BIMAX

A Gelest Company

Specialty Acrylic Monomers & Polymers

Performance Materials For:

- Medical Devices
- Coatings & Adhesives
- Inks & Toners
- Water Treatment
- Personal Care

BIMAX

CHARTER

BIMAX was founded in 1987 as a developer and marketer of specialty monomers and surfactants for use in a variety of polymer applications.

The charter of the company is to perform as a reliable supplier of small to intermediate quantities of specialty products not generally well serviced by commodity oriented producers.

BIMAX is headquartered in Glen Rock, Pennsylvania , USA, where Administration and Research are located. Pilot plant and Production facilities are situated in Glen Rock, Pennsylvania & Decatur, Tennessee, USA.

HISTORY

1987	Bimax established in Maryland, USA
1991	First laboratory and pilot plant in Maryland, USA First production: toll manufacture, USA
1993	Bimax office established in London, UK First production in UK: toll manufacture
1998	New manufacturing plant, Tennessee, USA
2000	New manufacturing plant, on a 5-acre site, in Glen Rock, PA, USA
2008	Consolidation of Laboratory, Administration, and Production in Glen Rock, PA, USA
2014	Acquired a 12,600 sq foot building across from main site in Glen Rock, PA, USA to house Administration, Customer Service and brand-new R&D laboratory Awarded ISO9001 certification
2016	Pilot plant added to main site in Glen Rock, PA, USA
2019	Bimax acquired by Gelest, Inc, a manufacturer of silanes, silicones, and metal-organics located in Morrisville, PA, USA

PRODUCT PHILOSOPHY & DEVELOPMENT

- We specialize in jointly developing products with our customers
- Our company is R&D driven with a focus on chemical synthesis and scale-up
- We can also custom (toll) manufacture your product in our equipment
- We are very flexible to meet customer needs; our product specifications can be tailored to specific requirements
- Our Technical Department can assist with developing test methods for your product
- We maintain a variety of analytical equipment including GC, HPLC, GPC, UV-Vis, and FTIR

CHEMISTRIES/TECHNOLOGIES

- **Direct Esterification / Transesterification**
  (Acrylates, Methacrylates, Maleates)
- **Allyl Chloride and Allyl Alcohol Chemistry**
- **Phenolic and Bisphenol A-based Monomers**
- **Alkoxylations**
  (EO / PO / BO)
- **Claisen Reactions**
  (Allyl Phenyl Ether → o-Allyl Phenol)
- **Acyl Chloride Synthesis**
  (Thionyl Chloride Reactions; Schotten-Bauman)
- **Solution / Bulk Polymerization**
  (Acrylic Solution Polymers in Water or Organic Solvents)

PROCESS CAPABILITIES

- **Hazardous Materials Handling**
  (Acid Chlorides, Allyl Chloride, Allyl Alcohol, etc)
- **Low/High Temperature Reactions**
- **High Viscosity up to 75,000 cps**
- **Pyrolysis**
- **Liquid Extraction**
- **Continuous Distillation**
  (Thin Film and Wiped Film Evaporators)
- **High Vacuum Fractional Distillations**
- **Solvent Removal**
- **Crystallization**
- **Filtration**

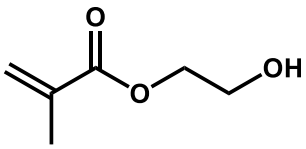
PRODUCTS

The product information in this catalog is meant as a guide and should not be treated as specifications. Please contact a Bimax representative when preparing specifications.

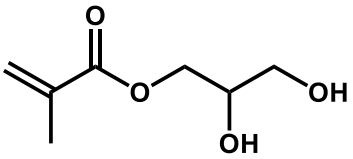
BIMAX

HIGH PURITY MONOMERS FOR CONTACT LENSES AND INTRAOCULAR LENSES

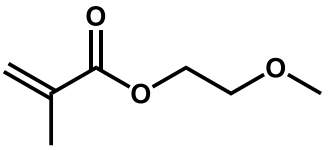
BX-HEMA
2-Hydroxyethyl methacrylate
CAS: 868-77-9
99%, 20 ppm MEHQ
Multiple grades available



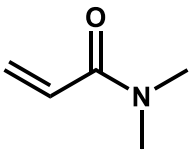
BX-GMMA
Glyceryl monomethacrylate
CAS: 5919-74-4
99%



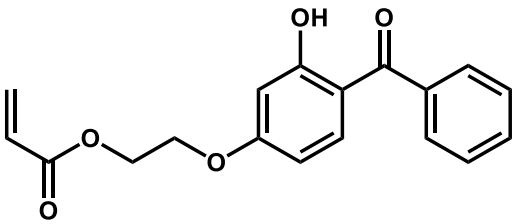
BX-MOEMA
2-Methoxyethyl methacrylate
CAS: 6976-93-8
99.5%, 20 ppm MEHQ



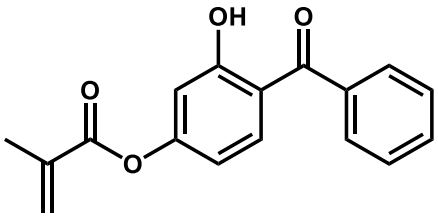
BX-DMA
N,N-Dimethylacrylamide
CAS: 2680-03-7
99.5%



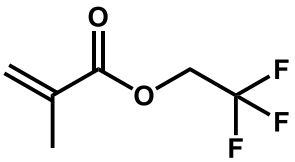
BX-BHPEA
2-(4-Benzoyl-3-hydroxyphenoxy)ethyl acrylate
CAS: 16432-81-8
98%, Off-white powder



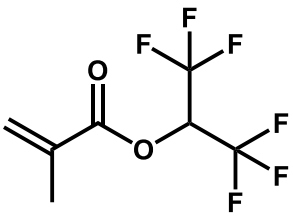
BX-HMBP
2-Hydroxy-4-methacryloxybenzophenone
CAS: 2035-72-5
98%, Light yellow powder



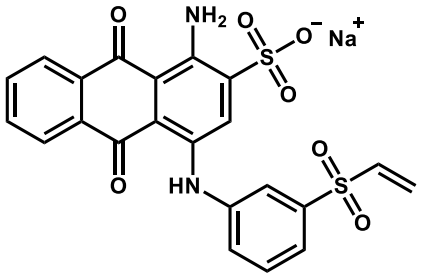
BX-TFEMA
2,2,2-Trifluoroethyl methacrylate
CAS: 352-87-4
99.6%, 20 ppm MeHQ



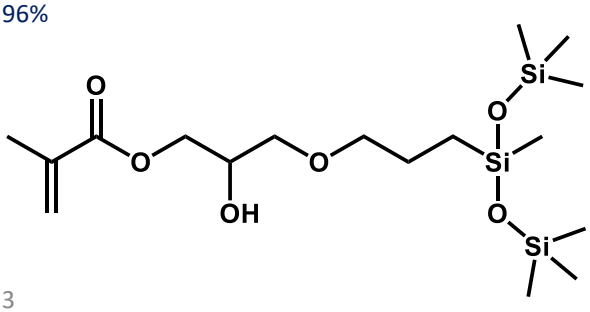
BX-HFIPM
1,1,1,3,3,3-Hexafluoroisopropyl methacrylate
CAS: 3063-94-3
99.3%, n_D25=1.330



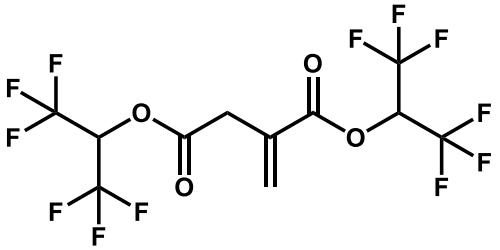
BX-RB19-VS
CAS: 14541-90-3
Blue dye powder



BX-SiGMMA
Methyl di(trimethylsiloxy)silylpropylglyceryl methacrylate
CAS: 69861-02-5
96%

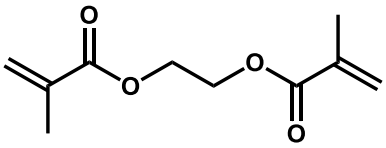


BX-BHI
Bis-(1,1,1,3,3,3-hexafluoroisopropyl) itaconate
CAS: 98452-82-5
99%, n_D25=1.334

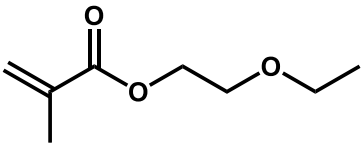


HIGH PURITY MONOMERS FOR CONTACT LENSES AND INTRAOCULAR LENSES

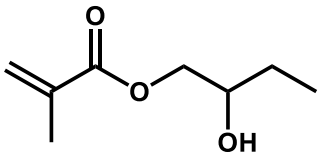
BX-EGDMA
Ethyleneglycol dimethacrylate
CAS: 97-90-5
99.5%, 60 ppm MEHQ
n_D25=1.45



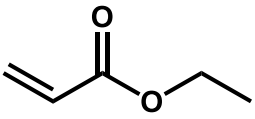
BX-EOEMA
Ethoxyethyl methacrylate
CAS: 2370-63-0
99%, 15ppm HQ



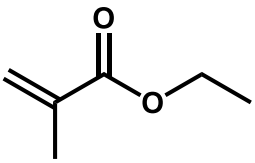
BX-HOBMA
Hydroxybutyl methacrylate
CAS: 29008-35-3
97%, Mixture of isomers



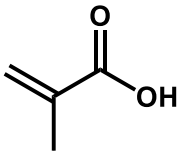
BX-EA
Ethyl acrylate
CAS: 140-88-5
99.5%, 10 ppm MEHQ



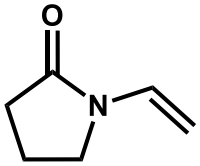
BX-EMA
Ethyl methacrylate
CAS: 97-63-2
99.5%, 10 ppm MEHQ



BX-MAA
Methacrylic acid
CAS: 79-41-4
99.5%

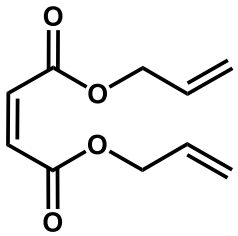


BX-NVP
DEVELOPMENTAL
N-Vinyl pyrrolidinone
CAS: 88-12-0
99%, Uninhibited



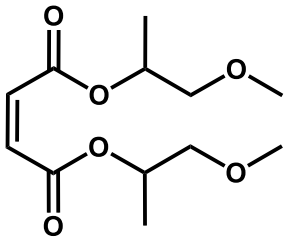
MALEATE ESTERS

BX-DIAM
Diallyl maleate
CAS: 999-21-3



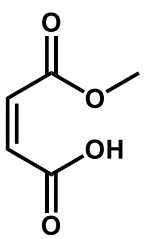
Trifunctional double reactivity gives polymer branching at low usage levels and crosslinking at high levels. Useful for applications needing second stage curing operations. Used in resins and silicone release coatings.

BX-DMPM
Bis-(2-methoxy-methylethyl) maleate
CAS: 102054-10-4

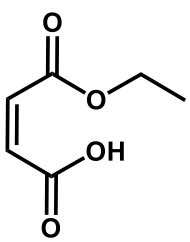


Used in silicone release coatings

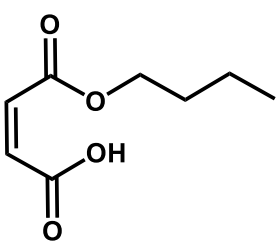
BX-MMM
Monomethyl maleate
CAS: 3052-50-4



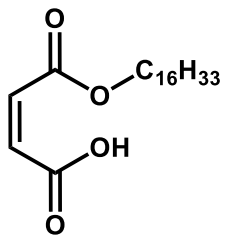
BX-MEM
Monoethyl maleate
CAS: 3990-03-2



BX-MBM
Monobutyl maleate
CAS: 925-21-3



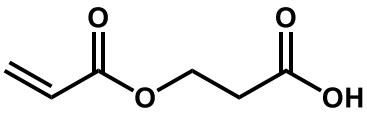
BX-MHDM
Monohexadecyl maleate
CAS: 68987-59-7



Monomaleate esters provide carboxylic acid functionality in emulsions and water-soluble polymers.

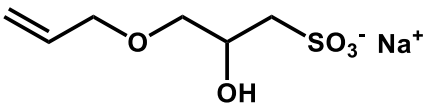
ANIONIC MONOMERS

BX-BETA-C
Beta-carboxyethyl acrylate
CAS: 24615-84-7
1000 ppm MEHQ
n_D25=1.455

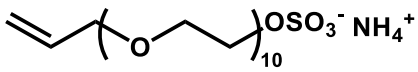


Unique carboxylated monomer with lower T_g (30°C) than acrylic acid (106°C). Used in pressure sensitive adhesives and as a low volatility replacement for acrylic acid in radiation curing applications.

BX-CS-AHPS
Sodium 1-allyloxy-2-hydroxypropyl sulfonate
CAS: 52556-42-0
40% Solution in water



BX-DVP-10
Ammonium allyloxypolyethoxy (10) sulfate
CAS: 55866-85-8

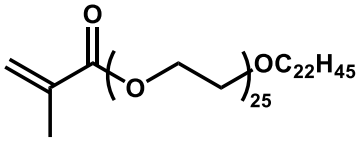


Copolymerizable surfactants. Promotes stability and adhesion in emulsion polymers. Combines both anionic and nonionic character. Latexes exhibit excellent mechanical stability, chemical stability, and good water resistance. Paints made from these latexes have been shown to exhibit improved gloss characteristics.

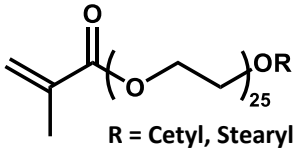
Other applications include water treatment, construction superplasticizers, dispersions for clay, mineral processing etc.

ALKOXYLATED MONOMERS

BX-BEM-25/100
Waxy solid
BX-BEM-25/50
50% solution in water
Behenyl polyethoxy (25) methacrylate
CAS: 125441-87-4



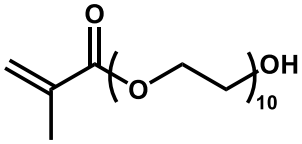
BX-CSEM-25/100
Waxy solid
BX-CSEM-25/80
75% solution in water
Cetylstearyl polyethoxy (25) methacrylate
CAS: 70879-51-5



R = Cetyl, Stearyl

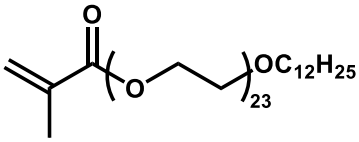
Ethoxylated monomers with varying hydrophilic / lipophilic balance. Able to modify the surface activity of water-soluble polymers used in cosmetic and thickening applications.

BX-HEMA-10
Polyethoxy (10) methacrylate
CAS: 25736-86-1

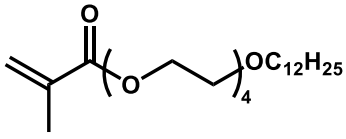


Incorporated into water-soluble polymers to make dispersants and anti-scalants. Enhances latex stability in emulsion polymerization.

BX-LEM-23/100
DEVELOPMENTAL
Lauryl polyethoxy (23) methacrylate
CAS: 136505-03-8
Waxy solid

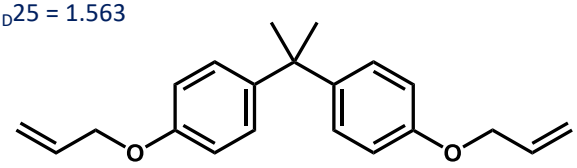


BX-LEM-4
DEVELOPMENTAL
Lauryl polyethoxy (4) methacrylate
CAS: 136505-03-8

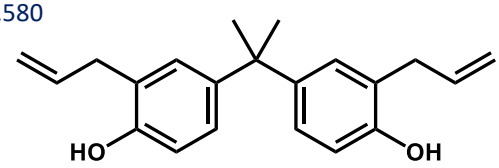


ALLYL FUNCTIONAL MONOMERS

BX-DAEBPA
Diallylether Bisphenol A
CAS: 3739-67-1
n_D25 = 1.563

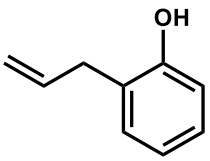


BX-O-DABPA
Ortho diallyl Bisphenol A
CAS: 1745-89-7
n_D25 = 1.580



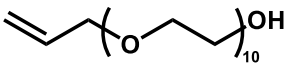
Used in tough, impact resistant composites with high heat, chemical, and water resistance. Also used in coatings with high heat and chemical resistance, insulators, printed circuit boards, and photoresists.

BX-2-AP
2-Allyl phenol
CAS: 1745-81-9
98.5%, n_D20 = 1.546



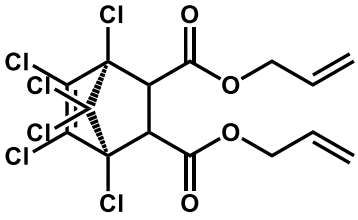
Used in pharma, allyl substituted phenolics, and polyesters.

BX-AAE-10
Hydroxypolyethoxy (10) allyl ether
CAS: 27274-31-3



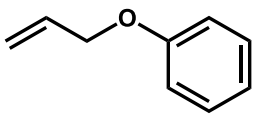
Difunctional monomer used in dispersants, scale inhibitors, and flocculants. Soluble in both water and organic solvents.

BX-DAC
Diallyl chlorendate
CAS: 3232-62-0



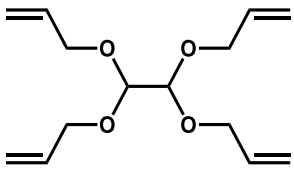
Highly active photoinitiator in radiation cure formulations for printing plates, fire retardant and hydrolysis resistant polymers, and screen printable UV curable inks.

BX-APE
Allyl phenyl ether
CAS: 1746-13-0
99%, n_D20 = 1.522



High refractive index monomer used in high tech applications.

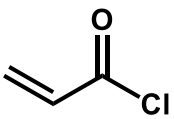
BX-TAE
DEVELOPMENTAL
Tetraallyloxyethane
CAS: 29895-12-3



Highly effective crosslinker. Polymers have improved mechanical properties, as well as improved chemical and high temperature resistance.

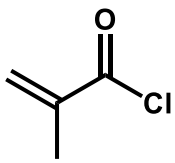
ACID CHLORIDE MONOMERS

BX-AC
Acryloyl chloride
CAS: 814-68-6
99%



Used to make acrylate / methacrylate monomers and to functionalize polymers with acrylate or methacrylate groups.

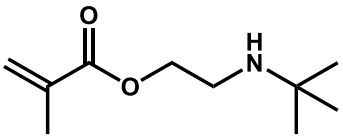
BX-MAC
Methacryloyl chloride
CAS: 920-46-7
99%



BIMAX

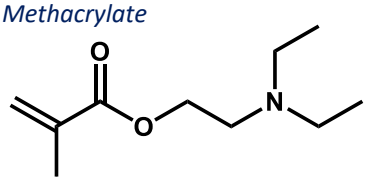
ACRYLIC MONOMERS

BX-TBAEMA
tert-Butylaminoethyl Methacrylate
CAS: 3775-90-4
98%



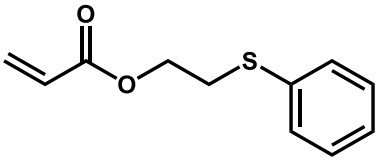
Used in adhesives, coatings, oil additives, textiles (as a dye additive), photopolymer plates, photoresists, paints, rubber modifiers, dental composites and cosmetics. It can be incorporated in flocculants or coagulants for water treatment and is an excellent stabilizer or surface active demulsifier in oil/water separations and in liquid dispersion polymers.

BX-DEAEMA
N,N-Diethylaminoethyl Methacrylate
CAS: 105-16-8
99%



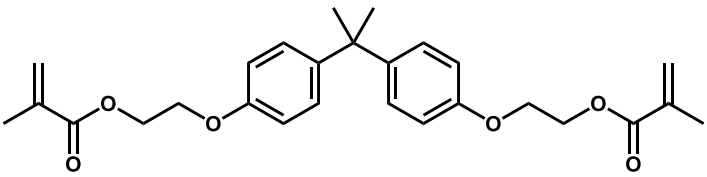
Used in adhesives, coatings, oil additives, and textiles (as a dye additive). The amine group can be quaternized to give water-soluble ammonium salts used in flocculants or coagulants for water treatment. Good adhesion promoter for industrial cans and automotive clear coatings.

BX-PTEA
DEVELOPMENTAL
Phenylthioethyl acrylate
CAS: 95175-38-5
n_D20=1.557

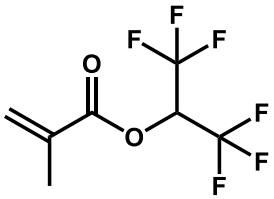


Used for production of thin films of high refractive index by photo-polymerization. Its polymers exhibit inherent antioxidant properties.

BX-BPA(2EO)DMA
DEVELOPMENTAL
Ethoxylated (2EO) Bisphenol A dimethacrylate
CAS: 41637-38-1

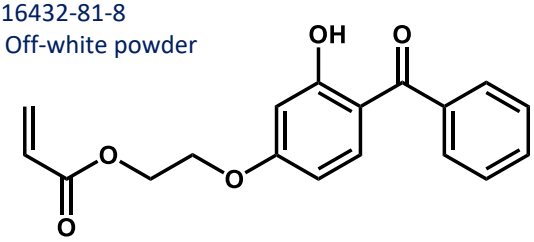


BX-HFIPM
1,1,1,3,3,3-Hexafluoroisopropyl methacrylate
CAS: 3063-94-3
n_D25=1.330



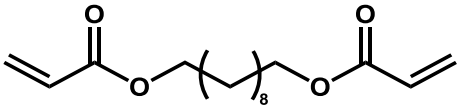
Used for production of thin films of low refractive index.

BX-BHPEA
2-(4-Benzoyl-3-hydroxyphenoxy)ethyl acrylate
CAS: 16432-81-8
98%, Off-white powder

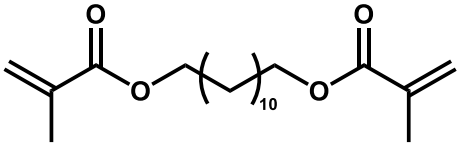


Forms polymers with UV blocking characteristics. Used in contact lenses and polymers to provide UV protection.

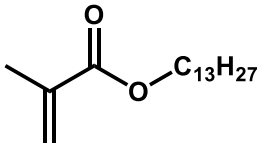
BX-DDA
1,10-Decane diacrylate
CAS: 13048-34-5
200 ppm MEHQ



BX-DDDMA
1,12-Dodecane dimethacrylate
CAS: 72829-09-5



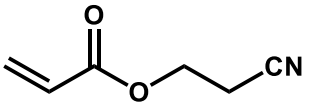
BX-TDMA
DEVELOPMENTAL
Tridecyl methacrylate
CAS: 2495-25-2



Long chain hydrophobic crosslinker, used for flexible dental materials, radiation curable coatings with improved weatherability, and transparent resins for plastic lenses.

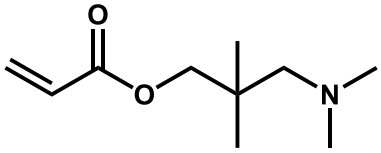
ACRYLIC MONOMERS

BX-2-CEA
2-Cyanoethyl acrylate
CAS: 106-71-8
600 ppm MEHQ



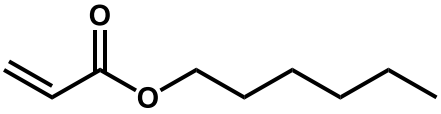
Used in resins for liquid crystal devices and polymers with improved adhesion.

BX-DMANPA
Dimethylaminoneopentyl acrylate
CAS: 20166-73-8
99%, n_D25=1.437



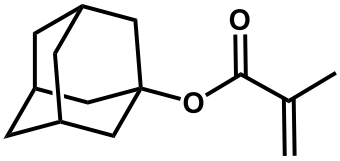
Used in dental resins and other radiation curable applications.

BX-HEX-A
n-Hexyl acrylate
CAS: 2499-95-8
98%, 100 ppm HQ



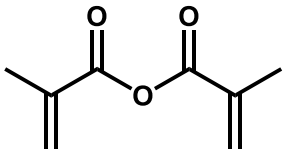
Variety of uses in adhesives, paints, coatings, inks, etc.

BX-ADMA
DEVELOPMENTAL
1-Adamantyl methacrylate
CAS: 16887-36-8



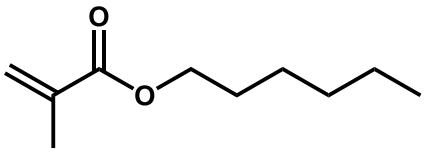
Photoresists with high etch resistance. Extremely high temperature resistant optical polymers. Holographic image recording materials etc. Forms polymers of high T_g (220°C).

BX-MAN
Methacrylic anhydride
CAS: 760-93-0
97%



Used to functionalize monomers and polymers with methacrylate groups.

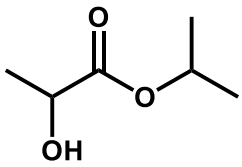
BX-HMA
n-Hexyl methacrylate
CAS: 142-09-6
99%



Variety of uses in adhesives, paints, coatings, inks, etc.

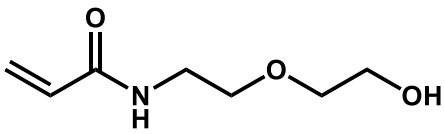
OTHER SPECIALTY MONOMERS

BX-IPL
Isopropyl lactate
CAS: 63697-00-7



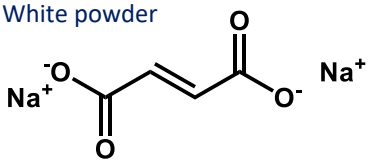
Aqueous ink formulations.

BX-AAEE
N-Acryloylamido-ethoxyethanol
CAS: 89911-50-2
50% Solution in water



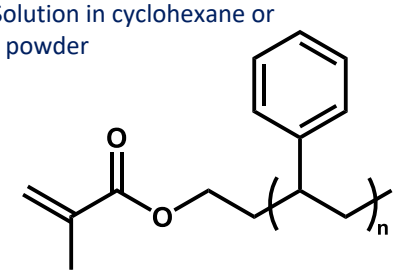
Electrophoresis and sensor applications.

BX-DSF
Disodium fumarate
CAS: 17013-01-3
White powder



Can be used in personal care as buffering agent or pH adjuster.

BX-MTPS
Methacrylated polystyrene
CAS: 96-33-3
30% Solution in cyclohexane or white powder



BX-MTPS is a low molecular weight polystyrene resin with a single methacrylate ester end-group. Resin properties match polystyrene. Solution properties depend on the type and amount of monomer or solvent in which the resin product is dissolved. Key advantages:

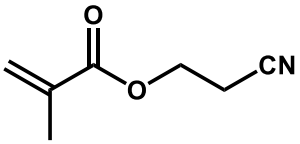
→ Improves toughness while maintaining the thermoplastic nature of the end polymer
→ Readily copolymerizable with many acrylates and acrylamides.
→ Soluble in a wide range of organic solvents
→ In adhesive formulations it is known to increase shear strength with minimal effect on peel strength

Average molecular weight: 12,000 g/mol

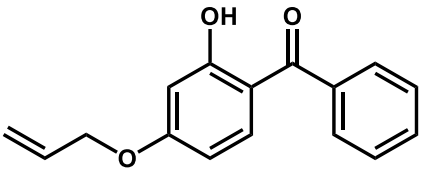
BIMAX

EXPERIMENTAL PRODUCTS

2-CEMA
2-Cyanoethyl methacrylate
CAS: 4513-53-5

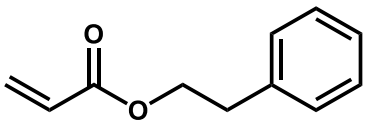


AHBP
4-Allyloxy-2-hydroxy benzophenone
CAS: 2549-87-3

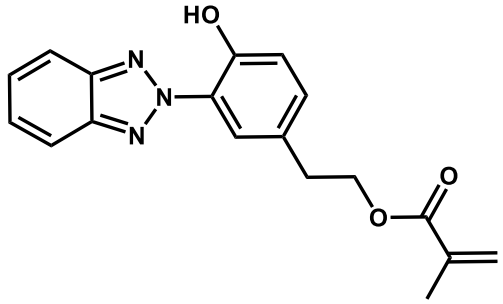


Provides UV blocking properties, reacts into the system and will not migrate out.

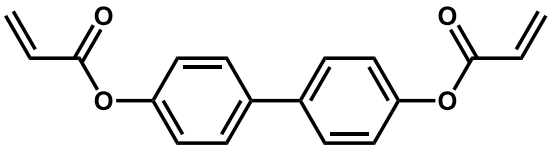
PEA
2-Phenylethyl acrylate
CAS: 3530-36-7



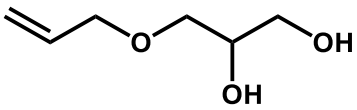
BZEMA
2-[2-Hydroxy-5-[2-(methacryloyloxy)ethyl]phenyl]-2H-benzotriazole
CAS: 96478-09-0



BPDA
Biphenyl diacrylate
CAS: 84948-17-4

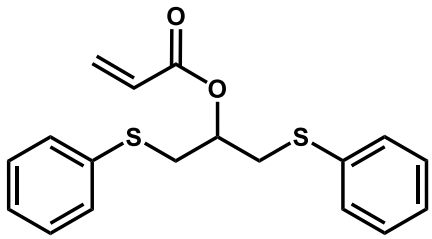


APD
3-Allyloxy-1,2-propanediol (aka Glyceryl allyl ether)
CAS: 123-34-2



Used in urethanes and polyesters to provide pendant unsaturation.

Bis-PTEA
1,3-bis-(phenylthio)-2-propyl acrylate
CAS: 84819-35-2
n_D20=1.602



CHEMICAL PROCESSING EQUIPMENT

Reactors – Distillation Systems:

Capacity	*Material*	*Max Vacuum (mmHg)*	*Temperature (°C)*	*Fractional Distillation System*
Pilot Plant				
20 gallons	Glass Lined	1	20 to 140	Yes
40 gallons	316 SS	1	20 to 140	-
50 gallons	Glass Lined	1	20 to 140	Yes
Plant				
50 gallons	316 SS	1	20 to 230	Yes
100 gallons	316 SS	1	-20 to 140	-
150 gallons	316 SS	1	20 to 140	Yes
200 gallons	316 SS	1	20 to 230	Yes
200 gallons	Glass Lined	1	-20 to 140	Yes
300 gallons	Glass Lined	1	20 to 140	-
500 gallons	Glass Lined	1	20 to 140	Yes
1000 gallons	316 SS	1	20 to 140	Yes
1100 gallons	316 SS	1	20 to 180	-
2000 gallons	Glass Lined	1	20 to 140	-
2000 gallons	316 SS	1	20 to 140	Yes
HEMA Plant				
270 gallons	316 SS	1	20 to 140	-
270 gallons	316 SS	1	20 to 140	-
270 gallons	316 SS	1	20 to 140	-
270 gallons	316 SS	1	20 to 140	-
350 gallons	316 SS	1	20 to 140	-
350 gallons	316 SS	1	20 to 140	-

Mixing and Blending Tanks:

Capacity	*Material*	*Vacuum (mmHg)*	*Temperature (°C)*
380 gallons	316 SS	Atmospheric	Ambient
525 gallons	316 SS	Atmospheric	Ambient
2000 gallons	316 SS	Atmospheric	Ambient

Solids Handling – Drying – Filtration:

Nutsche 42” (316 SS)
Nutsche 18” (Glass Lined)
Agitated Nutsche 18” (316 SS)
Bag Filters, including a Multi-Bag (11) Filter (316 SS)
18” Niagra Filters (2)
10" and 20” Cartridge Filters (316 SS)
20’ Jacketed Tumble Dryer (316 SS)
3 ft^3 V-blender (316 SS)

Short Path Distillation Units:

2" Glass	Wiped Film Evaporator (Electric Heat)
6" 316 SS	Thin Film Evaporator (Oil Heat)
6“ Glass	Wiped Film Evaporator (Electric Heat)

Bimax maintains a full range of analytical testing, quality control and technical support capabilities to effectively monitor production operations and to assure consistent product quality.

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