DuPont™ Elvanol® 75-15

POLYVINYL ALCOHOL

Product Data Sheet

Description

Elvanol® 75-15 is a unique, medium low viscosity, fully hydrolyzed copolymer grade of polyvinyl alcohol. Its unique structure imparts improved viscosity stability and gel resistance to aqueous solutions while maintaining excellent film properties and adhesive strength typical of fully hydrolyzed grades. Below are the typical properties of Elvanol® 75-15.

Typical Properties of Elvanol® 75-15	
Viscosity, csp[1]	11.6-15.4
Solution, pH	5.0-7.0
Percent hydrolysis[2]	Standard hydrolysis does not apply
Volatiles, wt. % max.	5.0
Ash, wt. % max.[3]	0.70

[1] Determinated at 20°C (68°F), by Hoeppier falling ball method, bone dry basis
[2] Elvanol® 75-15 is a copolymer of PVA and MMA and thus cannot be classified as a partially or fully hydrolyzed homopolymer. The hydrolysis reaction is taken to completion (less than residual 2% acetate groups), but the effect of the copolymer causes Elvanol® 75-15 to act like a partially or intermediately hydrolyzed homopolymer. For more details, ask for Tech Talk #33
[3] Dry basis, calculated as % Na_2O

Resin Characteristics

As illustrated below, solutions of Elvanol® 75-15 exhibit little tendency to increase in viscosity during storage. Solutions of Elvanol® 75-15 are much more resistant to temperature variation in that they develop essentially no gel structure if chilled lower than room temperature.

Viscosity Stability of 12% Aqueous Solutions

Viscosity of 25°C (77°F), mPa·s (cP) [1]					
	1 day	10 days	3 wks	4 wks	6 wks
Elvanol® 75-15	758	764	774	780	800
Visible gel structure	None	None	None	None	None

Viscosity of 10°C (77°F), mPa·s (cP) [1]					
	1 day	10 days	3 wks	4 wks	6 wks
Elvanol® 75-15	1422	1668	1650	1650	1618
Visible gel structure	None	None	None	None	None

[1] Brookfield, Model LVF, 60 rpm

Suggested Uses

Elvanol® 75-15 is suggested for evaluation wherever the high film strength and oil, grease and solvent resistance associated with higher viscosity, fully hydrolyzed polyvinyl alcohol are desired, but a lower solution viscosity and gel resistance are needed. The viscosity stability of Elvanol® 75-15 solutions makes it attractive for use in wet adhesives that require long term storage stability and which must withstand temperature variations, either in storage or during shipment. Gel resistance and excellent binding properties of Elvanol® 75-15 suggest its use as a secondary, or even a principle binder, in the manufacture of joint cements.

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Safety & Handling

Elvanol® is regarded as a safe, nontoxic material when properly handled. Elvanol® is technical quality polyvinyl alcohol. It is not recommended for inclusion in any food or preparation which might be taken internally.

Under certain conditions of use, dust may be formed from Elvanol® polyvinyl alcohol. DuPont recommends that dust from Elvanol® be treated as a nuisance dust, which is regulated by the Occupational Safety and Health Administration (OSHA) under Title 29, Code of Federal Regulations, Section 1910.1000. Under this section, an employee's exposure to nuisance dust shall be limited to 15 milligrams per cubic meter (mg/m^3) of total dust and 5 mg/m^3 of respirable dust on a time-weighted average in any 8-hour shift of a 40-hour week.

The DuPont limit for polyvinyl alcohol exposure to nuisance dust is 10 mg/m^3, and for respirable dust is 5 mg/m^3. If excessive concentrations of dust are encountered, a mask or respirator and goggles should be worn. The mask or respirator should comply with Section 1910.134 of the OSHA regulations; the goggles should comply wth Section 1910.133.

For bulk storage and handling of Elvanol® (e.g. storage silos) refer to the *Elvanol® Bulk Storage and Handling Safety Guide*.

Elvanol® may be disposed of by incineration or landfill. However, any disposal method must be in compliance with all applicable local, state and federal regulations.

FDA Status

Elvanol® 75-15 polyvinyl alcohol complies with U.S. Food and Drug Administration (FDA) Regulations under the following Sections of Title 21 CFR, and may be used in contact with food, subject to the limitations and requirements therein:

- 175.105 - Adhesives

Figure 1. Viscosity vs. Temperature

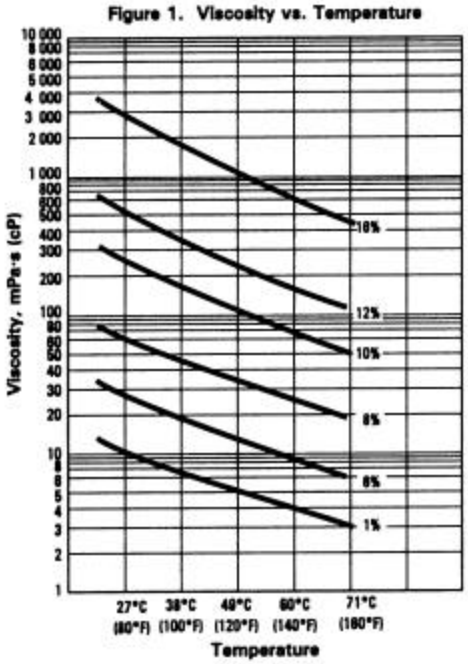
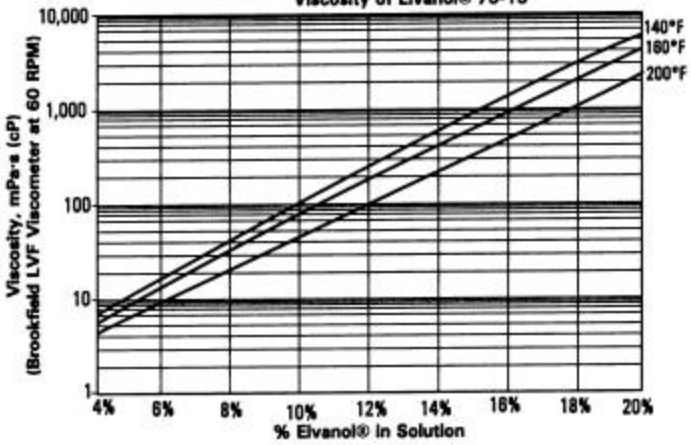


Figure 2. Effect of Concentration on Viscosity of Elvanol® 75-15



DuPont Offices Worldwide

Americas
DuPont Company, BMP26-2363
Lancaster Pike & Route 141
Wilmington, DE 19805 U.S.A.
Telephone +1 302 774 1161
Toll-free (USA) 800 628 6208
Fax +1 302 892 7390

DuPont do Brasil, S.A.
Alameda Itapecuru, 506
06454-080 Barueri, SP Brasil
Telephone +55 11 4166 8542
Fax +55 11 4166 8720

Asia Pacific
DuPont China Holding Co, Ltd.
15th Floor, Shui on Plaza
333 Huai Hai Road (Central)
Shanghai 200021, China
Telephone +86 21 6386 6366
Fax +65 6272 7494

Europe / Middle East / Africa
DuPont de Nemours Int'l. S.A.
2, Chemin du Pavillon Box 50
CH-1218 Le Grand Saconnex
Geneva, Switzerland
Telephone +41 22 717 51 11
Fax +41 22 717 55 00

Elvanol.dupont.com

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