



## Nychem<sup>®</sup> Emulsions Product Selection Guide

High Acrylonitrile

Medium Acrylonitrile

Acrylonitrile  
Butadiene Styrene

Specialty Butadiene



# Providing expertise in Specialty Nitrile and Butadiene Emulsions

**Emerald's Nychem® Specialty Emulsions** have a long history with the products and markets we serve. With roots in technology originally developed by BFGoodrich, Emerald brings a legacy of value to customers with proven technology, service and operational excellence.

Our Emulsions cover a comprehensive line of products that provide a combination of properties that are superior to other polymers: oil, solvent and caustic resistance, toughness, tear and abrasion resistance, wash durability, elasticity and stretch. The products are tailored to various applications based on the main monomers, functional monomers, and surfactant type. This Guide provides an overview of the different products to assist in selecting the appropriate latex for your application.

## **Key Features**

The ratio of the main monomers butadiene, acrylonitrile and/or styrene influences the softness of the polymer (glass transition) as well as the oil and solvent resistance. For this reason, polymers are often categorized by their acrylonitrile and/or styrene content. Increasing the acrylonitrile and styrene ratio in the polymer backbone will increase oil, solvent and/or caustic resistance, but will decrease polymer flexibility.

Performance features can be enhanced through vulcanization or in some cases crosslinking through heat-reactive or carboxylated monomers.

This crosslinking will be achieved by heating the polymer film to 300°F-350°F, (depending upon pH and dwell time) and will result in a small increase in tensile, abrasion and chemical resistance.



Through use of external cross linking agents, toughness, abrasion and chemical resistance can be further enhanced. The cross linking agents include: formaldehyde containing resins melamine, urea formaldehyde, phenol formaldehyde, epoxy resins, metal complexes (zinc oxide, zinc or zirconium ammonium carbonate) and aziridine. To obtain maximum durability, vulcanization can be used. This is accomplished with sulfur, accelerators and heat.

The surfactant system is also tailored to enhance certain performance features. The latexes made using natural emulsifiers such as fatty acid and rosin acid-based surfactants will exhibit superior water resistance to latexes made from synthetic surfactants, and are easily precipitated by cationic salts. This makes these products well suited in the gasket manufacturing and specialty paper-making process. Products made from synthetic surfactants will often exhibit superior mechanical stability which makes them well-suited for certain paper coatings and other high-shear applications including coal tar, asphalt emulsion modification, adhesives, metal coating and textiles.

***Emerald focuses on specialized emulsions for a variety of end use applications. Products from our ISO-9001 facility include offerings with FDA clearances and low/no formaldehyde.***





## ► Nychem® Emulsions

	Product	Tg(°C)	Emulsifier Type*	Solids %	pH	Maximum Viscosity (cP)	Heat Reactive	Carboxylated	FDA Compliant		Description/Suggested Uses
									175.105	177.2600	
High Acrylonitrile	1561X87	-20	RA	39-41	10-11	25					Excellent fiber deposition. Fast penetrating compatible with resins. Beater add gasketing, paper coatings and saturation.
	1561X98	-20	RA	39-41	10-11	25					Excellent grease and oil resistant. Beater add gasketing. Excellent fiber deposition.
	1571X12	-15	SA	43-45	7.5-9	75		•			Excellent abrasion, chemical and oil resistant. Gaskets, abrasives, leather finishes, nonwoven binders.
	1581X8	-20	SA	42.5-46	7.5-8.5	50		•			Soft abrasion resistant coatings. High oil and grease resistant. Paper saturant, abrasives, adhesives.
Medium Acrylonitrile	1552	-25	FA	52-54	10-11	100			•	•	Very compatible in polyblends. Grease and oil resistant saturants and coatings, general purpose adhesives.
	1562X103	-25	RA	40-42	10-11	100			•	•	Small particle size. High-stretch. General adhesives, saturants and coatings.
	1562X117	-25	FA	40.5-44	8-9	75			•	•	High molecular weight. Excellent abrasion resistance. Oil resistant gasketing, wet-end addition. Paper saturant.
	1562X28	-26	FA	40-42	9.5-11	100					Excellent water, alkali resistance. Easily destabilized. Paper saturant, textile coatings.

**Nychem® latexes perform in tough end-use environments vs. other types of water-based latexes. They have superior grease, oil, fat and solvent resistance, are abrasion and caustic resistant, yet soft, elastic and resilient.**

\*Key: SA = Synthetic Anionic  
FA = Fatty Acid  
RA = Rosin Acid

## ► Nychem® Emulsions

	Product	Tg(°C)	Emulsifier Type*	Solids %	pH	Maximum Viscosity (cP)	Heat Reactive	Carboxylated	FDA Compliant		Description/ Suggested Uses
									175.105	177.2600	
Medium Acrylonitrile	1570X79	-15	SA	40.5-44	8-9	75		•	•	•	Very tough, resilient, oil resistant. Good Mechanical stability. Suitable for coagulant dipping, paper saturant.
	1572	-30	SA	49-51	7-8	100	•	•	•	•	Very tough, resilient, oil and grease resistant. Coatings saturants and adhesives, beater add gasketing.
	1572X32	-30	SA	46-48	6-8	100	•		•	•	Superior mechanical stability. Good compatibility with phenolics, good heat and light aging. Paper saturant, friction paper, paper coatings, tar/asphalt modification, nonwoven binder, adhesives, RFL dip, textile coatings.
	1572X64	-30	SA	46-48	6-7	100	•		•	•	Resilient oil resistant, good heat and light aging. Durable foam coatings. Saturants and adhesives, beater add gasketing.
Acrylonitrile Butadiene Styrene	XPE 140	-30	SA	40-43	8-9	75		•			Resistance to oil and solvents. Resilient. Metal and special coatings.
	1562X170	-15	RA	33-35	10-11	25					Wet end binder, gasket stock, paper saturant.
	1570X75	-50	SA	39.5-42	7.5-8.5	100		•	•		Soft, general purpose binder, adhesives, paper saturant.
	1577	+15	FA	39-42	10-11	75					Water resistant coating. Abrasion resistance, high gloss.
	1578X1	+20	SA	46-48.5	7.5-8.5	200	•	•			Mar and oil resistant coatings. Very firm and durable.
	XPE 130	-15	SP	34	10	10					Good resistance to rewetting. Gasket, paper saturant.

\*Key: SA = Synthetic Anionic  
 SP = Special  
 FA = Fatty Acid  
 RA = Rosin Acid  
 AN = Anionic Natural



## ► Nychem® Specialty Emulsions

	Product	Tg(°C)	Emulsifier Type*	% Solids	pH	Specific Gravity	Maximum Viscosity (cP)	Nitrile Content	Carboxylated	FDA Compliant		Description/ Suggested Uses
										175.105	177.2600	
Specialty Butadiene	1561	-20	FA	40-42	10-11	N/A**	75	High		•	•	Good abrasion resistance. Beater add gasketing, paper and nonwoven saturation, textile finishes.
	1562	-25	FA	40-42	10-11	N/A**	100	Medium		•	•	Small particle size. Coatings and adhesives. Paper saturant.
	1562X160	-15	SP	34-36	10-11	N/A**	25	Medium				Smaller particle size, wet end binder, gasket stock. Paper saturant.
	1563	N/A**	RA	40-42	10-11	N/A**	100	Low				Description/suggested uses: Good toughness/resilience and tear/abrasion resistance. Can be easily destabilized. Excellent water, alkali resistance.
	1581	-20	SA	43-46	7.5-8.5	N/A**	50	High	•			Soft abrasion resistant coatings. High oil and grease resistant. Paper saturant, abrasives, adhesives.
	1800X73	+10	SP	38-42	8.5-10	1.01	100	None				High surface tension, reactive, essentially emulsifier free. Superior water resistance to rewetting. Metal and special coatings.
	1871X3	N/A**	SP	43-46	8-9	N/A**	50	Medium	•			Description/suggested uses: Very good oil, grease resistance, toughness/resilience, and tear/abrasion resistance. Good resistance to rewetting, good water resistance, low foaming.
	2570X59	-20	SA	51-54	7-8	1.00	200	None	•			High Specific adhesion. Metal coating, high elongation.
	552	+4	SA	54-57	10-11	1.09	100	High		•		Polyblend of PVC/nitrile rubber emulsions for easy processing without plasticizer. Oil resistant. Tape barrier/top coat application.
	N2000	-30	SA	44-46	8-9	N/A**	75	Low	•	•	•	Soft polymer with excellent solvent resistance. Good tensile strength and low modulus. Good mechanical stability. Coagulant dipping, textile coatings.
	N4000M	-15	SA	40.5-44	8-9	N/A**	75	High	•	•	•	Soft polymer with excellent solvent resistance, high tensile strength and low modulus. Good mechanical stability. Coagulant dipping, textile coating.

Specialized products for your specialized end-use applications.

\*Key: SA = Synthetic Anionic  
 SP = Special  
 FA = Fatty Acid  
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\*\*Data not available.



## ► Polymer Selection Guide

Application	Suggested Products
Gasket	Nychem 1561X87, 1561X98, 1562X160, 1562X170, 1571X12, XPE-130
Paper Saturant	Nychem 1561, 1562, 1562X28, 1570X75, 1572, 1572X32, 1581, 1581X8, XPE-130, XPE-140
Friction Paper	Nychem 1562X117, 1572X32, 1572X64
Abrasives	Nychem 1552, 1571X12, 1572, 1581, 1581X8
Paper Coatings	Nychem 1572X32, 1572X64, 1578X1
Leather Finishing	Nychem 1561, 1571X12, 1572
Coal Tar/Asphalt Modifier	Nychem 1561, 1572X32, 1572X64
Non-woven Binders	Nychem 150X79, 1571X12, 1572, 1572X32, 1572X64, 1578X1, 1581
Adhesives	Nychem 1552, 1581, 1562X103, 1572X64, 1571X12, 1561, 1581X8, 1572X32
Textile Coatings	Nychem 1562, 1562X28, 1570X79, 1572X32, 1572X64, 1578X1, N-2000, N-4000
Metal & Special Coatings	Nychem 2570X59, 1800X73, XPE-140
Tape Barrier/Top Coating	Nychem 552
Dipping	Nychem 1572X32, N-2000, N-4000

### For Additional Information:

For samples of any of the polymers and additives contained in this selection guide, or if you wish to discuss your application with your Emerald sales representative or our technical service group, please contact:

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### Business Groups Information

#### Emerald Specialty Polymers 330-374-2418 / 888-889-9150

Producer of unique specialty Nitrile, ABS, and SB emulsions. These water-based polymers are used in specialty coatings, specialty papers and composites, textiles, coal tar emulsions and other industrial applications.



### Other Emerald Divisions

#### CVC Thermoset Specialties 856-533-3000 / 800-296-0040

A leader in the manufacture of unique reactive liquid polymers, specialty epoxy resins, elastomer modified epoxy resins, epoxy functional monomers and modifiers, catalysts and accelerators. CVC products are sold worldwide and are integral components of coatings, adhesives, electrical potting, compounds, encapsulants and composites. Produced in Maple Shade, NJ (shown at left) and one shared with Specialty Polymers in Akron, OH (depicted above).



#### Emerald Kalama Chemical 360-673-2550 / 800-223-0035

Leading producer of ingredients for food and beverage preservatives, flavors and fragrance, pharmaceutical and industrial and intermediate additives.



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