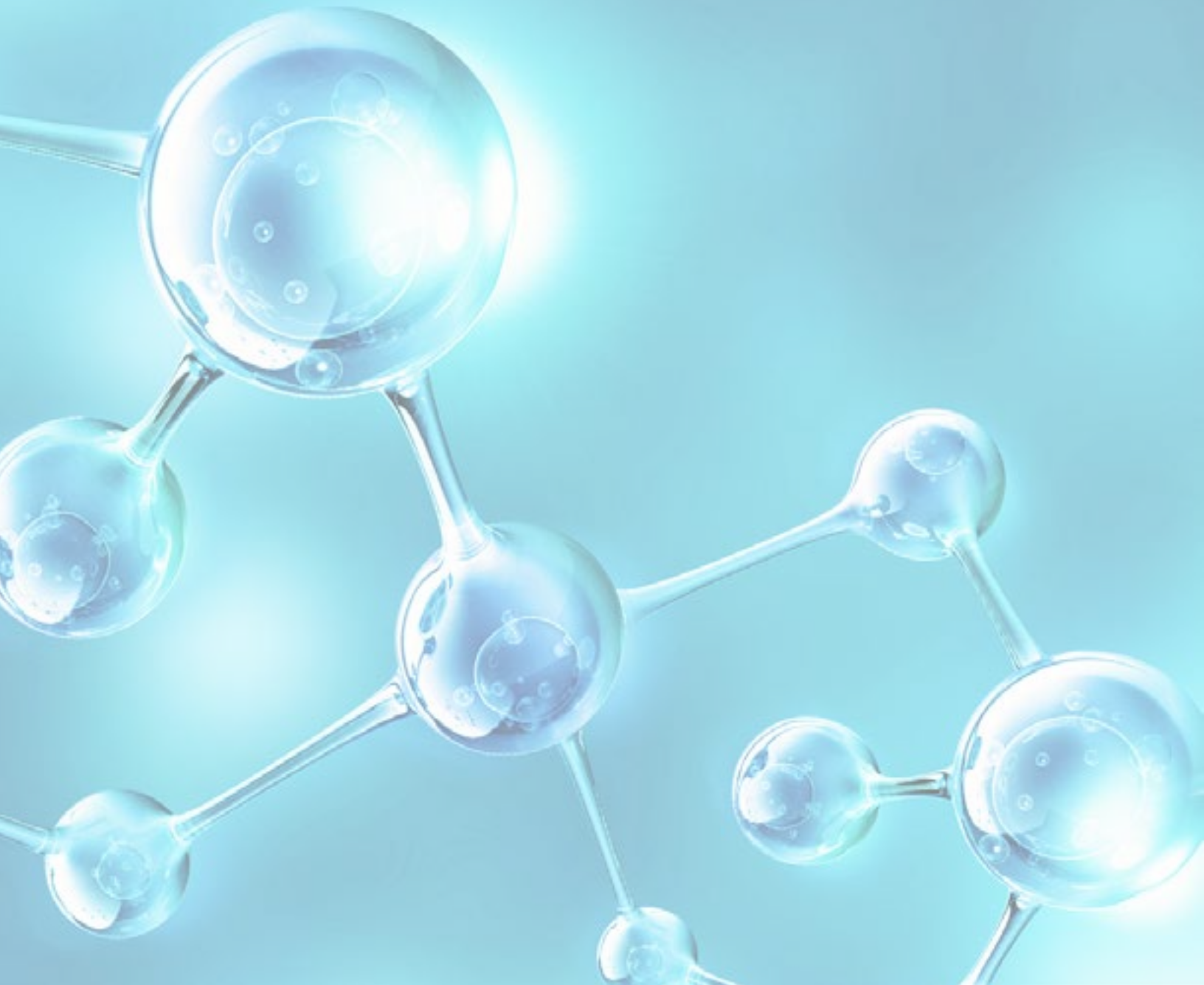
Polynt

Coating Resins
Non-Isocyanate



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Production Sites

Polynt Composites Canada, Inc.
Brampton (ON) - Drummondville (QC)

Polynt Composites USA Inc.
Carpentersville (IL) - Chatham (VA) - Ennis (TX) - Forest Park (GA) - Houston (TX) - Marshall (TX) - North Kansas City (MO) - Orlando (FL) - Sandusky (OH)

Polynt Group

After the merger on May 2017 the new Polynt Group is a global Company in the Intermediates, Coating and Composite Resins, Thermoset Compounds, Gel-coats and niche Specialties.

This combination enhances the Group's leading position as a global vertically integrated specialty chemicals player, with significant global presence in Europe, North America and Asia, a strategy initiated by Polynt with the successful integration of PCCR and CCP in the last years and now further reinforced by Reichhold's global scale, extensive product portfolio and R&D competencies.

Polynt Group is known for its superior quality and impressive range of products and with its excellent distribution network it can provide first-class service to customers whatever their market. Customer Service and Technical Service teams are renowned for their customer focus, offering the best service even after products have left manufacturing.

The Group strives to keep customers satisfied, assisting them in producing premium quality products every time they use its products.

Product innovation is important for the Group's business and it's the reason for which it constantly works with customers to find solutions to problems.

Introducing new or improved products ensures that Polynt Group continue not only to deliver what the market wants and needs, but also when it is wanted and needed.

Solvents – Abbreviations

A100, S	Aromatic 100
A150, R	Aromatic 150
DGBE, G5	Diethylene Glycol n-Butyl Ether
DMC	Dimethyl Carbonate
DPDME, G8	Dipropylene Glycol Dimethyl Ether
DPM	Dipropylene Glycol Monomethyl Ether
EEP, A7	Ethyl 3-Ethoxypropionate
EGBE, G4	Ethylene Glycol Monobutyl Ether, Butyl Cellosolve
EGPE, EP, G6	Ethylene Glycol Monopropyl Ether
EtOAc	Ethyl Acetate
EtOH, E	Ethyl Alcohol
G	Glycol and Glycol Ether
i-BuOH, B1	Isobutyl Alcohol
IBIB	Isobutyl Isobutyrate
IPA, D	Isopropyl Alcohol
Isopar G	Isoparaffin Solvent
LAMS, ML	Low Aromatic Mineral Spirits
MAK, K4	Methyl Amyl Ketone
MEK, K1	Methyl Ethyl Ketone
MIBK, K2	Methyl Isobutyl Ketone
MO	Odorless Mineral Spirits
MPK, K3	Methyl Propyl Ketone

MS, M	Mineral Spirits
n-BuAc, A4	n-Butyl Acetate
n-BuOH, B	n-Butyl Alcohol
n-PrOH	n-Propyl Alcohol
NMP, MP	n-Methyl-2-Pyrrolidone
PCBTF, E1	para-Chlorobenzotrifluoride (Oxsol® 100)
PGME, G3	Propylene Glycol Monomethyl Ether
PMA, A6	Propylene Glycol Monomethyl Ether Acetate
PnP, G2	Propoxy Propanol
s-BuOH, B2	Secondary Butyl Alcohol
t-BuAc, E2	t-Butyl Acetate
T	Toluene
TEA	Triethyleneamine
DMEA	Dimethyl Ethanol Amine
NH3	Ammonia
TPM, T8	Tripropylene Glycol Monomethyl Ether
VM&P, V	VM&P Naphtha
VMS, E3	Volatile Methylsiloxane
W	Water
X	Xylene
Z	Mixed Solvents
6X3	Rule 66

Definitions

% NVM	Nonvolatile material expressed as a percent of the total weight of the resin solution.
% NVV	Nonvolatile material expressed as a percent of the total volume of the resin solution.
Eq. Wt.	Molecular weight divided by functionality, the latter being the number of a given reactive group present on an average molecule of the material. Expressed based on a solids basis.
pH	Degree of acidity or alkalinity of a solution expressed on a relative scale of 1 to 14 with 7 being neutral.
Particle Size	Average diameter of a distribution of particles, usually expressed in microns or nanometers.
Tg	Temperature at which the non-crystalline portion of a polymer is transformed from a viscous rubbery state to a brittle glass-like material. Generally an indication of the flexibility and hardness of a finished paint film.
MFFT	Minimum temperature at which an applied coating forms a continuous film, as evidenced by the visual lack of cracking or powdery appearance of film and film integrity, by testing the film on a temperature gradient plate.
Oil Type	Synthetic or naturally occurring vegetable material that contributes fatty acids used in producing alkyd resins.
Wt/Gal	Mass per volume of polymer as supplied expressed in pounds per gallon.
Viscosity	Measurement of a polymer's resistance to flow expressed in Gardner-Holdt units or centipoises.
Reduced Viscosity	Measured viscosity (as defined previously) at a specified percent weight solids typically lower than the solids of the polymer as supplied.
Color	Measurement of the light reflectance of a polymer in liquid form expressed in Gardner units on a relative scale of 1 to 14 with 1 being water white.
Acid Value (solids)	Number of milligrams of KOH required to neutralize the free acids in one gram of polymer solids.
OH Value	Hydroxyl value – number of milligrams of KOH equivalent to the hydroxyl groups available per gram of polymer. The hydroxyl equivalent weight is given by 56,100 divided by the hydroxyl value.
Solvents	Dilution solvents used to achieve the desired viscosity.

Trademarked Brands

ACRYLAMAC®, AROLON®	Solution Acrylics
ALCURE®	Polymeric Isocyanate Curatives
AQUAMAC®, AROLON®, SYNTHEMUL®	All Acrylic, Self-Crosslinking, Styrene Acrylic, and Vinyl Acrylic Latex
ARCHEMIS®	High Solids Long Oil Alkyds
AROFLINT®	Non-Isocyanate 2K Systems
BECKOSOL AQ®	Alkyd Emulsions
CARBAMAC®, UROTUF®	Oil Modified Urethanes, Uralkyds, Moisture Cure Urethanes, and Polyurethane Dispersions
CHEMACOIL®	Conventional Vinyl Oxazoline-Modified Esters
DURAMAC®, BECKOSOL®	Alkyds, Flat Alkyds, and Thixotropic Alkyds
DURAMAC®, KELSOL®	Water-Reducible Alkyds
HYDREAU®	Polyester Dispersions
MACOPOL®, AMBERLAC®	Copolymer Resins
POLYMAC®, FINE-CLAD®, FINE-TONE®	Powder Polyesters
POLYMAC®, AROPLAZ®	Liquid Polyesters
EPOTUF®	Epoxy Resins, Epoxy Curing Agents
REZIMAC®, EPOTUF®	Epoxy Esters
REZIMAC®, BECKOSOL®	Silicone-Modified and Phenolic-Modified Alkyds

2K Non-Isocyanate

PRODUCT	TYPE	% SOLIDS (WEIGHT)	DENSITY (LBS/GAL)	SOLVENTS	VISCOSITY (STOKES)	VISCOSITY (G - H)	GARDNER COLOR (MAXIMUM)	EEW (SOLID)	FEATURES AND BENEFITS
EPOXY RESINS									
AROFLINT® 608	Oxirane-Modified Ester	100	8.35	—	11	$U_{+1/4}$ - $X_{+1/2}$	8	285	Aliphatic epoxy used to formulate 2K coatings with excellent weatherability; used for agricultural and transportation coatings

PRODUCT	TYPE	% SOLIDS (WEIGHT)	DENSITY (LBS/GAL)	SOLVENTS	VISCOSITY (STOKES)	VISCOSITY (G - H)	GARDNER COLOR (MAXIMUM)	AEW (SOLID)	FEATURES AND BENEFITS
POLYESTER RESINS									
AROFLINT® 809	Acid Functional Polyester	71	10.85	MAK / PGME / IPA	2 - 6	H - $T_{+3/4}$	4	432	HAPS compliant, low VOC capability, durability
AROFLINT® 252-Z1-60	Acid Functional Polyester	60	9.47	MS / IBIB / A100	2.05	$F_{+3/4}$ - J	5	524	Flexibility, durability
AROFLINT® 404-XX-60	Acid Functional Polyester	60	10.05	n-BuAc / VM&P / n-BuOH / EB	5.5	R - U	3	351	Adhesion, hardness, corrosion resistance

Glossary

Abrasion	Wearing away of a surface in service by action such as rubbing, scraping or erosion.
Abrasion Resistance	The ability of a coating to resist being worn away and to maintain its original appearance and structure when subjected to rubbing, scraping or erosion.
Acid Number or Value	The number of milligrams of KOH required to neutralize the free acids in 1 gram of polymer.
Aftertack	Film defect in which the coated surface, having once reached a tack-free stage, subsequently develops a sticky condition.
Anti-sintering	The property of reducing sintering.
Architectural Coatings	Coatings intended for on-site application to interior or exterior surfaces of residential, commercial, institutional or industrial buildings – as opposed to industrial coatings. Protective and decorative finishes applied at ambient temperatures.
Baking	The process of drying or curing a coating by the application of heat in excess of 65°C / 150°F. When below this temperature, the process is referred to as forced drying.
Block Resistance	Resistance to the undesirable sticking together of two painted surfaces when pressed together under normal conditions or under specified conditions of temperature, pressure, and relative humidity.
Blocked Isocyanate	An isocyanate material in which the isocyanate groups (NCO) are blocked from carrying out their normal chemical reactions by already having been reacted, either with a specific blocking agent or with themselves. In the latter case the blocked isocyanate is referred to as a uretdione type, because the NCO groups have linked themselves together to produce uretdione linkages. Common blocking agents are Ɛ-caprolactam and triazole.
Blocking Agent	A chemical, such as Ɛ-caprolactam, that reacts reversibly with isocyanate groups (NCO) such that at temperatures below the deblocking temperature it is covalently bonded to the NCO groups, thereby preventing these groups from reacting with anything else. At temperatures above the deblocking temperature, the blocking agent is released from the NCO groups thus allowing them to react with, for example, the hydroxyl groups of the surrounding polyester resin.
Blush, Blushing, "Bloom"	Film defect which appears as a milky opalescence as the film dries; can be a temporary or permanent condition. It is generally caused by rapid evaporation, moisture, or incompatibility.
Brush Drag	Resistance encountered when applying a coating by brush.
Brushability	The ability or ease with which a coating can be brushed.
Catalyst	An additive that speeds up a chemical reaction, such as curing, but takes no part in the reaction.
Chalk Resistance	The ability of a coating to resist the formation of a friable powder on the surface of its film caused by the disintegration of the binding medium due to degradative weather factors.
Chip Resistance	The ability of a coating or layers of coatings to resist total or partial removal, usually in small pieces, as a result of impact by hard objects or from wear during service.
Compatibility	Capacity of coatings from either different sources or of different compositions to be combined and applied so as to yield no visible or mechanically measurable differences in the cured film or application properties.
Conventional Solids	For the purposes of this reference guide, any material that is less than 70% solids. There may be exceptions.
Copolymer	A polymer consisting of molecules containing large numbers of units of two or more chemically different types in irregular sequence.
Corrosion Resistance	The ability of a substance to resist deterioration because of reaction with its environment.
Cracking	Generally, the splitting of a dry paint or varnish film, usually as a result of aging or flexing.
Crosslinking	Applied to polymer molecules, the setting up of chemical links between the molecular chains to form a three-dimensional or network polymer generally by covalent bonding. Crosslinking generally toughens and stiffens coatings. Thermosetting materials crosslink under the influence of heat and catalysis and, in some cases, electromagnetic radiation.
Cure	To change the properties of a polymeric system by chemical reaction into a final, more stable, usable condition by the use of heat, radiation or reaction with chemical additives.
D.O.I. (Distinctness of Image)	The sharpness with which image outlines are reflected by the surface of an object.
DCO	Dehydrated Castor Oil
Deblocking Tempera-ture	The temperature at which the thermally reversible reaction between a blocking agent and an isocyanate group (NCO) begins to produce significant quantities of freed NCO groups available for reaction. The higher the temperature a blocked isocyanate is above its deblocking temperature, the more NCO groups are made available, and the faster crosslinking reactions can be. Conversely, when an isocyanate is below its deblocking temperature, no NCO groups are available for reaction.

Glossary

DFT	Dry film thickness
Dry	A film is considered dry when using moderate pressure, it feels firm to the touch.
Dry-Through	Film is considered dry-through when no distortion of the film (i.e., loosening, detachment, wrinkling, etc.) occurs when the thumb is borne downward while simultaneously turning the thumb through an angle of 90° in the plane of the film.
Dry-to-Touch	A film is considered dry-to-touch when it no longer adheres to the finger. The finger leaves no marks after touching the film, and film does not rub up appreciably when finger is lightly rubbed across the surface.
DTM (Direct-to-Metal)	Refers to coatings applied directly to an uncoated, non-primed metal substrate.
Edge Coverage	A powder coating's ability to flow over, build and adhere to sharp corners, angles and edges.
Enamel	Topcoat that is characterized by its ability to form a smooth surface; originally associated with a high gloss but may also include lower degrees of gloss.
Equivalent Weight	The equivalent weight of a material is its molecular weight divided by its functionality, the latter being the number of a given reactive group present on an average molecule of the material. For polyester resins for coating powders, the resin equivalent weight is given by 56,100 divided by the resin acid value (for carboxyl polyesters) or 56,100 divided by the resin hydroxyl value (for hydroxyl polyesters). Expressed based on a solids basis.
Exempt Solvent	Any solvent that has not been declared photochemical reactive by any of several regulatory agencies.
Extruder	A device used to melt-mix plastics and/or powder coatings. An extruder utilizes heat and mechanical kneading to achieve a homogeneous mixture.
FDA	Food and Drug Administration
Flash Point	Lowest temperature of a liquid at which it gives off sufficient vapor to form an ignitable mixture with the air near the surface of the liquid or within the vessel used.
Glass Transition Temperature (Tg)	The temperature at which materials in general change from either a hard glassy state to a softer, rubbery state, or from a soft rubbery state to a harder glassy state.
HAP	Hazardous Air Pollutant
High Drink	A resin is said to be high drink when, as solvent is added, there is a slow viscosity reduction, enabling lower solids at a given viscosity.
High Solids	For the purposes of this reference guide, any material that is 70% solids or higher. There may be exceptions.
HDODA	Hexanediol diacrylate
HQMME	Hydroquinone monomethyl ether
Hybrid Powder Coating	A powder coating whose binder component is a blend of two different resins, such as polyester and epoxy. A "60/40" polyester/epoxy hybrid for example, would have a resin component comprising 60 wt/% polyester and 40 wt/% epoxy. The functional groups on each resin are balanced so as to fully react with each other at the given wt/% ratios of each resin.
Impact Fusion	The tendency for particles of powder coatings to agglomerate, fuse together, or build up on surfaces, because of mechanical impact during transportation within the powder application equipment.
Inhibitor	A negative catalyst which prevents or retards an undesirable chemical reaction.
Isocyanate	A material containing NCO groups that are available for reaction with a variety of other functional groups. Commonly those used in coating powders are polymeric in nature so as to increase their functionality.
Lacquer	Coating composition which is based on synthetic thermoplastic film-forming material dissolved in organic solvent that dries primarily by solvent evaporation.
Long Oil Alkyd	Alkyd resin containing more than 60% of oil in solids.
Medium Oil Alkyd	Alkyd of medium oil content, usually containing from 40-60% of oil in solids.
Melt Mixing	A predominant process for the manufacture of powder coatings involving the continuous compounding of the pigments, fillers, additives, resins and curing agents at elevated temperatures.
MFFT (Minimum Film Forming Temperature)	The minimum temperature at which an applied coating forms a continuous film, as evidenced by the visual lack of cracking or powdery appearance of film and film integrity, by testing the film on a temperature gradient plate.
Modified Alkyd	Modified alkyds are those in which the polybasic acid is substituted in part by a monobasic acid, of which the vegetable oil fatty acids are typical.
Oligomer	A polymer composed of molecules containing only two, three or a few repeating structural units.

Glossary

Particle Size	The average diameter of a distribution of particles, usually expressed in microns or nanometers.
PVC (Pigment Volume Concentration)	Ratio of the volume of pigment to the volume of total nonvolatile material (i.e., pigment and binder) present in a coating.
Pinholes	Film defect characterized by small pore-like flaws in a coating that extend entirely through the applied film and have the general appearance of pin pricks when viewed by reflective light.
Post Cure Embrittle-ment	A process whereby a cured coating exhibits increasing embrittlement and decreasing impact resistance with age.
Pot Life	The length of time a paint material is useful after its original package is opened or after catalyst or other ingredients are added.
Powder Coating	Finely divided particles of organic polymer that generally contain pigments, fillers and additives and which remain finely divided during storage under suitable conditions.
Precatalyzed	Usually refers to a resin that has a catalyst already added by the resin manufacturer. This ensures complete mixing of the catalyst with the resin and results in a resin that reacts faster than the uncatalyzed material.
Primer	The first complete coat of paint of a painting system applied to a surface.
Profile	Surface contour of a blast-cleaned or substrate surface, viewed from the edge.
Reactive Diluent	A viscosity reducer for coatings that has low volatility and will become a permanent part of the coating through chemical reaction.
Sagging	Downward moving of a paint film between the times of application and setting, resulting in an uneven coating having a thick lower edge.
Salt Spray Test	Test applied to metal finishes to determine their anticorrosive properties, involving spraying of common salt (sodium chloride) solution on the surface of a coated steel panel.
Shelf Life	The period of time for which a material can normally be stored and still be in a usable condition.
Short Oil Alkyd	Alkyd resin containing less than 40% oil in solids.
Sintering	The tendency of some powder coatings to agglomerate over time, often due to being stored too long at too high a temperature.
Skydrol® Resistance	Product is resistant to hydraulic fluid Skydrol.
Surface Dry	The premature drying of the surface of a liquid coating film so that the under portion is retarded in drying.
Syneresis	The separation of liquid from a gel.
Tack-Free	Freedom from tack of a coating after suitable drying time.
T-Bend Flexibility Test	Simple method for determining the flexibility of coatings by bending a coated metal test strip over itself. A panel is bent and pressed flat by means of a jig to achieve a 180° bend.
Telegraphing	Brush marks or other irregularities in the previous coat or substrate that show through the cured topcoat.
Tg	The temperature at which materials in general change from either a hard glassy state to a softer, rubbery state, or from a soft rubbery state to a harder glassy state.
TGIC (Triglycidyl Isocyanurate)	A curing agent for powder coating resins containing carboxyl groups.
TMA	Trimellitic anhydride
Two-Component Paint	A coating that is manufactured in two components that must be maintained separately until shortly before use.
Uretdione	A material containing uretdione linkages. These linkages are produced by two NCO groups reacting with each other. The original NCO groups are then no longer available for reaction and are termed “blocked.” The reaction is reversible, such that the application of sufficient heat will cause the regeneration of the original NCO groups, which can then react. The advantage of this type of blocking is that there is no release of any blocking agent.
VOC (Volatile Organic Compound)	Any organic compound that participates in atmospheric photochemical reactions; that is, any organic compound other than those that the EPA designates as having negligible photochemical reactivity.
Weathering	Behavior of paint films when exposed to natural weather or accelerated weathering equipment, characterized by changes in color, texture, strength, chemical composition or other properties.
Yellowing	Development of a yellow color on aging.
Yellowing Resistance	The resistance a coating has to turning yellow due to, for example, extended cure times at high temperature, or the use of direct gas-fired curing ovens.

COMPANY ADDRESSES

AMERICAS

USA

Reichhold LLC 2
237 South Motor Avenue
Azusa, CA 91702
United States
Phone: +1 626 334 4974
Fax: +1 626 969 6978
email: contact.US@polynt.com

Polynt Composites USA Inc.
99 East Cottage Avenue
Carpentersville, IL 60110
United States
Phone: +1 800 322 8103
email: contact.US@polynt.com

Polynt Composites USA Inc.
920 Tightsqueeze Industrial Road
Chatham, VA 24531
United States
Phone: +1 434 432 8836
Fax: +1 434 432 1366
email: contact.US@polynt.com

Polynt Composites USA Inc.
201 Cedar Road
Ennis, TX 75119
United States
Phone: +1 972 875 8634
Fax: +1 919-990-7749
email: contact.US@polynt.com

Polynt Composites USA Inc.
71 Barnett Road
Forest Park, GA 30297
United States
Phone: +1 404 362 4000
email: contact.US@polynt.com

Reichhold LLC 2
54 Wamsley Road
Jacksonville, FL 32254
United States
Phone: +1 904 695 7500
Fax: +1 904 695 7517
email: contact.US@polynt.com

Polynt Composites USA Inc.
5851 FM 1998
Marshall, TX 75672
United States
Phone: +1 903 938 9571
Fax: +1 903 935 1801
email: contact.US@polynt.com

Reichhold LLC 2
6350 E Collins Rd
Morris, IL 60450
United States
Phone: +1 815 942 4600
Fax: +1 815 942 4722
email: contact.US@polynt.com

Polynt Composites USA Inc.
820 East 14th Avenue
North Kansas City, MO 64116
United States
Phone: +1 816 391 6000
Fax: +1 816 391 6337
email: contact.US@polynt.com

Polynt Composites USA Inc.
Regency Industrial Park
10124 Rocket Boulevard
Orlando, FL 32824
United States
Phone: +1 407 851 3030
Fax: +1 407 855 0674
email: contact.US@polynt.com

Reichhold LLC 2
425 South Pace Boulevard,
Pensacola, FL 32502
United States
Phone: +1 850 433 7621
Fax: +1 850 433 7699
email: contact.US@polynt.com

Polynt Composites USA Inc.
1321 First Street
Sandusky, OH 44870
United States
Phone: +1 419 625 1197
Fax: +1 419 625 8210
email: contact.US@polynt.com

Reichhold LLC 2
249 St. Louis Avenue
Valley Park, MO 63088
United States
Phone: +1 636 225 5226
Fax: +1 636 225 2954
email: contact.US@polynt.com

Polynt Composites USA Inc.
99 East Cottage Avenue
Carpentersville, IL 60110
United States
Phone: +1 800 322 8103
email: contact.US@polynt.com
www.polynt.com

Polynt S.p.A.
Via Enrico Fermi, 51
24020 Scanzorosciate (BG)
Italy
Phone: +39 035 652 111
email: contact.IT@polynt.com
www.polynt.com