

pmc  biogenix™

Where You Are & Where You Need Us



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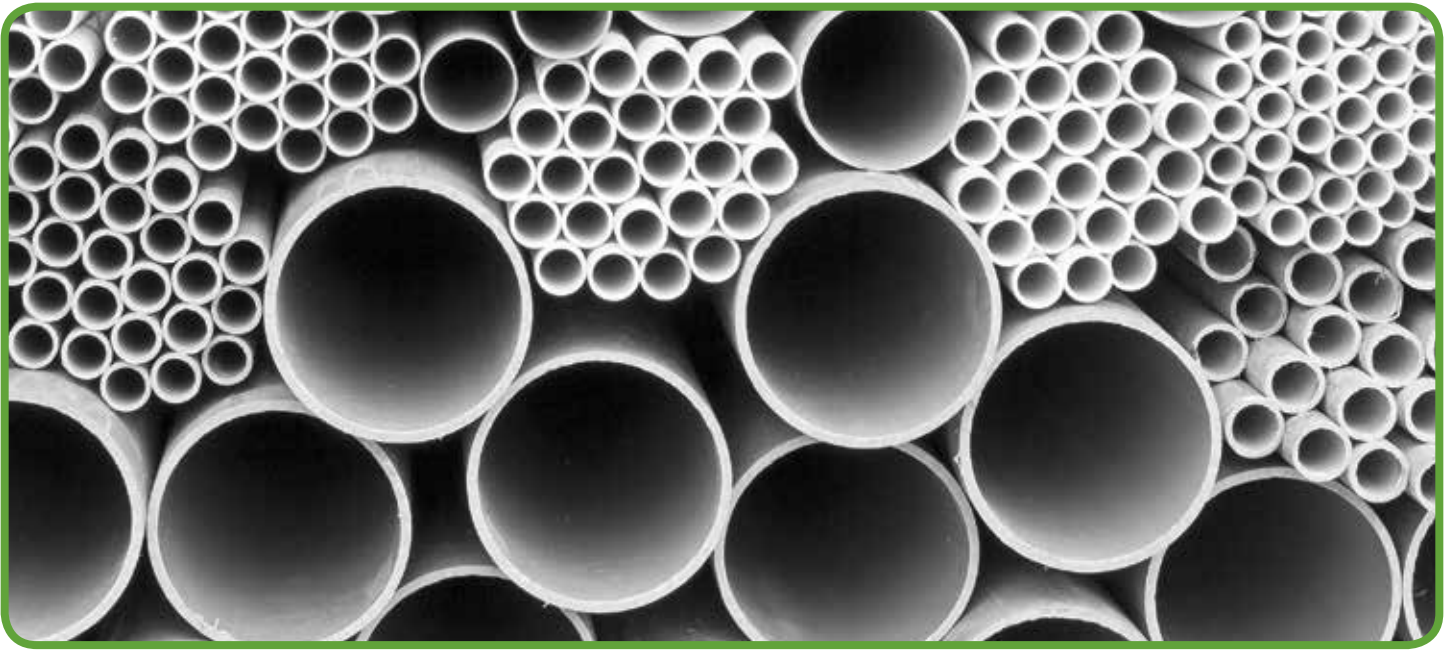
committed to our customers

PMC Biogenix has a wide range of polymer additive products for use in the processing of polymers such as polyolefins, engineering plastics, PVC and CPVC, elastomers and styrenics. From polymer processing to extrusion, molding and compounding, PMC Biogenix has a product that can meet your needs and is backed by decades of technical service, research & development (R&D) expertise and a global manufacturing footprint.

Visit pmcbiogenix.com to view our complete portfolio of products.

pmc  **biogenix**[™]





customized
to your needs



About PMC Biogenix, Inc.

PMC Biogenix is a global, innovation-driven developer, manufacturer and marketer of specialty chemicals produced from renewable resources.

Production, customer service and distribution centers in Asia, Europe and North America allow us to be where you are and where you need us.

The combination of over fifty years of experience developing and manufacturing oleochemical derivatives, dedication to innovation in new products and chemistries, and strong technical application support create the foundation of a powerful portfolio of chemical products that find applications in virtually every chemical end market.

Our products are marketed under leading brand names such as ADVALUBE[®], ADVAPAK[®], ADVAWAX[®], Armoslip[®], Kemamide[®], Kemester[®], and Lubrazinc[®].

Located on our 50-acre integrated oleochemicals and derivatives manufacturing site in Memphis, Tennessee, the Center for Renewable Chemistry (CRC) includes a technical center and pilot scale manufacturing facility and serves as the cornerstone for our product, process and application development efforts.

Our 16,000-square-foot technical center houses functional laboratories for product development, process development, application testing, instrumental analysis and wet analysis as well as an 8,000-square-foot pilot scale manufacturing facility equipped with a broad range of process equipment to develop new processes and produce scale-up quantities for PMC Biogenix customers.



The information contained herein is correct to the best of our knowledge. Your attention is directed to the pertinent Material Safety Data Sheets for the products mentioned herein. All sales are subject to PMC's standard terms and conditions of sale, copies of which are available upon request and which are part of PMC invoices and/or order acknowledgements. Except as expressly provided in PMC's standard terms and conditions of sale, no warranty, expressed or implied, including warranties of merchantability or fitness for a particular purpose, is made with respect to the products described herein. Nothing contained herein shall constitute permission or recommendation to practice any invention covered by a patent without a license from the owner of the patent.





Specialty Ester-based Lubricants



| Product | FDA | Physical Form | Melting Point (C°) | Typical Function | Chemistry | Typical Applications |
|---------------------------|-----|---------------|--------------------|-------------------|---------------------------|--|
| ADVALUBE® AF-4074L | • | Liquid | - | Anti-fog in films | Glycerol ester | Film and sheet processes |
| ADVALUBE® AF-4192L | • | Liquid | - | Anti-fog in films | Glycerol ester | Film and sheet processes |
| ADVALUBE® B-3310 | | Beads | 58 - 61 | Internal lube | Polyol ester | Extrusion and injection molding |
| ADVALUBE® B-3314 | | Beads | 105 - 115 | Balanced lube | Combination lubricant | Extrusion - profiles |
| ADVALUBE® B-3315 | | Beads | 105 - 115 | Balanced lube | Combination lubricant | Extrusion - profiles |
| ADVALUBE® B-4540 | | Powder | 85 | Balanced lube | Combination lubricant | Extrusion - profiles |
| ADVALUBE® B-3500 | | Powder | 77 - 83 | External lube | Wax ester | Extrusion, calendaring |
| ADVALUBE® E-2100 | • | Powder | 52 - 64 | External lube | Complex polyol ester | Calendering, extrusion - high clarity |
| ADVALUBE® E-2101 | • | Powder | 77 - 83 | External lube | Complex polyol ester | Calendering, blow molding - high clarity |
| ADVALUBE® F-1005 | • | Beads | 56 - 62 | Internal lube | Partial ester of glycerin | Calendering, extrusion |
| ADVALUBE® F-1009 | • | Beads | 63 - 68 | Internal lube | Partial ester of glycerin | Calendering, blow molding - high clarity |
| ADVALUBE® F-1020 | | Powder | 42 - 47 | Internal lube | Dicarboxylic acid ester | Extrusion and injection molding |



Stabilizer One Packs

| Product | NSF | Physical Form | Melting Point (C°) | Typical Dosage (phr) | Chemistry | Typical Applications |
|---------------------------|-----|---------------|--------------------|----------------------|---------------------------------------|--|
| ADVAPAK® LS-203NHS | • | Pastilles | 105 - 110 | 1.6 - 2.3 | Multi-functional lubricant-stabilizer | High-efficiency extrusion of all sizes of white PVC pipes |
| ADVAPAK® S-1100 | | Pastilles | 99 - 104 | 3.0 - 4.0 | Multi-functional lubricant-stabilizer | Specially formulated for high-efficiency injection-molded fittings |
| ADVAPAK® S-1201 | • | Pastilles | 105 - 110 | 1.7 - 2.4 | Multi-functional lubricant-stabilizer | Efficient extrusion for all white small to medium size PVC pipes |
| ADVAPAK® S-1203 | • | Pastilles | 105 - 110 | 1.7 - 2.4 | Multi-functional lubricant-stabilizer | Efficient extrusion for all white small to medium size PVC pipes |

Lubricants & Waxes

| Product | FDA | Physical Form | Melting Point (C°) | Typical Function | Chemistry | Typical Applications |
|---------------------|-----|---------------|--------------------|------------------|---------------|---|
| ADVAWAX® 165 | • | Prill | 75 - 85 | External lube | Paraffin wax | Extrusion, injection molding |
| ADVAWAX® 280 | • | Beads | 138 - 140 | Balanced lube | Synthetic wax | Extrusion, injection molding, calendaring |



Slip & Anti Block Agents

| Erucamides | Acid Value (Max) | Iodine Value* | Melting Point °C* | Color, (Max) (Gardner) | Moisture % (Max) | Amide % Min (by IR) | Physical Form |
|--------------------------|------------------|---------------|-------------------|------------------------|------------------|---------------------|------------------------|
| Armoslip® E | 1 | 77 | 82 | 2 | 0.25 | 98 | Bead, powder |
| Kemamide® E-60 | 1 | - | - | 2 | 0.25 | 98 | Fine powder |
| Kemamide® E Ultra | 1 | 74 | 83 | 2 | 0.25 | 98 | Bead, pastille, powder |
| Kemamide® EZ | 1 | 75 | 81 | 2 | 0.25 | 98 | Bead, pastille, powder |

*Typical values only

| Other Amides | Acid Value (Max) | Iodine Value* | Melting Point °C* | Color, (Max) (Gardner) | Moisture % (Max) | Amide % Min (by IR) | Physical Form |
|--|------------------|---------------|-------------------|------------------------|------------------|---------------------|------------------------|
| Armoslip® CP Oleamide | 1 | 84 | 74 | 2 | 0.25 | 98 | Bead, powder |
| Armoslip® CPV Veg Oleamide | 1 | 85 | 78 | 2 | 0.25 | 98 | Bead |
| Armoslip® HT Stearamide | 1 | - | 101 | 2 | 0.25 | 98 | Bead, powder |
| Kemamide® BR Behenamide | 1 | - | 108 | 2 | 0.25 | 98 | Bead |
| Kemamide® OR Oleamide | 1 | 84 | 74 | 2 | 0.25 | 98 | Bead, powder |
| Kemamide® S Stearamide | 1 | - | 102 | 2 | 0.25 | 98 | Bead, powder |
| Kemamide® U Heat Stable Oleamide | 1 | 81 | 73 | 2 | 0.25 | 97 | Pastille, powder |
| Kemamide® VO Veg Oleamide | 1 | - | - | 2 | 0.25 | 98 | Bead, pastille, powder |

*Typical values only



Slip & Anti Block Agents (cont.)

| Secondary Amides | Acid Value (Max) | Iodine Value* | Melting Point °C* | Color, (Max) (Gardner) | Physical Form |
|--|------------------|---------------|-------------------|------------------------|------------------------|
| Kemamide® E-180 Stearyl Erucamide | 1 | 44 | 74 | 2 | Bead, pastille, powder |
| Kemamide® P-181 Oleyl Palmitamide | 3 | 43 | 66 | 2 | Bead, powder |
| Kemamide® S-180 Stearyl Stearamide | - | - | 94 | 2 | Bead, powder |

*Typical values only

| Bisamides | Acid Value (Max) | Melting Point °C* | Color, (Max) (Gardner) | Physical Form |
|---------------------------------|------------------|-------------------|------------------------|----------------------|
| Kemamide® EBS | 7 | 143 | 3 | Powder, prill |
| Kemamide® W-20 | 10 | 117 | 6 | Pellet, prill |
| Kemamide® W-40 Vegetable | 10 | 143 | 3 | Flake, powder, prill |

*Typical values only

Ester Additives

| Glycerol & Sorbitol Esters | Acid Value (Max) | Iodine Value | Color, (Max) (Gardner) | SAP Value | Description |
|----------------------------------|------------------|--------------|------------------------|-----------|---------------------------|
| Kemester® 150 | 3 | 0 - 5 | 3 | - | Partial ester of glycerin |
| Kemester® 300 K Special** | 3 | 60 - 70 | 2 | 160 - 180 | Partial ester of glycerin |
| Kemester® 400 | 3 | - | 4 | 140 - 150 | Partial ester of glycerin |
| Kemester® 695* | 3 | 70 - 80 | 2 | - | Partial ester of glycerin |
| Kemester® 695K** | 3 | 70 - 80 | 2 | - | Partial ester of glycerin |
| Kemester® 84* | 3 | 0 - 2 | - | 150 - 180 | Partial ester of glycerin |
| Kemester® C-5632 | 15 | - | 12 | 160 - 180 | Sorbitan Ester |

*Vegetable grade available

**Kosher



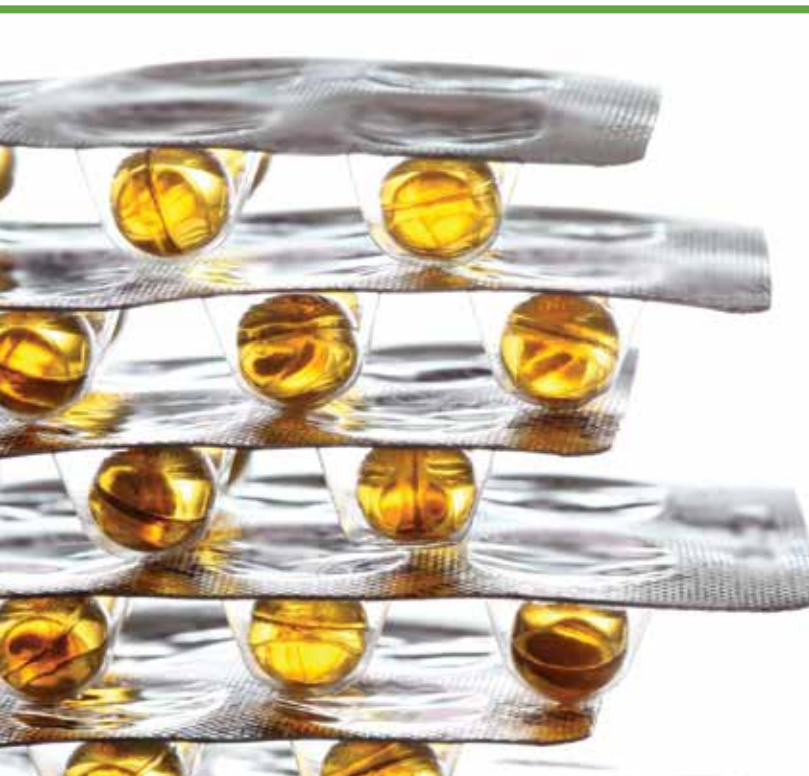
Lubricants & Acid Scavengers

| Aluminum Stearates | Manufacturing Process | Moisture % (Max) | Free Fatty Acid % (Max) | Water Soluble Salts % (Max) |
|--------------------|-----------------------|------------------|-------------------------|-----------------------------|
| 22 Powder | Precipitation | 1 | 5.5 | 1 |
| 22 Veg Powder | Precipitation | 1 | 7 | 1 |
| EA FG Powder* | Precipitation | 1 | 7 | 1 |

*Food grade

| Calcium Stearates | Manufacturing Process | Moisture % (Max) | Free Fatty Acid % (Max) | Water Soluble Salts % (Max) |
|-------------------|-----------------------|------------------|-------------------------|-----------------------------|
| FG Powder | Fusion | 3.5 | 1 | N/A |
| FN Powder | Fusion | 3.5 | 1 | N/A |
| FN Veg Powder | Fusion | 4 | 1 | N/A |
| Reg Powder | Fusion | 3.5 | 2 | N/A |
| FP FG Powder | Precipitation | 4 | 3 | 0.3 |
| FP Powder | Precipitation | 2.5 | 1 | 0.2 |

| Sodium Stearates | Manufacturing Process | Moisture % (Max) | Free Fatty Acid % (Max) | Water Soluble Salts % (Max) |
|------------------|-----------------------|------------------|-------------------------|-----------------------------|
| Na St T-1 | Fusion | 3 | 1.5 | N/A |



Lubricants & Acid Scavengers (cont.)

| Zinc Stearates | Manufacturing Process | Moisture % (Max) | Free Fatty Acid % (Max) | Water Soluble Salts % (Max) |
|----------------------------|-----------------------|------------------|-------------------------|-----------------------------|
| Lubrazinc® W Powder | Fusion | 1 | 1 | N/A |
| ED HS Powder* and Pastille | Fusion | 1 | 1 | N/A |
| NB 60 Powder | Precipitation | 1 | 2 | 0.5 |

*Vegetable grade available.

| Lithium Stearates | Manufacturing Process | Moisture % (Max) | Alkalinity (Max) | Lithium Content % |
|-------------------|-----------------------|------------------|------------------|-------------------|
| 306 Powder | Fusion | 2 | 0.02 | 2.4 - 2.6 |

| Magnesium Stearates | Manufacturing Process | Moisture % (Max) | Free Fatty Acid % (Max) | Water Soluble Salts % (Max) |
|---------------------|-----------------------|------------------|-------------------------|-----------------------------|
| DM ND Powder | Fusion | 5 | 1 | N/A |





- ★ Headquarters
- Manufacturing Locations



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