Product Guide for Coatings

Your Product Guide to Formulate Smarter Coatings

Cargill™

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Bio-based* speciality building blocks with a wide range of properties suitable for applications from the toughest marine and protective coatings, to highly flexible PUDs for leather and fabric.

Cargill is a leading global solution provider of bio-based* building blocks and functional ingredients that provide a variety of smart effects in a wide range of polymer types and applications.

With our innovations we support our customers in marketing differentiated, durable, tailored and more sustainable solutions for coating applications that meet the ever evolving demands of consumers concerned with sustainability.

The coatings market will continue to show significant growth in the next years as a result of a growing world population and an ever-increasing consumer group that can invest in mobility, housing and consumables. To satisfy these demanding consumers there is a growing need for functional effects to develop smarter coatings.

*ASTM D6866

Bio-based* Polyester Polyols for Polyurethane Coatings

Polyurethanes are versatile in use and offer great formulation freedom in the choice of polyols and isocyanates. Polyurethane resins are therefore widely used in coating applications. Polyurethane dispersions (PUDs) are nowadays a rapidly growing segment due to their technological advances and more sustainable profile.

Priplast™ Polyester Polyols

Our Priplast™ range of polyester polyols offers the coating formulator a solution to enhance performance properties, impart flexibility and to improve the coating's environmental profile. The polyol can be built into the polyurethane by reacting with isocyanates.

The Priplast technology offers unique benefits to polyurethane adhesives such as:

- Durability: a unique combination of thermo-oxidative and hydrolysis resistance
- Moisture repellency of the final adhesive, also achieved for PU dispersions
- Adhesion to a wide range of substrates, including low-polarity plastics
- Good chemical resistance to withstand attack by moisture, alkali, or acid

The selected Priplast™ grades listed below find their use in high performance polyurethanes and PUD coating systems, each offering their own unique properties.

TRADENAME	CHEMICAL DESCRIPTION	BENEFIT	APPLICATION / FUNCTION	FORM AT 25°C	MOLECULAR WEIGHT (MW)	RENEWABLE CARBON◊
Polyester Polyols						
Priplast™ 3162	Semi-crystalline polyester polyol	Polyol for excellent wetting of rigid and fibrous substrates providing hardness, flexibility and good adhesion	Rigid substrates PU and PU dispersions	Waxy solid	1000	36%
Priplast™ 3192	Semi-crystalline polyester polyol	Versatile and all-round polyol with excellent hydrolytic resistance and mechanical properties	Flexible substrates, textile, leather, wood and metal or plastic PU and PU dispersions	Waxy solid	2000	38%
Priplast™ 1838	Amorphous polyester polyol	Versatile and all-round polyol providing extreme hydrophobicity, excellent color and durability, good flow and wetting properties on non-polar substrates, like plastics	PU systems with versatile adhesion with shock absorption; compatible with low polar components	Liquid	2000	82%
Priplast™ 1900	Amorphous polyester polyol	All-round polyol for good hydrolytic stability versus PTMEG and adipate polyols, providing good hydrophobicity and improved chemical resistance	PU and PU dispersions for metal, wood, PVC, PA, or ABS	Liquid	2000	48%
Priplast™ XL 101	Semi-crystalline polyester polyol	Polyol providing superior strength balanced with high elongation while having high surface hardness; excellent water and stain resistance, scratch resistance and enhanced soft feel	PU and PU dispersions for flexible substrates; wood, metal, plastic, leather	Waxy solid	2000	18%
100% Bio-based* Polyester Polyols						
Priplast™ 3238	Amorphous polyester polyol	Versatile polyol, 100% bio-based*, providing extreme hydrophobicity, excellent color and durability, no strain hardening	Bio-based* PU systems with versatile with shock absorption; compatible with low polarity components	Liquid	2000	100%
Priplast™ 3294	Semi-crystalline polyester polyol	100% bio-based* polyol offering excellent water resistance and superior surface hardness in combination with good mechanical properties	Bio-based* PU and PU dispersion for flexible substrates, wood, metal, plastic, and leather	Waxy solid	2000	100%

◊According to ASTM D6866 and EN 16640
Food contact statements are available upon request with specific details, including conditions of use and restrictions.

Toughening Agents for Epoxy Coatings

Epoxies are applied in heavy-duty indoor and outdoor coatings for their excellent properties but can be brittle.

Often epoxy resins are modified to meet end application performance requirements. For instance, they are modified to improve flexibility although this affects the hardness of the system. A challenge for epoxy formulators is to combine flexibility and hardness without negatively impacting other properties.

B-Tough™ C2R epoxy functional toughening agent has been developed to overcome this challenge enhancing flexibility while hardness is maintained, so called impact resistance. This will reduce maintenance costs and out of service time.

PRODUCT	CHEMICAL DESCRIPTION	BENEFIT	APPLICATION / FUNCTION	FORM AT 25°C	RENEWABLE CARBON◊
Toughening Agents					
B-Tough™ C2r	Epoxy functional toughening agent with no solvent added	Reactive, easy to use toughening agent for excellent impact strength, combines flexibility with hardness and brings good chemical resistance	Coating application based on solid and liquid epoxy resins with zero to low solvent	Liquid	21%

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Dimer Diamines for Epoxy and Polyamide Coatings

Epoxy coatings are facing more stringent regulation to reduce volatile organic components and must pass higher quality standards to extend the lifetime of coatings under severe conditions to reduce costs and maintenance work. Priamine™ 1071 product was developed to overcome these challenges. This product can be incorporated as main curative or co-hardener to allow for the formulation of high solid, low(er) solvent epoxy coatings with excellent film properties.

Priamine 1071 dimer diamines brings enhanced flexibility to the epoxy coatings with good hydrophobic and chemical barrier properties. It finds its use in epoxy systems for marine and offshore coatings, heavy duty industrial coatings and protective coatings for pipelines and concrete flooring.

Priamine 1074 a low viscous dimer diamine building block is also available. This product can be used as a building block in polyamide coatings to enhance flexibility and improve the durability of the coating. The product can also be used as flexible chain extender in PU to bring water repellency and flexibility.

PRODUCT	CHEMICAL DESCRIPTION	BENEFIT	APPLICATION / FUNCTION	FORM AT 25°C	RENEWABLE CARBON◊
Toughening agents					
Priamine™ 1071	Dimer diamine (Higher functional)	Low viscosity curing agent offering enhanced flexibility to reduce crack and increase impact resistance. It offers excellent moisture barrier and chemical resistance protection	Low to zero solvent, high solid resin content for coatings	Liquid	100%
Priamine™ 1073	Dimer diamine	Low viscosity hardener that offers reduced brittleness, enhanced moisture protection and good adhesion to substrates in polyurea applications	Polyurea coatings with enhanced protective properties	Liquid	100%
Priamine™ 1074	Dimer diamine 99%	Low viscosity building block offering high flexibility, moisture repellency and adhesion to plastics in polyamides	Polyamide coatings with higher flexibility and hydrophobicity	Liquid	100%

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Speciality Dimer Fatty Acids and Dimer Diols in Epoxy, Polyester, Polyurethane and Polyamide Coatings

Pripol™ dimer fatty acid and dimer diol are used as monomers in a wide range of coating resins to bring flexibility, water barrier properties and improved adhesion to a broad range of substrates.

The flexible nature of these materials prevents shrinkage and brings relief of stress, which is especially of interest for cross-linked systems such as epoxies and radiation cured coatings.

TRADENAME	CHEMICAL DESCRIPTION	BENEFIT	APPLICATION / FUNCTION	FORM AT 25°C	RENEWABLE CARBON◊
Dimer Acids					
Pripol™ 1009	Hydrogenated, distilled dimer acid (98%)	Very high purity building block for enhanced mechanical performance, offering water repellency, flexibility, thermo-oxidative stability and excellent hydrolysis and chemical resistance	Polyester, polyurethane epoxy, UV radiation curing and polyamide resin modification	Liquid	100%
Pripol™ 1006	Hydrogenated, distilled dimer acid (95%)	Good colour and colour stable high purity (dimer) content building block bringing water repellency, flexibility, thermo-oxidative stability and excellent hydrolysis and chemical resistance	Polyester, polyurethane epoxy, UV radiation curing and polyamide resin modification	Liquid	100%
Pripol™ 1010 VEG	Hydrogenated, distilled dimer acid (94%)	Low colour building block with excellent protective properties. Offering water repellency, flexibility to avoid deformation and good thermo-oxidative stability. Good pigment wetting properties and offering superior mechanical properties to formulations	Polyester, polyurethane, epoxy, and polyamide	Liquid	100%
Pripol™ 1013	Distilled dimer acid (95%)	High purity building block offering water repellency, flexibility and excellent hydrolysis and chemical resistance. Allows for higher MW resins	Epoxy, polyurethane, polyester, and polyamide resin modification	Liquid	100%
Pripol™ 1017	Dimer acid (75%)	Brings flexibility, adhesion, pigment wetting and compatibility	Epoxy, polyester, polyamide resin modification	Liquid	100%
Pripol™ 1025	Hydrogenated dimer acid (75%)	Colour stable building block. Provides water repellency, flexibility, thermo-oxidative stability and excellent hydrolysis and chemical resistance	Epoxy, polyurethane, polyester, UV radiation curing and polyamide resin modification	Liquid	100%
Pripol™ 1040	Trimer acid (78%)	Brings extreme water repellency, corrosion inhibition, flexibility, and good compatibility with other low polarity materials	Epoxy and polyamide resin modification	Liquid	100%
100% Bio-based* fatty acid					
Prisorine™ 3501	Isostearic acid	Excellent colour and thermo-oxidative stability	Short oil alkyds and polyamides for automotive and industrial coatings	Liquid	100%
Dimer diol					
Pripol™ 2030	Dimer diol (97%)	Low viscous building block offering enhanced flexibility to reduce crack and impact resistance. It offers flexibility, excellent thermo-oxidative stability, high hydrolysis and chemical resistance	Indoor and outdoor polyurethane coatings	Liquid	100%
Pripol™ 2033	Dimer diol (97%)	Low viscous building block offering enhanced flexibility to reduce crack and impact resistance. It offers excellent moisture barrier and chemical resistance protection	Indoor and outdoor polyurethane coatings	Liquid	100%
Pripol™ 2043	Dimer diol (81%)	Low viscous building block with increased functionality (2:2) to improve crosslinking, adhesion and chemical resistance. It provides excellent blocking resistance in ink resin formulations	Indoor and outdoor polyurethane coatings, ink resins	Liquid	100%

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Further Information

Cargill Bioindustrial sales and distribution are coordinated through an extensive worldwide network of technical and commercial experts. For further information or guidance please contact us:

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