index）
LOI indicates the minimum amount of oxygen necessary to keep polymer material burning.
Normal atmosphere contains 21% Oxygen. Polymers with a LOI greater than 25 will have difficulty burning, good self-extinguishing ability, and flame retardancy.

*2 985 cannot form a film by itself. It is used as an additive to provide flame retardancy to various emulsions.

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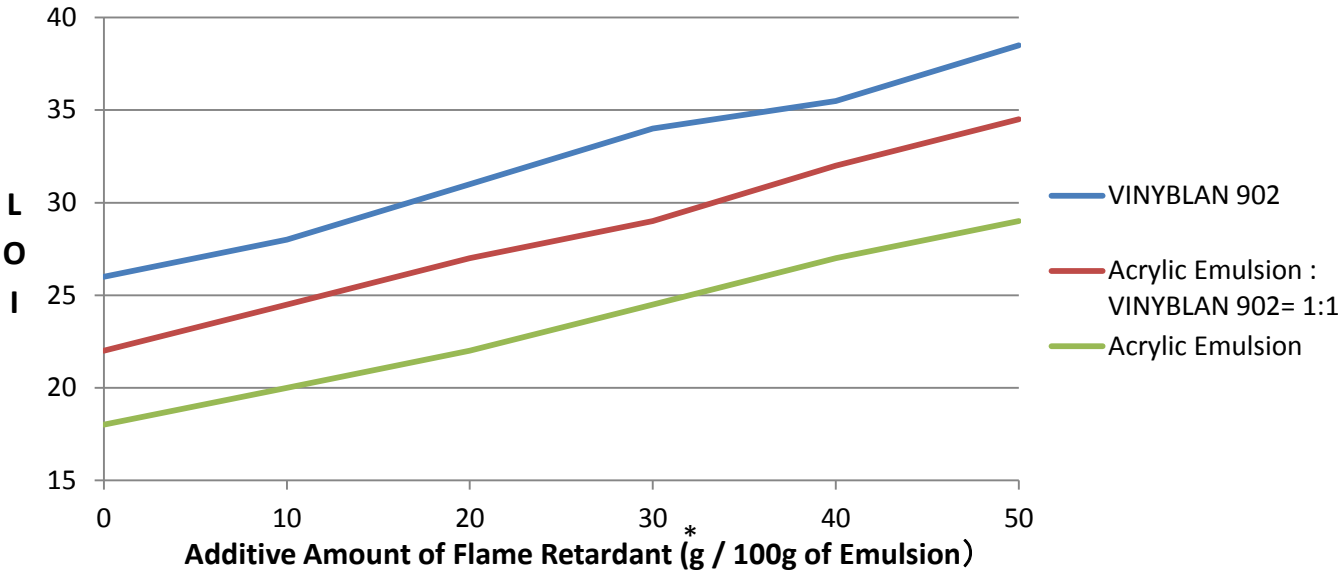
Adding Flame Retardant Compared with Other Binders



*Brominated Flame Retardant (Non-Deca-BDE) : Antimony trioxide = 5 : 1

LOI of VINYBLAN 902 is higher than acrylic emulsion, which enables VINYBLAN 902 to use less flame retardant as compared to acrylic emulsion.

Combustion Test

[Specimen Preparation]
Substrate: non-woven polyester fabric
Binder: Please refer to details below.
[Test Procedure]
1. Dip-coated with 200g/m^2 of binder
2. Dry above material at 130°C x 5 minutes
3. Burn it using a gas burner as per the diagram on the right

[Test Result]
VINYBLAN 902 shows excellent flame retardancy

Acrylic Emulsion

Acrylic Emulsion : VINYBLAN 902 = 1 : 1

VINYBLAN 902