

Milliken® Millad® NX™ 8000

The New Standard In Clear Polypropylene

Technical Data

Millad® NX™ 8000 is a new-to-the-world chemistry that significantly expands the performance of polypropylene clarification. Millad NX 8000 allows polypropylene to approach the look of high clarity plastics like polystyrene and polycarbonate.

Features and Benefits

- **Improved appearance**
 - Attractive shelf appeal, cleaner look
- **Better quality and consistency**
 - High consistency across a variety of processing conditions
- **Potential cost benefits**
 - Cycle time reduction
 - Energy savings

Clarifier Summary

	Millad NX 8000 "EQ"	Millad NX 8000 "UC"
Loading range	1800 - 2400 ppm	3000 - 4000 ppm
Haze (190°C)	10%	5.0%
Haze (210°C)	11%	5.5%
Haze (230°C)	12%	6.0%
Pellet Color (YI)	-12 to -8	-16 to -12
Crystallization temp (Tc)	~1°C increase	~2°C increase
Plate-out	reduced	reduced
Processing window	190-230°C	190-230°C
Cycle Time	Up to 15% reduction	Up to 15% reduction
Productivity	~15%+ increase	~15%+ increase

Relative values compared to conventional clarifier. Actual results may depend on resin and processing conditions.

Packaging Options

- **10 Kg Bags (500 kg per pallet)**
 - Tyvek® Bags
 - Pallet Dimensions - 40" x 48" x 60" (101.6 cm x 121.9 cm x 152.4 cm)
- **200 Kg Supersack**
 - PE Coated Woven PP, Type "C" with Grounding Wire
 - Pallet Dimensions - 45" x 45" x 36" (114.3 cm x 114.3 cm x 91.4 cm)



Typical Properties

Property	Typical Value
Appearance	Pale Violet Powder
Millad NX 8000 Purity	97.5 Wt% Min
Millad NX 8000 APHA Color	150 Pt/Co Units Max
Water	1.00 Wt% Max
97 Percentile Particle Size	30 Microns Max
Mean Particle Size	15 Microns Max
Packed Bulk Density	0.30 - 0.34 g/cm ³
Dissolution Range	210-220°C (in a compounding step)

Milliken™

Millad® NX™ 8000 clarified polypropylene

... cost efficient, balanced properties combined with outstanding optical performance.

Clarifier Summary

Millad NX 8000 "UC"	"Ultimate Clarity", i.e. the best opticals, "breakthrough" clarity combined with cycle time reduction and improved processing window with NX 8000 at "standard" (~3000-4000 ppm) loading.
Millad NX 8000 "EQ"	"Enhanced Quality", i.e. the reduced yellowness, higher Tc, improved productivity and energy savings possible with NX 8000 at "standard" (~2000 ppm) loading. Grades with higher levels of NX 8000 demonstrate even more dramatic optical improvement.
Haze Data	50 mil plaques (1.25 mm), 12-35 mfr RCP at listed loadings and standard additive package.
Pellet Color (YI)	Pellet color measured in a 50 mm reflective cell with a white background attached to a spectrophotometer in accordance with ASTM E313.
Plate Out	Improved plate-out performance has been demonstrated in EBM or TF, due to increased solubility of NX 8000 and higher "affinity" for PP.
Processing Window	Trials have demonstrated that NX 8000 displays consistent optical performance with broad variation in extrusion and processing temperatures and speeds.
Cycle Time	Trials have demonstrated the potential for NX 8000 to deliver reduced cooling and cycle time from lower molding temperatures and higher Tc.
Productivity	Trials have demonstrated the potential for NX 8000 to deliver improved productivity and energy savings from reduced processing temperatures.

Regulatory Clearance Summary

CHEMICAL

US – All components currently listed on the Toxic Substances Control Act (TSCA) Inventory.

EU – The main component, originally listed on ELINCS, has been registered under REACH. The co-formulants in the product have been pre-registered and will be registered by the appropriate deadline.

Australia – All components are listed on the Australian Inventory of Chemical Substances (AICS).

Canada – All components are included on the Domestic Substances List (DSL).

Japan – All components of NX 8000 are listed on the Japanese Existing Chemicals List" under the chemical section of the form.

Korea – All components are included on the Existing Chemicals List (ECL).

China – All components are included on the Inventory of Existing Chemical Substances in China.

Taiwan – All components are registered under the Existing Chemical Substance Nomination (ECN) inventory.

Russia – product registered

FOOD CONTACT APPLICATIONS

US – FDA, FCN 825; for use as a clarifying agent at a level not to exceed 5000 ppm by weight in polypropylene homopolymer and high-propylene olefin copolymers. The polymers containing the clarifier will be used in the form of film and molded articles and are intended to contact all food types under Conditions of Use A through H. All remaining components are approved by the US FDA as Indirect Food Additives.

EU – Compliant with Commission Regulation (EU) No 10/2011. Additional information may be provided upon request.

Canada – "Letter of No Objection" for the use of Nonitol,1,2,3-trideoxy-4,6:5,7-bis-O-[(4-propylphenyl)methylene]- restrictions for the clarifier follow US food contact.

Mercosur – Nonitol, 1,2,3-trideoxy-4,6:5, 7-bis-O-[(4-propylphenyl)methylene]- Listed on Food Contact Positive List.

China – All components are included on GB9685:2008 Hygienic Standards for uses in Additives in Food Containers and Packaging Materials or listed on the draft grandfather approvals published by the Chinese Ministry of Health on February 9, 2011 for use in polypropylene.

Other regulatory information available upon request

PLEASE NOTE: As each customer's use of our product may be different, information we provide, including without limitation, recommendations, test results, samples, care/labeling/processing instructions or marketing advice, is provided in good faith but without warranty and without accepting any responsibility/liability. Each customer must test and be responsible for its own specific use, further processing, labeling, marketing, etc. All sales are exclusively subject to our standard terms of sale posted at www.milliken.com/terms (all additional/different terms are rejected) unless explicitly agreed otherwise in a signed writing.

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