



Nafion™ D520/521, D1020/1021, D2020/2021

Ion Exchange Materials

Polymer Dispersions

Product Information

Nafion™ perfluorosulfonic acid (PFSA) polymer dispersions are made from chemically stabilized PFSA/ polytetrafluoroethylene (PTFE) copolymer in the acid (H⁺) form and are available in several polymer content

and dispersant compositions. Typical uses include fabrication of thin films, coating formulations for fuel cell membranes, catalyst coatings, sensors, and a variety of electrochemical applications.

Typical Composition

Property	Nafion™ PFSA Polymer Dispersions by Composition					
	D520	D521	D1020**	D1021	D2020	D2021
Polymer Content, wt%	5.0 min. 5.4 max.	5.0 min. 5.4 max.	10.0 min. 12.0 max.	10.0 min. 12.0 max.	20.0 min. 22.0 max.	20.0 min. 22.0 max.
Water Content, wt%	45 ± 3	45 ± 3	87–90	87–90	34 ± 2	34 ± 2
VOC Content, wt%	50 ± 3	50 ± 3	<1	<1	46 ± 2	46 ± 2
1-Propanol	48 ± 3	48 ± 3	—	—	44 ± 2	44 ± 2
Ethanol	<4	<4	—	—	<2	<2
Mixed Ethers and Other VOCs	<1	<1	<1	<1	<1	<1
Specific Gravity	0.92–0.94	0.92–0.94	1.05–1.07	1.05–1.07	1.01–1.03	1.01–1.03
Available Acid Capacity, meq/g, H ⁺ polymer basis	>1.00	>0.92	>1.00	>0.92	>1.00	>0.92
Total Acid Capacity, meq/g, H ⁺ polymer basis	1.03–1.12	0.95–1.03	1.03–1.12	0.95–1.03	1.03–1.12	0.95–1.03
Viscosity, cP, at 25 °C (77 °F) and 40 sec ⁻¹ Shear Rate*	10–40	10–40	2–10	6–10	50–500	50–500

*1 cP = 1 MPa·sec

**Currently discontinued

Order Information

Dispersions are available in the following containers (4-L minimum order):

- 4-L container package (air or land delivery)
- 20-L container (air or land delivery)
- 190-L drum (land delivery)

Safe Handling and Use of Nafion™ PFSA Polymer Dispersions

The following information should be reviewed before handling and processing Nafion™ PFSA polymer dispersions:

- Safety Data Sheets (SDSs) for Nafion™ PFSA polymer dispersions D520/521, D1020/1021, and D2020/2021
- Nafion™ “Safety in Handling and Use” technical bulletin, T-01
- “Guide to Safe Handling of Fluoropolymer Resins,” Fourth Edition, November 2005, Published by the Fluoropolymers Division of the Society of the Plastics Industry, Inc.

Handling Practices

Ventilation should be provided for safe handling and processing of Nafion™ dispersion. The amount of local exhaust necessary for processing Nafion™ dispersion at elevated temperatures will depend on the combined

factors of dispersion quantity, temperature, and exposure time. Adequately ground both supply and receiving containers before dispensing dispersions containing flammable solvents.

Disposal

Refer to the SDS for Nafion™ dispersion. Treatment, storage, transportation, and disposal must be in accordance with applicable federal, state/provincial, and local regulations.

Recommended Storage Conditions

For long-term storage, store in glass, plastic, or stainless-steel containers only between 0 °C (32 °F) and 32 °C (90 °F) for D520, D521, D2020, and D2021 and between 5 °C (41 °F) and 15 °C (59 °F) for D1020 and D1021. Store in a dry environment, away from direct sunlight, ideally in a temperature-controlled room. Not to be frozen.

Expected Shelf Life

A shelf life of two years from preparation of dispersion, under appropriate storage conditions, is expected to be a reasonable estimate of product shelf life. For D520, D521, D2020, and D2021, stir or otherwise mix the dispersion, while in the original shipping container, before dispensing. For D1020 and D1021, stir or otherwise mix the dispersion, while in the original shipping container, and dispense through a 5 µm filter.

The data listed here fall within the normal range of product properties, but they should not be used to establish specification limits nor used alone as the basis of design. This information is based on technical data that Chemours believes to be reliable. It is intended for use by persons having technical skill and at their own discretion and risk. This information is given with the understanding that those using it will satisfy themselves that their particular conditions of use present no health or safety hazards. Because conditions of product use are outside our control, Chemours makes no warranties, expressed or implied, and assumes no obligation or liability in connection with any use of this information or for results obtained in reliance thereon. The disclosure of the information is not a license to operate under or a recommendation to infringe any patent of Chemours or others.

Medical Statement: Please contact your Chemours representative to discuss limitations regarding medical applications.

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