

DuPont™ Elvanol® 70-06

POLYVINYL ALCOHOL

Product Data Sheet

Description

Elvanol® 70-06 is a 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® 70-06

Viscosity, cps ¹	6.0-7.0
Solution, pH	5.0-7.0
Percent hydrolysis ²	98.5-99.2
Volatiles, wt. % max.	5.0
Ash, wt. % max. ³	0.70

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® 70-06 provides tensile and adhesive strength approaching that of fully hydrolyzed commercial grade, Elvanol® 90-50. As with other fully hydrolyzed grades of Elvanol®, Elvanol® 70-06 is resistant to cold water, but dissolves readily on heating to 90°C (190°F) or above with good agitation.

Elvanol® 70-06 when compared with higher viscosity, fully hydrolyzed grades, permits higher solids solutions at a given viscosity and temperature, or lower solution viscosities at the same solids content and temperature.

Suggested Uses

Elvanol® 70-06 is suggested for evaluation where the film strength and oil, grease, and solvent resistance of higher viscosity, fully hydrolyzed PVOH grades are desired, but where a lower viscosity is needed for theological or other reasons. Elvanol® 70-06 should be useful in such applications as paper coatings and sizing, adhesives for porous substrates including paper and paperboard, and as a binder for pigments and other solid particles.

Elvanol® 70-06 can be used to extend Fluorescent Whitening Agent (FWA) performance in paper coatings.

Elvanol® PVOH solutions are prepared the same as other polyvinyl alcohol polymers.

1. Add cool water to the cooker.
2. Begin agitation, generating a vortex.
3. Add Elvanol® and other size ingredients into the vortex. Mix for 2 minutes before using steam.
4. Add live steam to raise the temperature to 90-95°C.
5. Mix and adjust to the desired solids level.
6. Pump to size storage kettle as needed.



The miracles of science

FDA Status

Elvanol® 70-06 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).

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.

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

Copyright © 2006 DuPont. All rights reserved. The technical data herein are guides to the use of DuPont resins. The advice contained herein is based upon tests and information believed to be reliable, but users should not rely upon it absolutely for specific applications because performance properties will vary from lot to lot and with processing conditions. It is given and accepted at user's risk and confirmation of its validity and suitability in particular cases should be obtained independently. The DuPont Company makes no guarantees of results and assumes no obligations or liability in connection with its advice.

This publication is not to be taken as a license to operate under, or recommendation to infringe, any patents. CAUTION: Do not use in medical applications involving permanent implantation in the human body. For other medical applications, see DuPont Medical Caution Statement, H-50102. The DuPont Oval, DuPont™, The miracles of science™, and Elvanol® are trademarks or registered trademarks of DuPont or its affiliates. Doc. Ref. NOL_7006_0601_v3.doc



The miracles of science™