

# DuPont™ Elvanol® 70-03

## POLYVINYL ALCOHOL

### Product Data Sheet

#### Description

Elvanol® 70-03 is an ultra-low viscosity, fully hydrolyzed polyvinyl alcohol (PVOH) designed to provide film strength and binding power in paper sizing, adhesive formulations and specialty applications. This grade of Elvanol® may offer processing advantages compared with other commercially available higher viscosity PVOH grades.

#### Typical Properties of Elvanol® 70-03

Viscosity, cps <sup>1</sup>	3.0-4.0
Solution, pH	5.0-7.0
Percent hydrolysis <sup>2</sup>	98.0-98.8
Volatiles, wt. % max.	5.0
Ash, wt. % max. <sup>3</sup>	0.70

<sup>1</sup> Viscosity in mPa.s (cP) of a 4% solids aqueous solution at 20°C (68°F)

<sup>2</sup> Mole percent hydrolysis of acetate groups, dry basis

<sup>3</sup> Dry basis, calculated as % Na<sub>2</sub>O

#### Resin Characteristics

This as with other fully hydrolyzed Elvanol® grades, Elvanol® 70-03 is resistant to cold water, but dissolves readily on heating to 90°C (194°F) or above with good agitation. Compared with higher viscosity, fully hydrolyzed grades, Elvanol® 70-03 permits higher solids solutions at a given viscosity and temperature, or lower solution viscosities at the same solids content and temperature. Due to its very low viscosity it can be made into solutions as concentrated as 30%.

#### Suggested Uses

One of the typical uses of Elvanol® 70-03 is to extend Fluorescent Whitening Agent (FWA) performance in high solids paper coatings.

Elvanol® 70-03 is suggested for evaluation where the holdout and adhesive properties of higher viscosity, fully hydrolyzed PVOH grades are desired, but where a lower viscosity is needed for rheological or other reasons.

Elvanol® 70-03 should be useful in such applications as high solids paper coatings and sizings, adhesives for porous substrates including paper and paperboard, and as a binder for pigments and other solid particles

#### FDA Status

Elvanol® 70-03 polyvinyl alcohol may be used in any indirect food additive application for which the U.S. Food and Drug Administration (FDA) has indicated polyvinyl alcohol to be acceptable, subject to any limits specified in the applicable regulations. Regulations covering such applications include:

- 175.105 - Adhesives
- 175.300 - Resinous and polymeric coatings <sup>(1)</sup>
- 176.180 - Components of paper and paperboard in contact with dry food <sup>(2)</sup>
- 177.2260 - Filters, resin-bonded <sup>(3)</sup>
- 177.2800 - Textiles and textile fibers <sup>(4)</sup>

(1) Subject to the finished food-contact article meeting the extractive limitations under the intended conditions of use, as shown in paragraph (c).

(2) As a component of the uncoated and coated food-contact surface of paper and paperboard in contact with dry food (Food Type VIII, identified in 21 CFR 176.170(c), Table 1).

(3) Subject to the finished resin-bonded filter meeting the extractive limitations under the intended conditions of use, as shown in the Regulation. In accordance with good manufacturing practice, finished filters should be thoroughly cleansed prior to their first use in contact with food.

(4) For use in textiles and textile fibers that may be used as articles or components of articles in contact with dry food (Food Type VIII, identified in 21 CFR 176.170(c), Table 1).



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## Safety & Handling

Read and understand the Materials Safety Data Sheet (MSDS) before using this product. Elvanol® is technical quality polyvinyl alcohol. It is not recommended for inclusion in any food or preparation that 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<sup>3</sup>) of total dust and 5 mg/m<sup>3</sup> 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<sup>3</sup>, and for respirable dust is 5 mg/m<sup>3</sup>. 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 with Section 1910.133.

For bulk storage and handling of Elvanol® (e.g. storage silos) refer to *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.

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