

DuPont™ Elvanol® 51-03

POLYVINYL ALCOHOL

Product Data Sheet

Description

Elvanol® 51-03 polyvinyl alcohol (PVOH) is an ultra low viscosity, partially hydrolyzed PVOH designed for situations where high solids and manageable viscosities are required for paper, adhesive and specialty applications. This grade of Elvanol® may offer processing advantages compared with other commercially available higher-viscosity PVOH grades.

Typical Properties of Elvanol® 51-03

Viscosity, cps ¹	3.0-4.0
Solution, pH	5.0-7.0
Percent hydrolysis ²	87.0-89.0
Volatiles, wt. % max.	5.0
Ash, wt. % max. ³	0.50

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

² Mole percent hydrolysis of acetate groups, dry basis

³ Dry basis, calculated as % Na₂O

Resin Characteristics

Elvanol® 51-03 is a partially hydrolyzed commercial grade with excellent cold water solubility. Compared with higher viscosity partially hydrolyzed grades, Elvanol® 51-03 permits higher solids solutions at a given temperature and viscosity, or lower solution viscosities at the same solids content and temperature.

Suggested Uses

Elvanol® 51-03 is suggested for evaluation in temporary protective coatings. It has additional applications in remoisturizing adhesives, temporary binder for ceramics, water-soluble film, paper adhesives, cold-water-soluble film, photosensitive coatings, binder for joint compounds and texture coatings and as a soil anti-redeposition agent.

FDA Status

Elvanol® 51-03 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
- 175.300 - Resinous and polymeric coatings ⁽¹⁾
- 175.320 - Resinous and polymeric coatings for polyolefin films ⁽²⁾
- 176.170(b) - Components of paper and paperboard in contact with aqueous and fatty foods ⁽³⁾
- 176.180 - Components of paper and paperboard in contact with dry food ⁽⁴⁾
- 177.1200 - Cellophane
- 177.1670 - Polyvinyl alcohol film ⁽⁵⁾
- 177.2260 - Filters, resin-bonded ⁽⁶⁾
- 177.2800 - Textiles and textile fibers ⁽⁷⁾

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

(2) For use only as a dispersing agent at levels not to exceed 6 percent of total coating weight in coatings for polyolefin films provided the finished polyolefin films contact food only of Types V, VII and IX (identified in 21 CFR 176.170(c), Table 1), subject to the finished food-contact article meeting the extractive limitations under the intended conditions of use, as shown in paragraph (c).

(3) Subject to the finished food-contact surface of the paper or paperboard meeting the extractive limitations under the intended conditions of use, as shown in paragraph (c) of the Regulation.

(4) 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).

(5) In the preparation of polyvinyl alcohol film that may be used in contact with food of Types V, VIII and IX (identified in 21 CFR 176.170(c), Table 1), provided the food-contact film in contact with food Types V or IX is subject to the finished food-contact surface of the paper or paperboard meeting the extractive limitations under the intended conditions of use, as shown in paragraph (b) of the Regulation. The finished food-contact film shall not be used as a component of food containers intended for use in contact with water.

(6) 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.

(7) 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.

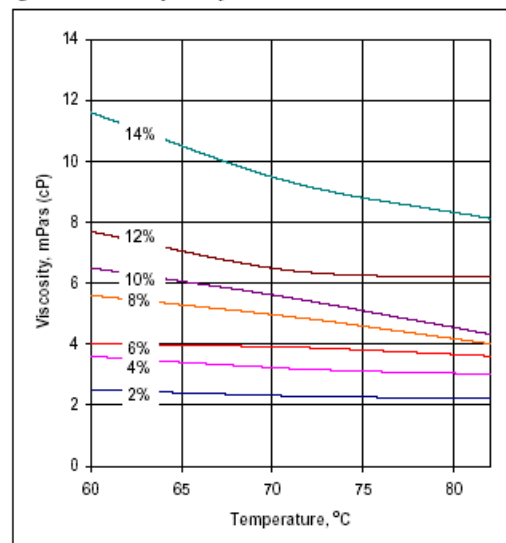
Under certain conditions of use, dust may be formed from Elvanol® polyvinyl alcohol. DuPont recommends that dust from Elvanol® be treated as a nuisance dust, which is regulated by the Occupational Safety and Health Administration (OSHA) under Title 29, Code of Federal Regulations, Section 1910.1000. Under this section, an employee's exposure to nuisance dust shall be limited to 15 milligrams per cubic meter (mg/m³) of total dust and 5 mg/m³ 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/m³, and for respirable dust is 5 mg/m³. 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.

Figure 1. Viscosity/Temperature Curves for *Elvanol*® 51-03



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