Product Guide for Adhesives

Your Product Guide to Formulate Smarter Adhesives & Sealants

Cargill™

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Flexible, tough, moisture repellent, and more sustainable than petroleum-based products, the Cargill™ specialty bio-based* building blocks profile offers a wide range of properties, benefits, and choice for adhesive and sealant formulations, whatever the application.

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

*According to ASTM D6866 and EN 16640

Specialty Dimer Fatty Acids, Dimer Diol and Specialty Linear Di-acid for Polyester, Polyurethane and Polyamide Adhesives & Sealants

Cargill™ Pripol™ dimer fatty acid and dimer diol are used as monomers in adhesives to bring flexibility, water barrier properties and improved adhesion to a broad range of substrates, including plastics and metal. The flexible nature of these materials prevents shrinkage and brings relief of stress, which is especially interesting for cross-linked systems such as epoxies and radiation cured adhesives. Cargill™ Priacid™ azelaic acid is used to formulate or modify adhesives to enhance mechanical properties, water barrier properties and flexibility.

TRADENAME	CHEMICAL DESCRIPTION	BENEFIT	APPLICATION / FUNCTION	FORM AT 25°C	BIO-BASED CONTENT*
Specialty Dimer Fatty Acids					
Pripol™ 1013	Distilled dimer acid	High purity building block offering water repellency, flexibility and excellent hydrolysis and chemical resistance	Epoxy, polyurethane, polyester and polyamide adhesives monomer	Liquid	100%
Pripol™ 1006	Hydrogenated, distilled dimer acid (97%)	Good color and color stable high purity building block bringing water repellency, flexibility, thermo-oxidative stability and excellent hydrolysis and chemical resistance	Epoxy, polyurethane, polyester, UV radiation curing and polyamide adhesives monomer	Liquid	100%
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	Epoxy, polyurethane, polyester, UV radiation curing and polyamide adhesives monomer	Liquid	100%
Pripol™ 1010 VEG	Hydrogenated, distilled dimer acid (97%)	Lower viscous, high purity building block with good color and color stability. Provides water repellency, flexibility, thermo-oxidative stability and excellent hydrolysis and chemical resistance	Epoxy, polyurethane, polyester, UV radiation curing and polyamide adhesives monomer	Liquid	100%
Pripol™ 1025	Hydrogenated dimer acid (97%)	Color stable building block. Provides water repellency, flexibility, thermo-oxidative stability and excellent hydrolysis and chemical resistance	Epoxy, polyurethane, polyester, UV radiation curing and polyamide adhesives monomer	Liquid	100%
Dimer Diol					
Pripol™ 2033	Dimer diol fully amorphous	Good color and color stable diol providing outstanding hydrolysis/chemical resistance, water repellency, flexibility, and thermo-oxidative stability	Polyurethane adhesives chain extender	Liquid	100%
Specialty Linear Di-acid					
Priacid™ A95	Azelaic acid min 95%	High purity building block to enhance mechanical properties as elongation and strength. Provides moisture protection, good hydrolytic stability and low color	Polyurethane, polyester and polyamide (hotmelt) adhesives monomer	Flakes	100%

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Food contact statements are available upon request with specific details, including conditions of use and restrictions.

Bio-based* Polyester Polyols in Adhesives & Sealants

The Cargill™ Priplast™ range of polyester polyols offers flexibility to the resin and the hydrocarbon character imparts excellent water repellency. The polyol can be built into the polyurethane by reacting with isocyanates.

The Priplast polyester polyols 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

TRADENAME	CHEMICAL DESCRIPTION	BENEFIT	APPLICATION / FUNCTION	FORM AT 25°C	MOLECULAR WEIGHT (MW)	BIO-BASED CONTENT*
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™ 3172	Semi-crystalline polyester polyol	Polyol providing excellent hydrolytic resistance and versatile strong adhesion	PU and PU dispersions for flexible substrates, wood, metal or plastic	Waxy solid	3000	39%
Priplast™ 1837	Amorphous polyester polyol	Lower viscous polyol providing hydrophobicity and flexibility	PU adhesives with flexibility; room temperature flow	Liquid	1000	92%
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™ 3196	Amorphous polyester polyol	Polyol providing extremely high hydrophobicity, excellent durability and good compatibility with low polar components and polymers	PU systems for extreme moisture protection and adhesion to plastics; compatible with low polar components	Liquid	3000	83%
Priplast™ 3190	Amorphous polyester polyol	Polyol with good compatibility with polyether and polyester polyols and good hydrophobicity	PU adhesives and sealants with very low temperature flexibility	Liquid	2000	41%
Priplast™ 3187	Amorphous polyester polyol	Polyol providing high flexibility at very low temperatures, extreme hydrophobicity, and good compatibility to low polar components and polymers	PU systems for moisture protection and adhesion to plastics; compatible with low polar components	Liquid	2000	84%
Priplast™ 3186	Amorphous polyester polyol	Polyol for cross-linked PU providing excellent hydrolytic stability and water repellency	2K PU adhesives and sealants for moisture protection	Liquid	1700	86%
Priplast™ F4	Amorphous polyester polyol	Versatile polyol that provides perfect combination of flexibility and chemical resistance. Increased crosslinking and high moisture resistance.	PU systems, can be used alone or as a co-polyol	Liquid	1070	59%

TRADENAME	CHEMICAL DESCRIPTION	BENEFIT	FORM AT 25°C	MOLECULAR WEIGHT (MW)	BIO-BASED CONTENT*
100% Bio-based* Polyester Polyols					
Priplast™ 3237	Amorphous polyester polyol	100% bio-based* polyol providing hydrophobicity and flexibility	Liquid	1000	100%
Priplast™ 3238	Amorphous polyester polyol	Versatile polyol, 100% bio-based*, providing extreme hydrophobicity, excellent color and durability, no strain hardening	Liquid	2000	100%
Priplast™ 3239	Amorphous polyester	100% bio-based* polyol providing hydrophobicity, durability and good compatibility with low polar components. High flexibility at low temperatures.	Viscous liquid	3000	100%
Priplast™ 3291	Semi-crystalline polyester polyol	100% bio-based* polyol providing excellent water resistance, superior surface hardness, and outstanding mechanical properties	Waxy solid	1000	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	Waxy solid	2000	100%
Priplast™ 3295	Semi-crystalline polyester polyol	100% bio-based* polyol providing excellent hydrolytic resistance and versatile strong adhesion	Waxy solid	3000	100%

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Dimer Diamines in Adhesives & Sealants

The Cargill™ Priamine™ dimer diamine product range has been designed to offer unique benefits to polyamide hotmelt adhesives such as reduction of brittleness, higher flexibility and moisture protection, that extend to the final application. Modifying polyamide adhesives with Priamine dimer diamines creates formulation freedom in the choice of diacids used. This gives formulators the flexibility to adjust the melting point. The melting point can easily be increased by 10-15°C, allowing higher temperature exposure of the end product without compromise on performance.

Priamine dimer diamines is available in different grades, carefully selected on purity and functionality.

TRADENAME	CHEMICAL DESCRIPTION	BENEFIT	APPLICATION / FUNCTION	FORM AT 25°C	BIO-BASED CONTENT*
Specialty Dimer Fatty Acids					
Priamine™ 1073	Dimer diamine >85%	Low viscous building block for use in polyamides and epoxy adhesives	Curing additive for epoxy adhesives to reduce brittleness and enhance moisture protection	Liquid	100%
Priamine™ 1074	Dimer diamine 99%	Low viscous building block offering high flexibility, moisture repellency and adhesion to plastics in polyamides	Polyamide hotmelt adhesives with higher flexibility and hydrophobicity	Liquid	100%
Priamine™ 1075	Dimer diamine >99%	High purity, low viscous building block offering high flexibility, moisture repellency and adhesion to plastic; improving mechanical properties for use in high molecular weight polyamides	Low color polyamide hotmelt adhesives with higher flexibility, enhanced mechanical properties and hydrophobicity	Liquid	100%

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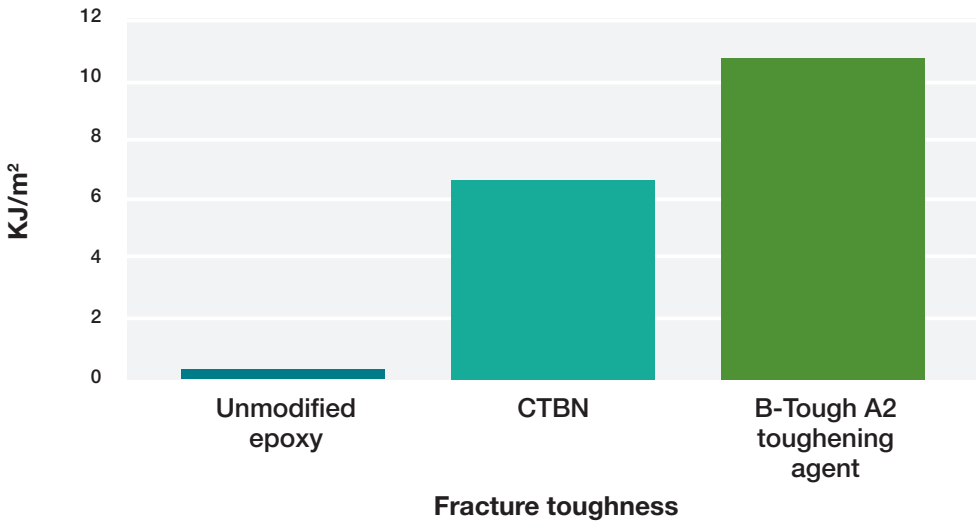
Toughening Agents in Adhesives & Sealants

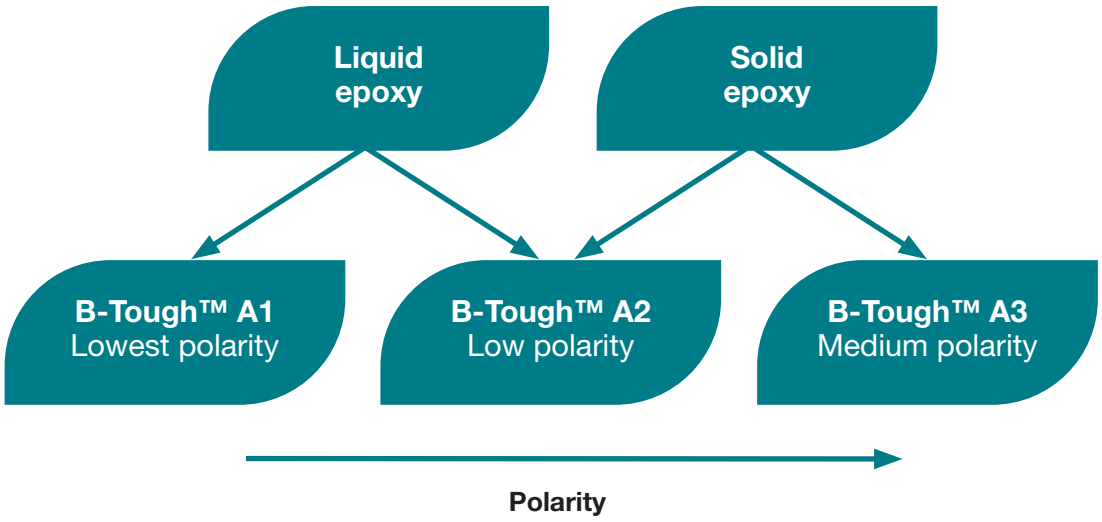
Epoxy adhesives are versatile in use because of their excellent bond strength and high chemical and heat resistance, however the rigid structure can pose issues when stress in the system cannot be absorbed. Toughening agents have been introduced to overcome this issue while maintaining rigidity.

Cargill™ B-Tough™ A toughening agents are epoxy functional and outperform conventional toughening technology on fracture toughness.



B-Tough A toughening agent series includes three different grades available in varying polarities to match the epoxy system.

Each epoxy adhesive formulation is different and therefore Cargill has developed the following guide to quickly determine the best toughening agent/resin type combination that can yield the best toughening result.



TRADENAME	CHEMICAL DESCRIPTION	BENEFIT	APPLICATION / FUNCTION	FORM AT 25°C	BIO-BASED CONTENT*
Toughening Agents					
B-Tough™ A1	Epoxy functional toughening additive	Reactive toughening agent for excellent stability, low moisture diffusion, and easy handling. Lowest polarity grade	Structural epoxy adhesives from liquid resin with impact resistance	Viscous liquid	29%
B-Tough™ A2	Epoxy functional toughening additive	Reactive toughening agent for excellent stability, low moisture diffusion, and easy handling. Low polarity grade	Structural epoxy adhesives from liquid and solid resin with impact resistance	Viscous liquid	18%
B-Tough™ A3	Epoxy functional toughening additive	Reactive toughening agent for excellent stability, low moisture diffusion, and easy handling. Medium polarity grade	Structural epoxy adhesives from solid resin with impact resistance	Viscous liquid	15%

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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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