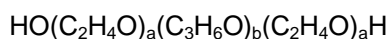


# Pluronic® Block Copolymer NF Grades (Poloxamer NF Grades)

Poloxamer block copolymers conforming to the NF 19 specifications are available from BASF Corporation under the Pluronic® registered tradename. The Pluronic® block copolymers are synthetic copolymers of ethylene oxide and propylene oxide represented by the following chemical structure:



Wherein a and b blocks have the following values:

Pluronic®	Poloxamer	a	b
L44NF	124	12	20
F68NF	188	80	27
F87NF	237	64	37
F108NF	338	141	44
F127NF	407	101	56

The Pluronic® block copolymers listed above conform to the requirements as published and specified in the Official Monograph NF 19 for Poloxamer block copolymers as follows:

Poloxamer	124	188	237	338	407
Physical Form	Liquid	Solid*	Solid*	Solid*	Solid*
pH, 2.5% aqueous	5.0 – 7.5	5.0 – 7.5	5.0 – 7.5	5.0 – 7.5	5.0 – 7.5
Cloud point, 10%	71–75 °C	>100 °C	>100 °C	>100 °C	>100 °C
APHA Color	50 max.	100 max.	100 max.	100 max.	120 max.
% H <sub>2</sub> O	0.4 max.	cast solid 0.4 max prill 0.75 max.	cast solid 0.4 max prill 0.75 max.	cast solid 0.4 max prill 0.75 max.	cast solid 0.4 max prill 0.75 max.
BHT, ppm	–	50 – 125	50 – 125	50 – 125	50 – 125
Molecular Weight	2090 to 2360	7680 to 9510	6840 to 8830	12700 to 17400	9840 to 14600
Weight % oxyethylene	46.7 ± 1.9	81.8 ± 1.9	72.4 ± 1.9	83.1 ± 1.7	73.2 ± 1.7
Unsaturation mEq/g	0.020 ± 0.008	0.026 ± 0.008	0.034 ± 0.008	0.031 ± 0.008	0.048 ± 0.017
Ethylene Oxide, ppm	1 max.	1 max.	1 max.	1 max.	1 max.
Propylene Oxide, ppm	5 max.	5 max.	5 max.	5 max.	5 max.
1,4 dioxane, ppm	5 max.	5 max.	5 max.	5 max.	5 max.
Heavy Metals	0.002% max.	0.002% max.	0.002% max.	0.002% max.	0.002% max.
Organic volatile	**	**	**	**	**

\* contains butylated hydroxytoluene at 0.01%

\*\* Based on knowledge of raw materials, manufacturing process and controlled handling and storage, it is concluded that there is no potential for organic volatile impurities such as benzene, chloroform, methylene chloride and trichloroethylene to be present in Pluronic NF grade surfactants.

It is suggested that these Pluronic® copolymers be considered for their general functionality as surfactants, emulsifiers, solubilizers and stabilizers in preparations where the quality of Poloxamer as prescribed in NF 19 may be required.

BASF maintains a Drug Master File for Pluronic® block copolymer at the FDA and is familiar with supplying information to the FDA in order to assist in obtaining FDA authorizations.

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Typical properties					
Pluronic® Surfactant	L44NF	F68NF	F87NF	F108NF	F127NF
Form	Liquid	Prill	Prill	Prill	Prill
Average molecular weight	2200	8400	7700	14600	12600
Specific gravity*	1.05	1.06	1.04	1.06	1.05
Viscosity cps*	440	1000	700	2800	3100
Pour/melt point	16°C	52°C	49°C	57°C	56°C
Cloud point (1% aqueous)	65°C	>100°C	>100°C	>100°C	>100°C
Surface tension (0.1% aqueous at 25°C) dynes/cm	45	50	44	41	41
HLB	12–18	>24	>24	>24	18–23
Solubility in water at 25°C	>10%	>10%	>10%	>10%	>10%
<i>*liquid at 25°C, prill at 70°C</i>					
<b>Packaging</b>	55-gal. steel drum	57-gallon fiber drum			
Net weight (lbs.)	450	225	250	175	200
	5-gal. plastic pail	13 ½-gallon fiber drum			
Net weight (lbs.)	40	50	50	35	40

#### Shelf Life:

BASF will endorse the results on the certificate of analysis for a period of up to two years from the date of manufacture for material in original, unopened, properly stored containers. Beyond two years, we recommend the quality of the material be confirmed prior to use, by retesting the certificate of analysis parameters.

Please refer to the Material Safety Data Sheet (MSDS) for this product for instructions on safe and proper handling and disposal.

Pluronic is a registered trademark of BASF Corporation

#### For More Information

##### Order Placement

To place orders for delivery in the United States please call our toll free number (800) 443-6460. To place orders for delivery in Canada please call BASF Canada at (800) 267-2955.

##### For Other Information

Including product literature and Material Safety Data Sheets please call (847) 249-6750.

##### Or Visit Our Website At:

[www.performance.basf-corp.com](http://www.performance.basf-corp.com)

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