BIMAX
A Gelest Company

Specialty Acrylic Monomers & Polymers

Performance Materials For:
• Medical Devices
• Coatings & Adhesives
• Inks & Toners
• Water Treatment
• Personal Care
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

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CHEMISTRIES/TECHNOLOGIES

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

PROCESS CAPABILITIES

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

PRODUCTS

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

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

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

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

BX-BHI
Bis-(1,1,3,3,3-hexafluoropropyl) itaconate
CAS: 98452-82-5
99%, n_D25=1.334
HIGH PURITY MONOMERS FOR CONTACT LENSES AND INTRAOCULAR LENSES

**BX-EGDMA**  
*Ethylene glycol dimethacrylate*  
CAS: 97-90-5  
99.5%, 60 ppm MEHQ  
$n_d=1.45$

**BX-EOEMA**  
*Ethoxethyl methacrylate*  
CAS: 2370-63-0  
99%, 15 ppm 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**  
*N-Vinyl pyrrolidinone*  
CAS: 88-12-0  
99%, Uninhibited

Maleate Esters

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

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

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-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_25=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

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.

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

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

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

**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

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

**BX-DAEBPA**  
*Diallylether Bisphenol A*  
CAS: 3739-67-1  
$n_025 = 1.563$

**BX-O-DABPA**  
*Ortho diallyl Bisphenol A*  
CAS: 1745-89-7  
$n_025 = 1.580$

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%, $n_020 = 1.546$

Used in pharma, allyl substituted phenolics, and polyesters.

**BX-APE**  
*Allyl phenyl ether*  
CAS: 1746-13-0  
99%, $n_020 = 1.522$

High refractive index monomer used in high tech applications.

**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-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%
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-PTEA
 DEVELOPMENTAL
 Phenylthioethyl acrylate
CAS: 95175-38-5
nD20=1.557

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

BX-HFIPM
 1,1,1,3,3,3-Hexafluoroisopropyl methacrylate
CAS: 3063-94-3
nD25=1.330

Used for production of thin films of low refractive index.

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

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

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

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

BX-TDMA
 DEVELOPMENTAL
 Tridecyl methacrylate
CAS: 2495-25-2
### Acrylic Monomers

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

[![Chemical Structure](image1)](image1)  
Used in resins for liquid crystal devices and polymers with improved adhesion.

**BX-DMANPA**
Dimethylaminomethacrylate  
CAS: 20166-73-8  
99%, nD25=1.437

[![Chemical Structure](image2)](image2)  
Used in dental resins and other radiation curable applications.

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

[![Chemical Structure](image3)](image3)  
Variety of uses in adhesives, paints, coatings, inks, etc.

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

[![Chemical Structure](image4)](image4)  
Photoresists with high etch resistance. Extremely high temperature resistant optical polymers. Holographic image recording materials etc. Forms polymers of high Tg (220°C).

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

[![Chemical Structure](image5)](image5)  
Used to functionalize monomers and polymers with methacrylate groups.

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

[![Chemical Structure](image6)](image6)  
Variety of uses in adhesives, paints, coatings, inks, etc.

### Other Specialty Monomers

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

[![Chemical Structure](image7)](image7)  
Aqueous ink formulations.

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

[![Chemical Structure](image8)](image8)  
Electrophoresis and sensor applications.

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

[![Chemical Structure](image9)](image9)  
**BX-MPTS** 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

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

[![Chemical Structure](image10)](image10)  
Variety of uses in adhesives, paints, coatings, inks, etc.

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

[![Chemical Structure](image11)](image11)  
Variety of uses in adhesives, paints, coatings, inks, etc.

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

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

![2-CEMA](image)

**BPDA**
Biphenyl diacrylate  
CAS: 84948-17-4

![BPDA](image)

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

![AHBP](image)

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

**APD**
3-Allyloxy-1,2-propanediol (aka Glycerol ally ether)  
CAS: 123-34-2

![APD](image)

Used in urethanes and polyesters to provide pendant unsaturation.

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

![PEA](image)

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

![BZEMA](image)

**Bis-PTEA**
1,3-bis-(phenylthio)-2-propyl acrylate  
CAS: 84819-35-2  
$n_d^{20}=1.602$
# Chemical Processing Equipment

## Reactors – Distillation Systems:

<table>
<thead>
<tr>
<th>Capacity</th>
<th>Material</th>
<th>Max Vacuum (mmHg)</th>
<th>Temperature (°C)</th>
<th>Fractional Distillation System</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Pilot Plant</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20 gallons</td>
<td>Glass Lined</td>
<td>1</td>
<td>20 to 140</td>
<td>Yes</td>
</tr>
<tr>
<td>40 gallons</td>
<td>316 SS</td>
<td>1</td>
<td>20 to 140</td>
<td>-</td>
</tr>
<tr>
<td>50 gallons</td>
<td>Glass Lined</td>
<td>1</td>
<td>20 to 140</td>
<td>Yes</td>
</tr>
<tr>
<td><strong>Plant</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>50 gallons</td>
<td>316 SS</td>
<td>1</td>
<td>20 to 230</td>
<td>Yes</td>
</tr>
<tr>
<td>100 gallons</td>
<td>316 SS</td>
<td>1</td>
<td>-20 to 140</td>
<td>-</td>
</tr>
<tr>
<td>150 gallons</td>
<td>316 SS</td>
<td>1</td>
<td>20 to 140</td>
<td>Yes</td>
</tr>
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<td>200 gallons</td>
<td>316 SS</td>
<td>1</td>
<td>20 to 230</td>
<td>Yes</td>
</tr>
<tr>
<td>200 gallons</td>
<td>Glass Lined</td>
<td>1</td>
<td>-20 to 140</td>
<td>Yes</td>
</tr>
<tr>
<td>300 gallons</td>
<td>Glass Lined</td>
<td>1</td>
<td>20 to 140</td>
<td>-</td>
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<td>500 gallons</td>
<td>Glass Lined</td>
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<td>20 to 140</td>
<td>Yes</td>
</tr>
<tr>
<td>1000 gallons</td>
<td>316 SS</td>
<td>1</td>
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<td>1100 gallons</td>
<td>316 SS</td>
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<td>20 to 180</td>
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<td>2000 gallons</td>
<td>Glass Lined</td>
<td>1</td>
<td>20 to 140</td>
<td>-</td>
</tr>
<tr>
<td>2000 gallons</td>
<td>316 SS</td>
<td>1</td>
<td>20 to 140</td>
<td>Yes</td>
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<tr>
<td><strong>HEMA Plant</strong></td>
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<td>270 gallons</td>
<td>316 SS</td>
<td>1</td>
<td>20 to 140</td>
<td>-</td>
</tr>
<tr>
<td>270 gallons</td>
<td>316 SS</td>
<td>1</td>
<td>20 to 140</td>
<td>-</td>
</tr>
<tr>
<td>270 gallons</td>
<td>316 SS</td>
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<td>20 to 140</td>
<td>-</td>
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<tr>
<td>270 gallons</td>
<td>316 SS</td>
<td>1</td>
<td>20 to 140</td>
<td>-</td>
</tr>
<tr>
<td>350 gallons</td>
<td>316 SS</td>
<td>1</td>
<td>20 to 140</td>
<td>-</td>
</tr>
<tr>
<td>350 gallons</td>
<td>316 SS</td>
<td>1</td>
<td>20 to 140</td>
<td>-</td>
</tr>
<tr>
<td><strong>Mixing and Blending Tanks:</strong></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Capacity</strong></td>
<td><strong>Material</strong></td>
<td><strong>Vacuum (mmHg)</strong></td>
<td><strong>Temperature (°C)</strong></td>
<td></td>
</tr>
<tr>
<td>380 gallons</td>
<td>316 SS</td>
<td>Atmospheric</td>
<td>Ambient</td>
<td></td>
</tr>
<tr>
<td>525 gallons</td>
<td>316 SS</td>
<td>Atmospheric</td>
<td>Ambient</td>
<td></td>
</tr>
<tr>
<td>2000 gallons</td>
<td>316 SS</td>
<td>Atmospheric</td>
<td>Ambient</td>
<td></td>
</tr>
</tbody>
</table>

## 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 ft³ 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.
Enabling Your Technology

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