

Composites

Open Molding
Filament Winding
Pultrusion

RTM
Vacuum Bagging
SMC / BMC
Epoxy Prepreg

Compression Molding
Cast Polymer
Solid Surface

Semi-Permanent
Mold Releases

Polymeric
Mold Releases

Water-Based
Mold Releases

Internal
Mold Releases

Paste Wax



OPEN MOLDING

External Mold Releases

Layup / Sprayup / Bagging

	Product number	Application Technique/ Application Temp	Type of Molds	Features	Yields*	
Semi-Permanent Releases XTEND™	solvent based	824	Wipe on /ambient or higher (150°F/65°C).	All.	Low slip. Yields high gloss parts. No polishing.	☺
		818	Wipe on /ambient or higher (150°F/65°C).	All.	Medium slip. Yields high gloss parts. No polishing.	☺
	858	HVLP Spray / ambient or higher (120°F/ 50°C).	All. Initial sealer recommended.	Especially for large molds in high production where spraying is desirable. Just spray - no polishing required.	☺	
	19SAM	Wipe on /ambient.	All. Especially good for plated and epoxy molds.	High slip, high durability. Good for non-gelcoated, DCPD resins etc.	☹	
MoldWiz®	solvent based	W-7800 Series	Wipe/spray and polish/ambient.	All.	Gloss or matte finish releases for polyester, epoxy & prepreg applications.	☺
		F-57NC	Wipe on/ambient or higher (120°F/ 50°C). Easily wet polishes.	All.	Fluoropolymer release. Easy to use & handle. Offers multiple release from a single application.	☺
PasteWiz™	water based	F-57LNC			Extra luster formulation.	
		PasteWiz	Wipe on and polish.	All.	Polymer paste wax. Easy to use.	☺

CAST POLYMERS

External Mold Releases

Cultured Marble / Onyx / Granite / Solid Surface

Semi-Permanent Releases XTEND™	solvent based	822	Wipe on /ambient	All. Including glass.	Custom marble production. Yields high gloss parts without polishing. Accepts tape.	☺
		858	HVLP Spray / ambient or higher (120°F/ 50°C).	All. Initial sealer recommended.	For large molds in high production where spraying is desirable. No polishing.	☺
		19SAM	Wipe on /ambient.	All. Especially good for plated and epoxy molds.	Solid Surface and other non-gelcoated molding. High slip, high durability.	☹
Polymer Multi Releases MoldWiz®	solvent based	250-SL/NC for brushed on gel coats	Wipe on/ambient or higher (120°F/ 50°C). Easily wet polishes.	All.	Self cleaning releases ideally suited to the custom molder who needs to frequently tape and clean molds. Offers multiple releases from one application.	☺
		250-SL/55NC for sprayed on gel coats				
PasteWiz™	water based	EM-303SL/IP	Wipe or Spray / ambient or higher.	All.		☹
		PasteWiz	Wipe on and polish.	All.	Polymer paste wax. Easy to use. Good for filling surface imperfections and treating flange areas.	☺

*Yields: ☺ Highly Cosmetic Parts; ☹ Medium Cosmetic Parts

FILAMENT WINDING

External Mold Releases

Mandrel Wrapping

	Product number	Application Technique/ Application Temp	Type of Molds	Features	Yields*
Semi-Permanent Releases XTEND™	19SAM	Wipe on /ambient.	All.	High slip for non-tapered mandrels.	☹
	19MDR	Wipe or spray on at 100-180°F / 40-80°C.		High slip for non-tapered mandrels.	☹
Polymer Multi Releases MoldWiz®	F-23ANC	Wipe on ambient or higher (120°F/ 50°C).	All.	Easy wipe on.	☺
	249 Series	Wipe or spray/ambient or higher (120°F/ 50°C).	All.	High solids water-based. Can be diluted as desired.	☹
	EM-606SL/IP	Wipe or spray on at ambient temperature.	All.	Good slip. Quick drying water/alcohol carrier.	☹
PasteWiz™	PasteWiz	Wipe on and polish if desired.	All.	Polymer paste wax. Easy to use. Good for surface imperfections.	☺

CLOSED MOLDING

External Mold Releases

RTM / SMC/BMC / LPMC

Semi-Permanent Releases XTEND™	19MDR	Wipe or spray on at 100-180°F / 40-80°C	All.	High slip. Good for plug/male side of molds and non-gelcoated parts.	☹
	19SAM	Wipe on at ambient temperature.	All.	High slip. Good for plug/male side of molds and non-gelcoated parts.	☹
	19HAM	Apply at 200°F / 95°C or above	All.	High slip. Hot molding applications.	☹
	19W	Wipe on at 100-200°F / 40-90°C.	All.	RTM & hot press. Medium high slip. Epoxy tooling.	☹
	818	Wipe on at ambient to 150°F / 65°C.	All.	Medium slip for gel coated and non-gel coated parts.	☺
MoldWiz®	EM-1212SF2	Wipe or spray at ambient to 275°F / 135°C.	All.	Environmentally friendly fluoropolymer. Good for SMC/BMC.	☹
	249 Series	Wipe or spray ambient or higher (120°F / 50°C).	All.	Excellent for SMC/BMC start up.	☹
	1970JB	Spray on warm molds 120°F / 50°C - 200°F / 90°C.	Metal.	Economical concentrate, water washable.	☹

POLYMER CONCRETE

External Mold Releases

		Product number	Application Technique/ Application Temp	Type of Molds	Features	Yields*
XTEND™	solvent based	19SAM	Wipe on /ambient.	All.	High slip, high durability, multi-release.	☞
		249 Series	Wipe or spray/ambient or higher (120°F/ 50°C).	All.	High solids water-based. Can be diluted as desired.	

MOLD SEALERS

XTEND™	solvent based	S-19C	An optional sealer which can be used with XTEND semi-permanent releases. Recommended for new, green, porous, and aluminum molds.			
	water based	WS-86	A water-based mold primer coat recommended for porous metal molds.			
MoldWiz®	solvent based	3F/NC	A liquid polymer mold sealer and glaze for use on FRP molds in conjunction with the 250 Series & other MoldWiz® releases. Will reduce surface porosity. A good first step after molds have been compounded.			

CLEANERS & STRIPPERS

XTEND™		CX-500	A general purpose cleaner for use with XTEND semi-permanent releases.			
		CX-525	A mold cleaner designed to remove styrene and resin buildup. Use on warm molds up to 250°F / 120°C.			
		CX-200HS	A stripper which will remove XTEND semi-permanent releases.			
		CX-WDS	A water-based stripper that will remove XTEND semi-permanent releases from FRP surfaces.			
MoldWiz®		CleanWiz 9NC	A heavy duty stripper. Removes heavy build-up of wax, grease, polymer residue, and styrene. Not recommended for stripping semi-permanent releases.			
		CleanWiz 3000	Hydrocarbon solvent based mold cleaner. Suitable for application on warm molds up to 250°F / 120°C.			

The products in this brochure are just a sampling of the hundreds of internal and external release agents and process aid additives that AXEL manufactures. If you don't see what you need, call us. Chances are we already have a product that is just right. If not, we can custom formulate to meet your exact requirements.

All AXEL products are formulated from raw materials that comply with the chemical substance inventory lists of TSCA, DSL, MITI, EINECS, Australia & Korea.

To learn how a MoldWiz® and/or XTEND™ product can improve your production and profits, call AXEL's technical service representatives at (800) 332-AXEL or (718) 672-8300 for a free sample to meet your specific needs.

EPOXY

Internal Mold Releases

Recommendations based on compatibility with the many types of hardeners used to cure a typical Bisphenol-A epoxy resin.

Cure	Product	Typical Application	Comments
Aliphatic amines, example, DETA	INT-1846N	Molding compounds at low to moderate temperatures	Neutralized to prevent premature reaction with hardener, avoiding poor cured properties.
Aliphatic amines	INT-1850HT	Higher temperatures, >350°F/175°C	Good thermal stability evidenced by TGA.
Cycloaliphatic amines Example: PACM	INT-1840	Filament winding	Reduced acidity to ensure maximum surface activity without sacrificing cured properties.
Aromatic amines, MDA & non-MDA-based	INT-1846		Acidic for maximum surface effect.
Aromatic amines, fluorene-based	INT-1824L	High temperature cures, >450°F/230°C	Minimal loss of Tg, even when used at 2phr.
Acid anhydride, Example: phthalic anhydride	INT-1890M		Mild catalysis imparted by lubricant improves production output.
Acid anhydride, example, MTHPA	INT-1846N	Pultrusion	Tertiary amine or imidazole-catalyzed. Extends bath life and reduces sloughing.
Anhydride, liquid	INT-1810	Production of electrical components	Clear, haze-free castings.
Anhydride, general	INT-1854		
Water dispersible amines or polyamides	INT-EP545(SL)		Excellent dispersion in epoxy emulsions. Good for treating surface veils.
Lewis acids, example BF3.MEA	INT-1815	Rapid curing parts at low activation temperatures, RT – 120°F/50°C	Does not poison polymerization kinetics.
UV-cured epoxy acrylates	INT-1210 INT-1285C	Clear, haze-free castings	Does not poison polymerization kinetics.

PHENOLICS

Internal Mold Releases

Designed to ensure uniform dispersion and efficient release performance with the various resin types shown below.

Resin Type	Product	Typical Application	Comments
Resole, alcohol-based	INT-PUL14	Pultrusion	
Resole, water-based, 2-stage, base cured	INT-1830PN	Bulk molding compound	Clay filled parts yield excellent fire and smoke ratings.
Resole, alcohol-based	INT-1312MS INT-12	Laminates & FRP	
Resole, alcohol/water blend or water-based	INT-1244 INT-25LF INT-26LF95	Laminates & FRP	Enhanced gloss of pressed B-staged overlays under humid processing condition.
Resole, water-based, 2-stage sulfonic acid cured	INT-1848PN	Sheet Molding Compound	
Novolac, powdered, hexa-cured	INT-326PWD INT-483PN INT-1838P	Compression molding	
Novolac, powdered, hexa-cured, alcohol slurry	INT-1838P INT-1858	Compression molding	Graphic arts; excellent release off copper substrates.

Recommendations based on compatibility with peroxides commonly used.

Peroxide Type	Group Classification	Product	Typical Application	Comments
BPO	Diacyl Peroxides	INT-PUL-24 INT-1854 INT-54 INT-541WT		
MEKP	Ketone Peroxides	INT-EQ6 INT-15TBT INT-937 INT-44-800	Open & closed molding & Gel coats	
		INT-DCP220		Especially for DCPD resins.
		INT-22NR INT-389A		Especially for clear or white gel coats.
MEKP, AAP, CHP	Ketone Peroxides	INT-1838P	RTM, low temperature SMC	Synergistic release performance with XTEND.
		INT-2447		Excellent release from epoxy tooling.
2,4-Pentanedione	Ketone Peroxides	INT-389A INT-15TBT		
Perkadox 16 (Akzo)	Peroxydicarbonate	INT-PS125 INT-PUL-24		
Tertiary butyl perbenzoate (TBPB)	Peroxyesters	INT-PUL-24 INT-1208	Bulk molding compounds	
Perkadox 16 + Triganox C (Akzo)	Peroxydicarbonate + Peroxyesters	INT-PUL-24 INT-PS125	Pultrusion – 2 tier catalyst system commonly used	Low pulling forces with retention of physical properties.
Dicumyl peroxide	Dialkyl Peroxides	INT-PUL-24		
Cumene hydroperoxide	Hydroperoxides	INT-1838P INT-2447	RTM, low temperature SMC	Particularly effective with thick sections, and with vinyl ester resins.
Lupersol 231 (Atofina)	Peroxyketals	INT-PUL-24 INT-EQ 6 INT-1866	SMC	Rapid molding times with prolonged shelf stability.

For technical data sheets or free samples write, call or e-mail today.

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Mold Releases & Process Aid Additives