

HYPERLAST™ and DIPRANE™ Elastomers

Material handling and industrial engineering



Formulated Systems



INTRODUCTION

Dow Formulated Systems, a global business unit of The Dow Chemical Company, is an industry leader in the development and formulation of fully-formulated polyurethane and epoxy systems, focused on providing its customers worldwide with innovative, tailor-made solutions through a global network of systems houses.

Dow Formulated Systems provides application development and processing support to grow your business, with a range of innovative solutions for the most demanding industrial engineering applications. With more than 40 years experience in the development of polyurethane elastomers our products are used internationally for wear and tear protection in automotive, mining, mineral extraction, material handling, offshore and industrial engineering applications.

Acting as interpreter between chemist and engineer, we adapt and use the versatility of chemistry to provide practical solutions to industrial applications. By choosing Dow Formulated Systems, you'll have access to reliable service, creative polymer design, and the vast resources of one of the world's largest and most respected chemical companies.

innovatio

POLYURETHANE SYSTEMS

HYPERLAST™ and DIPRANE™ prepolymer and quasi prepolymer systems have been developed to give improved processing characteristics and maximize the performance of the resulting elastomer. The prepolymers and systems have been developed from a variety of polyol backbones and isocyanates.

HYPERLAST prepolymers and systems are predominantly based on polyether chemistry. They yield elastomers with excellent dynamic performance and toughness, through to polyether polyols which offer very good all round performance - especially in cold and wet environments.

DIPRANE prepolymers and systems are based on polyester or polycaprolactone chemistry to yield elastomers that are suitable in applications requiring a high degree of wear and tear resistance. Typical examples include ore and mineral extraction processes. They can also be tailored to provide elastomers capable of excellent solvent resistance or anti-static properties.





FULL PREPOLYMERS

HYPERLAST™ prepolymers

HYPERLAST T prepolymers are derived from the reaction of polyether polyols with TDI.

The prepolymers that are based on polyoxytetramethylene glycol (PTMEG) polyols take full advantage of its strength in:

- Dynamic performance
- Resilience
- Hydrolysis resistance
- Low temperature performance

This class of prepolymers is ideal for high speed/high load bearing applications, and in environments where elastomers are exposed to moisture or low temperature, or a combination of both.

DIPRANE™ prepolymers

DIPRANE T and M prepolymers are derived from the reaction of polyester or polycaprolactone with TDI or MDI.

These tough and durable elastomers are designed to maximize resistance to:

- Wear
- Tear
- Flex fatigue
- Organic chemicals

This excellent dynamic performance makes them suitable for a range of applications such as wheels, rollers and mining equipment - typically screens, scrapers and conveyors.

PERFORMANCE TDI and MDI SYSTEMS

HYPERLAST™ polyether and DIPRANE™ polyester based prepolymer systems are specifically formulated to offer excellent dynamic and mechanical performance with the advantages of tolerance to processing conditions and ratio.

HYPERLAST T and DIPRANE T features guide

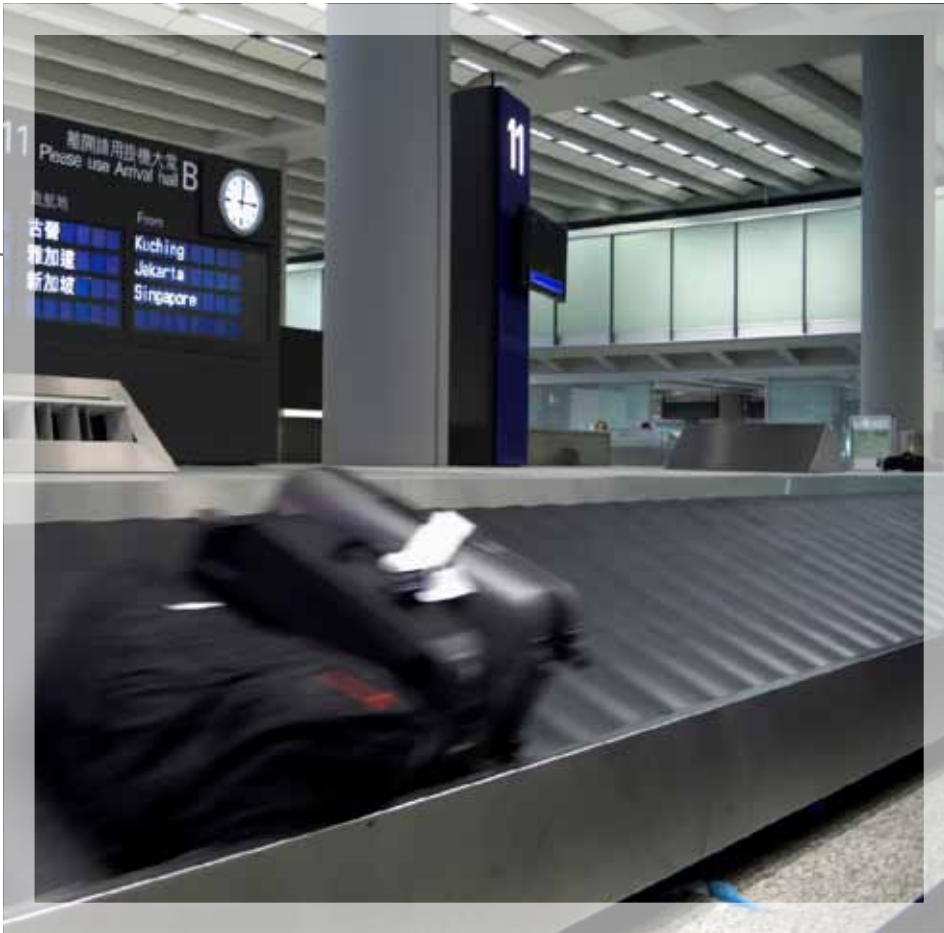
	HYPERLAST T830 series	HYPERLAST T840 series	HYPERLAST T140 series	HYPERLAST T170 series	HYPERLAST T890 series	DIPRANE T950 series	DIPRANE T240 series
Hardness Shore A	75-95	75-95	75-70D	80	75-95	60-95	57-95
Ambient processing	⊙	⊙	⊙	⊙	⊙	⊙	⊙
Hand process	☆☆☆	☆☆☆	☆☆	☆☆	☆☆☆	☆☆	☆
Machine process	☆☆☆	☆☆☆	☆☆☆	☆☆☆	☆☆☆	☆☆☆	☆☆☆
Dynamic Performance	☆☆	☆☆	☆☆☆	☆☆☆	☆☆	☆☆☆	☆☆
Solvent resistance	⊙	⊙	⊙	⊙	☆	☆☆	☆☆
Fire retardant	⊙	⊙	⊙	⊙	⊙	⊙	⊙
Anti static	⊙	⊙	⊙	⊙	⊙	⊙	⊙
Low temperature flex	☆☆☆	☆☆☆	☆☆☆	☆☆☆	☆☆	☆☆	☆☆
Abrasion resistance	☆	☆	☆☆	☆☆	☆☆☆	☆☆☆	☆☆☆
Tear resistance	☆	☆☆	☆☆	☆☆	☆☆	☆☆☆	☆☆☆

Key Unsuitable Good Very Good Excellent
 ⊙ ☆ ☆☆ ☆☆☆

DIPRANE M features guide

	DIPRANE 80	DIPRANE 81	DIPRANE M540 SERIES	DIPRANE M550 series
Hardness Shore A	83	94	85-95	65-95
Ambient processing	⊙	⊙	⊙	⊙
Hand process	☆☆	☆☆	☆	☆
Machine process	☆☆☆	☆☆☆	☆☆☆	☆☆☆
Dynamic Performance	☆☆	☆☆	☆☆	☆☆☆
Solvent resistance	☆☆	☆☆	☆☆	☆☆
Fire retardant	⊙	⊙	⊙	⊙
Anti static	⊙	⊙	⊙	⊙
Low temperature flex	⊙	⊙	⊙	☆☆
Abrasion resistance	☆☆☆	☆☆☆	☆☆☆	☆☆☆

performance



QUASI PREPOLYMERS

Dow offers an extensive range of quasi prepolymer systems.

These polyurethane systems are based on MDI prepolymer technology, using polyether polyols for the HYPERLAST™ ranges and polyester polyols for the DIPRANE™ ranges.

A quasi prepolymer system can provide certain advantages over and above the more conventional full prepolymers by offering:

- Lower viscosity prepolymers and curatives
- Lower material temperature for processing
- Closer mix ratios
- Multi hardness elastomers from the same prepolymers

These systems can be tailored to meet specific solutions for a variety of engineering applications.

protection

HYPERLAST™ polyurethane systems

HYPERLAST quasi polyurethane systems based on polyether polyols can produce elastomers that offer the majority of benefits of full prepolymer versions with the processing advantages that quasi systems exhibit.

This type of elastomer has very good moisture tolerance and cold flexibility making it suitable for applications such as mineral handling (e.g. abrasive slurries), offshore and marine environments.

The following table provides an overview of the products.

HYPERLAST features guide

HYPERLAST	100	110	150	200
Hardness	60-95A	60-95A	55A-55D	35-95A
Ambient processing	⊙	⊙	⊙	★ ★
Hand process	★	★	★ ★	★ ★ ★
Machine process	★ ★ ★	★ ★ ★	★ ★ ★	★ ★ ★
3 component available	Yes	Yes	Yes	⊙
Solvent resistance	⊙	⊙	⊙	⊙
Fire retardant	⊙	⊙	⊙	⊙
Anti static	⊙	⊙	⊙	⊙
Low temperature flex	★ ★	★ ★	★ ★	★ ★
Abrasion resistance	★ ★	★ ★	★ ★ ★	★
Tear resistance	★ ★	★ ★	★ ★	★
Dynamic/resilient	★ ★ ★	★ ★ ★	★ ★ ★	★ ★
Hydrolysis resistant	★ ★ ★	★ ★ ★	★ ★ ★	★ ★ ★
Key	Unsuitable	Good	Very Good	Excellent
	⊙	★	★ ★	★ ★ ★

The above table is not extensive but gives an indication of the various series available. Dow sales and technical teams will work with you to select and adapt the materials to meet your specific requirements.





QUASI PREPOLYMERS

DIPRANE polyurethane systems based on polyester polyols produce elastomers that are mechanically tough, durable and have a good degree of chemical resistance. This makes them ideal for a variety of material and mineral handling applications such as pipeline pigs, mining screens, rollers, scrapers and squeegees.



versatility

DIPRANE™ polyurethane systems

DIPRANE features guide

DIPRANE	30	31	53	54	57	58	60	64
Hardness Shore A	55-95	45-90	25-95	25-95	45-95	50-90	75-90	70-90
Ambient processing	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙
Hand process	★	★	★	★★	★★	★	⊙	⊙
Machine process	★★★	★★★	★★★	★★★	★★★	★★★	★★★	★★★
3 component available	★	★	★★★	★★★	★★★	★★★	★	★★★
Solvent resistance	★★★	★★	★	★	★	★	★	★
Fire retardant	⊙	⊙	⊙	⊙	⊙	⊙	★★	★★
Anti static	⊙	⊙	⊙	⊙	⊙	⊙	★★★	★★
Low temperature flex	★	★	★	★	★	★	★	★
Abrasion resistance	★	★★	★★★	★★	★★★	★★★	★★	★★
Tear resistance	★	★★	★★	★★	★★	★★	★	★★

Key Unsuitable Good Very Good Excellent
 ⊙ ★ ★★ ★★★

The above table is not extensive but gives an indication of the various series available. Dow sales and technical teams will work with you to select and adapt the materials to meet your specific requirements.





Set your business apart with a partner you can count on

Offering a broad range of customized products and systems for many applications, Dow can help you stay competitive in today's fast-paced market environment.

In conclusion

We have described briefly the ranges of prepolymer and quasi prepolymer systems that have been developed to meet your engineering needs.

As part of The Dow Chemical Company we have local Dow technical people ready to help you.

So put your skates on and contact us – see back page for details.

commitment world

Dow Formulated Systems Houses



wide



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