

Innovative solutions for the global
PVC & CPVC processing industry



Vinyl Additives



About PMC Group

PMC Group is an innovation-driven, growth-oriented performance chemicals manufacturing company with a global presence in PVC additives. The company's vinyl additive production facilities are located in Memphis, Tennessee (USA), Carrollton, Kentucky (USA), and Lansdale, Pennsylvania (USA) with additional sites in Vlissingen, Netherlands (EUROPE), and Beijing, China (ASIA). Its international corporate headquarters is located in Mount Laurel, New Jersey (USA).

With its Vinyl Additives platform, the company leverages a vast knowledge base from a cross-functional team of professionals with exceptional operational and technical experience, and an industry-leading portfolio of additives for rigid PVC processing.

PMC's manufacturing, research, technical service, sales and marketing organization for Vinyl Additives is fueled by continuous innovation and a dedication to unassailable quality and safety.



Portfolio of Vinyl Additives

- Organotin Stabilizers
- Waxes and Wax Blends
- Lubricants
- Metallic Stearates
- Specialty Esters
- Amides

Industry-Leading Products and Trusted Trade Names

- ADVALUBE®
- ADVAPAK®
- ADVASTAB®
- ADVAWAX®
- Baion®
- CrystalWax®
- Industrene®
- Kemamide®
- Kemester®
- Neustrene®
- Stavivor®
- Thermolite®

Manufacturing Locations

- Beijing, China
- Carrollton, Kentucky
- Vlissingen, Netherlands*
- Lansdale, Pennsylvania
- Memphis, Tennessee

* partner manufacturing site

Variety of Product Forms

- Custom Blends
- Discrete Components
- Stabilizer One Packs



PVC & Polymer Processing Industry Support

- American Architectural Manufacturers Association (AAMA)
- American Fence Association (AFA)
- American Society of Testing & Materials (ASTM) International
- Canadian Plastics Industry Association (CPIA) and the Vinyl Council of Canada
- Fenestration Canada (FC) formerly the Canadian Window & Door Manufacturers Association (CWDMA)
- Plastic Pipe & Fittings Association (PPFA)
- Society of Plastics Industry (SPI)
- Society of Plastics Engineers (SPE)
- Uni-Bell PVC Pipe Association
- Vinyl Manufacturers Association (VMA) formerly Vinyl Fence, Deck & Railing Manufacturers Association (VFDRMA)
- Vinyl Siding Institute (VSI)
- Vinyl Institute (VI)

Markets Served

- **Polymer Compounding**
- **Building & Construction**
 - » Pipe, Conduit & Fittings
 - » Siding, Soffit & Trim
 - » Window & Door Profile
 - » Fence & Railing
 - » Deck & Porch
 - » Moldings & Millwork
 - » Sheet Goods
 - » Edge Banding
 - » Roofing & Rainware
 - » Fire Sprinkler Systems
- **Graphic Arts & Signage**
- **Packaging**
 - » Films & Foils
 - » Blister Packs
 - » Credit Card Stock
- **Electrical & Electronics**
 - » Appliances
 - » Wire & Cable
- **Automotive & Transportation**
 - » Instrument Panels
 - » Interior Trim Parts
 - » Battery Housing
 - » Tire & Rubber Parts



Vinyl Additives

Product Portfolio

Products	Description	Applications	Business Unit
Stabilizers			
ADVASTAB®	High-efficiency methyltin stabilizers	Ideal for all rigid PVC applications including pipes and fittings, clear bottles, rigid sheet and film, cellular PVC extrusion and window profiles	PMC Organometallix
Thermolite®	Full range of methyltin, butyltin, octyltin stabilizers	Efficient stabilizers for all PVC uses including packaging film, pipe, conduit, siding, fence, railing, cellular PVC and window profiles	PMC Organometallix
ADVAPAK®	Stabilizer/lubricant one-pack	Multi-functional one-pack for efficient extrusion of all types of PVC pipe	PMC Biogenix
Stavinor®	Organic co-stabilizer for rigid PVC	Recommended for calendered or extruded film and sheets, extruded profile and siding, blow molded bottles and custom injection molding	PMC Organometallix
Lubricants			
ADVALUBE®	Specialty ester-based internal and external lubricants	Rigid PVC profile extrusion, calendered film and sheet, blow molding	PMC Biogenix
ADVAWAX®	Synthetic wax for plastics	Bottles, films and cellular PVC extrusion	PMC Biogenix
Baion®	Rigid PVC wax blend	Siding, fence and railing, profile extrusion and custom compounds	PMC Crystal
CrystalWax®	Rigid PVC wax	Soft film (blocking agent), opaque rigid molding and extrusion	PMC Crystal
Kemamide®	Bisamide wax	Internal lubricant for PVC	PMC Biogenix
Kemester®	Glycerol esters and specialty esters	Internal lubricant for PVC	PMC Biogenix
Neustrene®	Hardened glycerides	Internal lubricant for PVC and wood-polymer composites (WPCs)	PMC Biogenix
Stearates			
Calcium Stearate	Calcium salt of distilled, hydrogenated fatty acids	Calcium stearate is used in rigid PVC siding and window profile extrusion as a lubricant	PMC Biogenix PMC Crystal
Zinc Stearate	Zinc salt of distilled, hydrogenated fatty acids	Zinc stearate is used in PVC and polyolefins primarily as a heat stabilizer and lubricant in flexible films, sheets, foils, injection molding and extrusion	PMC Biogenix



Stabilizers

Product	NSF/PPI	FDA	Stabilizer Type	Approx. % Sn	Sp Gr	Typical Applications
Thermolite® 176	•		Butyl	6.5	0.92	Excellent stability for a wide range of small to medium size white pipe extrusion
ADVASTAB® TM-694	•		Methyl	6.5	1.00	Excellent choice for a wide range of small to medium size white pipe extrusion
ADVASTAB® TM-691	•		Methyl	8	1.02	Excellent for large diameter pipe and siding substrate extrusion
Thermolite® 140	•		Butyl	8.5	0.95	Best choice for all siding substrate and for medium to large diameter white pipe extrusion
ADVASTAB® TM-3412	•		Methyl	9.5	1.03	High performance for specialty pipe and all foam extrusion
ADVASTAB® TM-697	•		Methyl	10.5	1.04	High performance for large diameter pipe and all foam applications
ADVASTAB® TM-698	•		Methyl	12.5	1.04	High performance for specialty pipe extrusion
Thermolite® 161	•		Methyl	19	1.18	Excellent performance for injection molding and difficult extrusion
ADVASTAB® TM-283SP	•		Methyl	20	1.13	High performance in injection molding and very large diameter pipe extrusion
Thermolite® 387			Butyl	16	1.10	Cost-effective injection molding and extrusion processing
ADVASTAB® TM-599A			Methyl	15.5	1.13	Cost-effective injection molding and very large diameter pipe extrusion
ADVASTAB® TM-286			Methyl	17	1.12	Outstanding color stability for siding and profiles with balanced overall stability
Thermolite® 108			Butyl	17.5	1.12	Standard for injection molding, extrusion and foam sheet applications
Thermolite® 31			Butyl	18.5	1.13	Standard for all CPVC extrusion and injection molding processing
Thermolite® 892WF		•	Octyl	14	1.07	European octyltin with excellent early color performance and balanced overall stability
Thermolite® 890		•	Octyl	15.5	1.08	Standard octyltin for all film, sheet and packaging applications
Thermolite® 890F		•	Octyl	15.5	1.08	European standard octyltin for all film, sheet and packaging uses including CPVC processing
ADVASTAB® TM-182		•	Methyl	15.5	1.15	Excellent early color performance for film, sheet and capstock extrusion
ADVASTAB® TM-181FS		•	Methyl	19	1.17	Industry standard for all types of packaging, molding and extrusion
Thermolite® 190		•	Methyl	19.2	1.18	High performance for all types of food-grade packaging and extrusion
ADVASTAB® TM-404ER		•	Methyl	19.2	1.18	Low odor, low volatiles choice for high performance sheet film and extrusion

Product	Description	Form	Loss on Drying	Sulphate Ash	Assay	Urotropine	Nature
Stavinor®							
Stavinor® D507	Stabilizer booster	Powder	0.50%	< 0.2%	> 95.0%	0.25%	Dihydro-1,4 dimethyl - 2,6 dicarbododecyloxy -3,5 pyridine

Stabilizer One Packs

Product	NSF	Form	Melt Range (°C)	Typical Dosage (phr)	Chemistry	Typical Applications
ADVAPAK® LS-203NHS	•	Pastilles	105 - 110	1.8 - 2.05	Multi-functional lubricant-stabilizer	High-efficiency extrusion of all sizes of white PVC pipes
ADVAPAK® S-1201	•	Pastilles	105 - 110	1.6 - 2.55	Multi-functional lubricant-stabilizer	Efficient extrusion for all white small to medium size PVC pipes
ADVAPAK® S-1203	•	Pastilles	105 - 110	1.6 - 2.45	Multi-functional lubricant-stabilizer	Efficient extrusion for all white small to medium size PVC pipes
ADVAPAK® S-1100		Pastilles	99 - 104	3.0 - 4.0	Multi-functional lubricant-stabilizer	Specially formulated for high-efficiency injection-molded fittings

PMC's stabilizer one packs are a family of multifunctional products specially formulated with differing lubrication balances for a wide array of PVC pipe extrusions and processing conditions. Your PMC representative can help guide you to the best product fit for your unique performance requirements.



Lubricants

Product	FDA	Form	Melt Range (°C)	Typical Function	Chemistry	Typical Applications
ADVALUBE® AF-4074L	•	Liquid	-	Anti-fog in films	Glycerol esters	Film and sheet processes
ADVALUBE® AF-4192L	•	Liquid	-	Anti-fog in films	Glycerol esters	Film and sheet processes
ADVALUBE® B-3310		Beads	58 - 61	Internal lube	Polyol ester	Extrusion and injection molding
ADVALUBE® B-3500		Powder	77 - 83	External lube	Wax ester	Extrusion, calendering
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
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



Lubricants

(cont.)

Product	FDA	Form	Melt Range (°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, calendering

Product	NSF	Form	Congealing Point (°C)	Typical Dosage (phr)	Chemistry	Typical Applications
Baion® 2001	•	Mini-pastilles	69	0.61 - 1.51	Paraffin wax and oxidized polyethylene wax blends	Extrusion, injection molding
Baion® 2008	•	Mini-pastilles	72	0.66 - 1.63	Paraffin wax and oxidized polyethylene wax blends	Extrusion, injection molding, good metal release
Baion® 2010	•	Mini-pastilles	73	0.67 - 1.66	Paraffin wax and oxidized polyethylene wax blends	Extrusion, injection molding, good metal release
Baion® 2012	•	Mini-pastilles	74	0.69 - 1.7	Paraffin wax and oxidized polyethylene wax blends	Extrusion, injection molding, good metal release
Baion® 2016	•	Mini-pastilles	75	0.72 - 1.79	Paraffin wax and oxidized polyethylene wax blends	Extrusion, injection molding, good metal release
Baion® 4011		Pastilles	77	0.75 - 1.5	Multi-functional combination lubricant	High-efficiency siding, fence, railing and window profile extrusion
CrystalWax® CS-2054		Prills, pastilles	69	0.75 - 1.5	Paraffin wax	Extrusion, injection molding
CrystalWax® CS-2054P		Prills, pastilles	70	0.75 - 1.5	Paraffin wax and polyethylene wax blend	Extrusion, injection molding



Lubricants

(cont.)

Product	FDA	Form	Melt Range (°C)	Typical Function	Chemistry	Typical Applications
Kemamide® EBS	•	Flake, prill, powder	140 - 146	Balanced lube	Bisamide wax	Flexible film anti-blocking agent, injection molding, siding and profile extrusion
Kemamide® W-40 Vegetable	•	Prill, powder	137 - 147	Balanced lube	Bisamide wax	Flexible film anti-blocking agent, injection molding, siding and profile extrusion
Kemamide® W-20	•	Prill, pellet	114 - 120	Internal - balanced lube	Bisamide wax	Anti-fogging agent, high clarity
Kemester® 2000	•	Liquid	-	Internal lube	Partial ester of glycerin	Calendering, blow molding - high clarity
Kemester® 5721		Liquid	-	Balanced lube	Ester of synthetic alcohol	Calendering, blow molding - high clarity
Kemester® 695**	•	Liquid	-	Internal lube	Partial ester of glycerin	Calendering, blow molding - high clarity
Kemester® 84*	•	Molten, flake, pastille, bead	58 - 61	Internal lube	Partial ester of glycerin	Calendering, blow molding - high clarity
Kemester® EGDS*		Molten, flake, pastille	63 - 73	Internal lube	Polyol ester	Extrusion and injection molding
Neustrene® 060		Molten, flake	50 - 54	Balanced lube	Glycerol tristearate	Extrusion, molding, calendering
*Vegetable grade available						
**Kosher grade available						
Calcium Stearate FN*		Fused powder		Balanced lube / co-stabilizer	Calcium stearate	Extrusion and injection molding
Zinc Stearate*		Fused powder		Balanced lube / co-stabilizer	Zinc stearate	Extrusion and injection molding
*NF and vegetable grades available						



Innovative Solutions

PMC's Center for Vinyl Innovation is a new research and technical center in Lansdale, Pennsylvania (near Philadelphia) dedicated to developing responsible and cost-effective vinyl additive chemistry, and supporting the global PVC and CPVC processing industry.

At the CVI, research scientists develop, test and commercialize new products based on our customers' specific needs. PMC's Center for Vinyl Innovation is outfitted with the latest analytical and testing instrumentation, and research scientists work within ISO 9001 norms using equipment calibrated against established reference standards to optimize formulations and to help resolve processing problems for each customer's specific requirements.

For more information, please visit PMC Group in person or online at:

www.pmcvinyladditives.com



Center for Vinyl Innovation

601 W. 8th Street
Lansdale, PA 19446
USA
+1 215 368 1661
+1 800 525 3842

The statements, technical information and recommendations contained herein are believed to be accurate as of the date hereof. Since the conditions and methods of use of the product and of the information referred to herein are beyond our control, PMC Group expressly disclaims any and all liability as to any results obtained or arising from any use of the product or reliance on such information. NO WARRANTY OR FITNESS FOR ANY PARTICULAR PURPOSE, WARRANTY OF MERCHANTABILITY OR ANY OTHER WARRANTY, EXPRESS OR IMPLIED, IS MADE CONCERNING THE GOODS DESCRIBED OR THE INFORMATION PROVIDED HEREIN. The information provided herein relates only to the specific product designated and may not be applicable when such product is used in combination with other materials or in any process. The user should thoroughly test any application before commercialization.

See MSDS for Health and Safety Considerations. The information contained in this document is based on trials carried out by our research centers and data selected from the literature, but shall in no event be held to constitute or imply any warranty, undertaking, express or implied commitment from our part. Our formal specifications define the limit of our commitment. No liability whatsoever can be accepted by PMC Group with regard to the handling, processing or use of the product or products concerned which must in all cases be employed in accordance with all relevant laws and/or regulations in force in the country or countries concerned.



- ★ Headquarters
- Manufacturing Locations



PMC Crystal
+1 800 525 3842 or +1 215 368 1661

PMC Biogenix
+1 800 641 2152 or +1 901 325 5800

PMC Organometallix
+1 855 638 2549 or +1 856 638 2157

www.pmc-group.com

www.pmcvinyladditives.com

ADVALUBE®, ADVAPAK®, ADVASTAB®, ADVAWAX®, Baion®, CrystalWax®, Industrene®, Kemamide®, Kemester®, Neustrene®, Stavinor® and Thermolite® are trademarks of PMC Group, Inc. or its subsidiaries.

COPYRIGHT © DECEMBER 2015 PMC GROUP, INC. ALL RIGHTS RESERVED.

VA-013