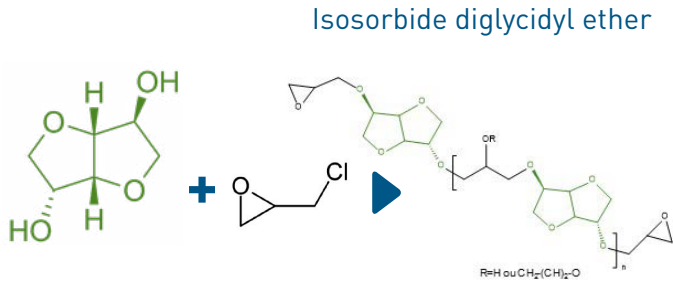


ISOSORBIDE IN EPOXY

Synthesis



Typical properties

	Isosorbide diglycidyl ether
Viscosity at 25°C, mPa.s	4500-6500
Epoxide Equivalent Weight, g/eq	170-190
Water solubility	Soluble at 20°C
Density	1.3

ADHESION PROPERTIES with IPDA : isophorone diamine

Bending resistant

Conical mandrel Test - ASTM D 522



Bisphenol A diglycidyl ether + Isophorone diamine



Isosorbide diglycidyl ether + Isophorone diamine

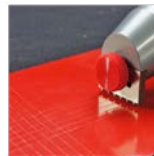
Isosorbide diglycidyl ether has a very good elongation

Good adhesion

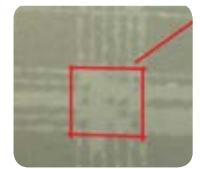
Practical adhesion Test - ISO 2409

Isosorbide diglycidyl ether + Isophorone diamine

Bisphenol A diglycidyl ether + Isophorone diamine



Cross cuts + tape peeling



ISO score	0	1	2	3	4	5
Surface Aspect						
	(-) Good					(+) Poor

Isosorbide diglycidyl ether has an excellent adhesion resistance with the cross cutter test

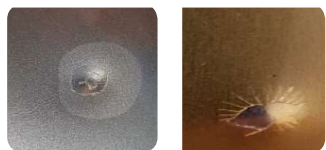
IMPACT RESISTANCE



Impact resistant

Impact Test - ISO 6272

Face Reverse



Bisphenol A diglycidyl ether + Isophorone diamine

Face Reverse

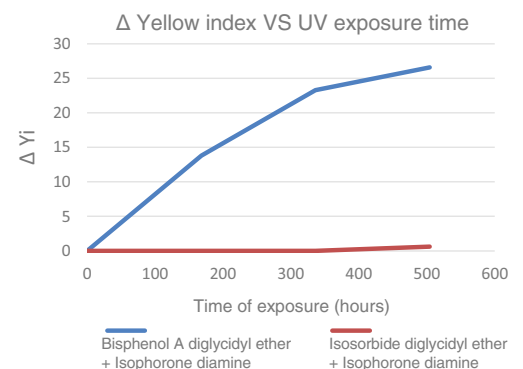


Isosorbide diglycidyl ether + Isophorone diamine

Epoxy	Hardener	K1c [Mpa.m ^{1/2}]
Isosorbide diglycidyl ether	Isophorone diamine	1.3 (0.15)
DER 332	Isophorone diamine	0.74 (0.05)
80% DER 332 + 20% Isosorbide diglycidyl ether	Isophorone diamine	0.85 (0.04)
Triglycidyl ether of trimethylol propane	Isophorone diamine	1.02 (0.07)
80% triglycidyl ether of trimethylol propane + 20% Isosorbide diglycidyl ether	Isophorone diamine	1.15 (0.08)

Toughness improvement versus Bisphenol A diglycidyl ether and triglycidyl ether of trimethylol propane

UV RESISTANCE



Bisphenol A diglycidyl ether + Isophorone diamine

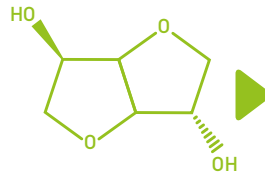


Isosorbide diglycidyl ether + Isophorone diamine

UV stability improvement with Isosorbide diglycidyl ether

ISOSORBIDE IN PU COATING

- Benchmark 1.4 Butane diol / Isosorbide

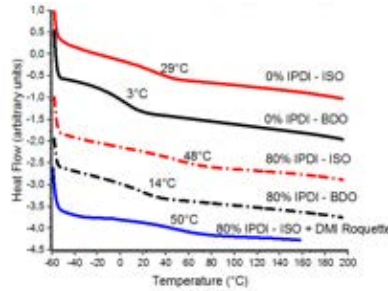


Isosorbide

THERMAL RESISTANCE



Thermal resistant



Use of Isosorbide allow to have a Tg increase of 20°C!

ADHESION PROPERTIES



Bending resistant



With 1.4 Butane diol



With isosorbide



Good adhesion

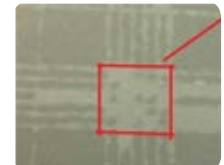
Practical adhesion Test – ISO 2409

ISO-based

1.4 Butane diol-based



Cross cuts + tape peeling



ISO score	0	1	2	3	4	5
Surface Aspect						
	(-) Good					(+) Poor

IMPACT RESISTANCE



Impact resistant

Revealing : aqueous Solution of Copper sulfate in HCl (1M), tamponed over the coating

Butane diol based



ISO-based



Red coloration, indicating Copper oxidation => coating failure

GENERAL IMPROVEMENTS IN COATINGS BY USING POLYSORB® ISOSORBIDE



Improved aspect



Adhesion



Scratch & Impact resistant



UV resistant

TO ORDER NOW
www.roquette.com/contact-us

FOR MORE INFORMATION
www.roquette.com

© Registered trademark of the company Roquette - © Roquette Frères S.A. - IN_PM_ISOSORBIDE-TFS-02-1e/2019 - EU

ROQUETTE
Offering the best of nature™