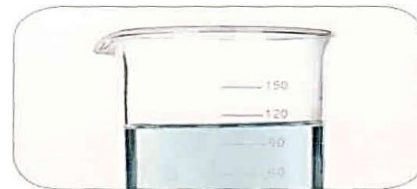
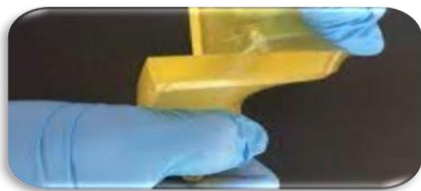


Epoxy Elastomer Hybrid Resin

Epoxy Polyurethane Hybrid Network **EPU**

Silicone Epoxy Block Copolymer **SE**

Epoxidized Polysulfide **EPS**



introduction

Epoxy resin is well-known for its excellent adhesion and chemical resistance properties amongst several industries. However, it cannot be used to make elastomer products with high flexibility.

The German Chemowest technology on the other hand are Hybrid epoxy resins with elastomeric polymers such as silicone, polysulfide, and polyurethane; with combined advantages/abilities of epoxy and elastomer polymers by means of their chemical structure. This hybrid resin has been specifically developed for use in high performance adhesives, sealants, waterproofing, anti- corrosion industrial coatings, industrial and sports flooring and composites.

These resins can be cured with almost any epoxy resin curing agents such as different types of Aliphatic or cycloaliphatic amines and amides – acid anhydrides and etc. The hardness of the systems with an outstanding combination of properties can be designed between shore-A30 and shore-D70, depending on the curing agent and their elongating and adhesion on most substrates. All products made with these polymers may also be used as a good alternative to two-component polyurethane and polysulfide products along with usage on wet surface

APPLICATION

Adhesive, Sealant
Flexible and impact resistance Flooring compound
Waterproofing, Tank lining, Bullet Adhesives
Concrete repair, Steel structural coating
Chemical resistance coating, Composite parts

EPU – Group



EPU group are liquid solvent free epoxy resin/Polyurethane hybrid network by medium molecular weight and low to medium viscosity with combined advantage /abilites of epoxy and polyurethane by means of their chemical structure

Properties

Grade	Appearance	Viscosity (25°C -cPs)	Density (g/cm ³)	Volatile Max%	Color (Gardner)	Odor	Storage life (months)
EPU40	Colorless transparent	1000-2000	1.12	0.5-2	1	mild	12
EPU80	Colorless transparent	2500-3500	1.12	0.5-2	1	mild	12
EPU1100	Colorless transparent	10000-12000	1.12	0.5-2	1	mild	12

Mixing Ratio *phr* with different curing agents and different results

Hardener Grade (100gr)	F205 (gr)	Potlife (Min)	Hardness (shore)	TETA (gr)	Potlife (Min)	Hardness (shore)	IPDA	Potlife (Min)	Hardness (shore)
EPU40	50	60	A40	15	15	A90	x	x	x
EPU80	55	60	A80	15	15	D50	25	60	D60
EPU1100	60	60	D40	15	15	D70	25	60	D75

EPU – Group

EPU – Group

Application

- **EPU group** are used to formulate ,high performance tough flexible to high elastic Coatings Sealants and Composite being used in construction ,aerospace, marine and electronic applications
- Crack bridging protective coating for Reinforced concrete surface
- Flexible flooring under vibration
- Anti – corrosion coating
- Encapsulating and potting compound
- Flexible and impact resistance high performance adhesives
- Waterproofing and crack – isolation membran
- Manhol,pipe,sewage and effluent plant lining
- can be used as a safety sealant



Benefit

- Hardness between shore A40 and D70 depending on the curing agent used
- Good elongation
- High mechanical stability
- With static crack – bridging ability
- Flexible and high durability
- Excellent adhesive properties,allowing for application on wide variety of substrates(Humid and dry treatment areas)
- Does not support bacterial growth
- Resistant to thermal shock

SE – Group



SE group are epoxy functional dimethyl polysiloxane copolymer fluid

Properties

Grade	Appearance	Viscosity (25°C -cPs)	Density (g/cm ³)	Volatile Max%	Odor	Storage life (months)
SE 21A30	Milky liquid polymer	1000-2000	1.11	0.5-2	mild	12
SE350A70	Milky liquid polymer	35000	1.11	0.5-2	mild	12

Mixing Ratio phr with different curing agents and different results

Hardener Grade (100gr)	F205 (gr)	Potlife (Min)	Hardness (shore)	TETA (gr)	Potlife (Min)	Hardness (shore)	IPDA	Potlife (Min)	Hardness (shore)
SE 21A30	16	300	A30	8-10	60	A35	x	x	x
SE350A70	25-30	300	A70	12-15	35	A70	20-25	70	A70

SE – Group

Application

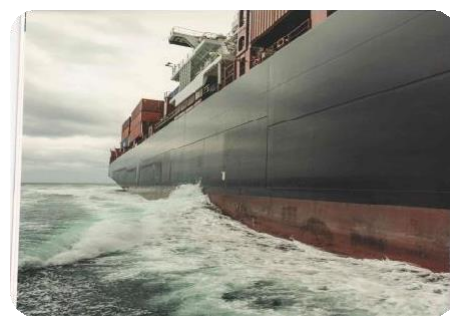
- **SE group** are use to formulate high performance elastomer and highly elastic sealants ,Adhesive ,coating and composite being in construction ,aerospace and electronic application
- High performance cable harness assemblies
- Seamless elastic waterproof membrane
- Expansion Joints for roadways,slabs,airport runways,taxiways,ring seals (ie:manhole chimney seals ,pipe joints,etc)
- Elastic bonding ,joining/electronics applications
- A binding agent in high- quality coating systems for printed circuit boards
- Potting and casting compound for electronic components



Benefit

- Elastomeric – able to bridge cracks
- Able to take foottraffic when cured
- Providing exceptional adhesion,resiliency,toughness and durability
- Highly resilient excellent recovery characteristic
- Provide permanent and uniform watertight seal
- Prevent uncontrolled cracking by allowing expansion and contraction during temperature change
- Stays flexible and won't become brittle or crack due to ultraviolet exposure
- Resist abrasion ,weathering and moisture ,elevated temperature will not cause discoloration
- Resists mild acids,alkalis and petroleum products
- Resists effects of sunlight,rain,snow,ozone,aging,shrink age and cyclic temperature changes even after years of service
- Contain no volatile solvents -VOC free
- Excellent impact resistance
- High flexibility

EPS – Group



EPS group are epoxy – terminated medium to high viscosity liquid polysulfide polymer to use in formulation alone or together with other liquid solvent free and solvent based epoxy resins to increase flexibility, adhesion and impact resistance

Properties

Grade	Appearance	Viscosity (25°C -cPs)	EEW g/eq	Density (g/cm ³)	Volatile Max%	Odor	Storage life (months)
EPS-130	Clear amber Light yellow	13000	335	1.15	0.5	mild	12
EPS-700	Clear amber Light yellow	70000	335	1.15	0.5	mild	12

The results of the different (EPS) ratio from 0 to 100 WT % in a general Epoxy resin (EEW-190)

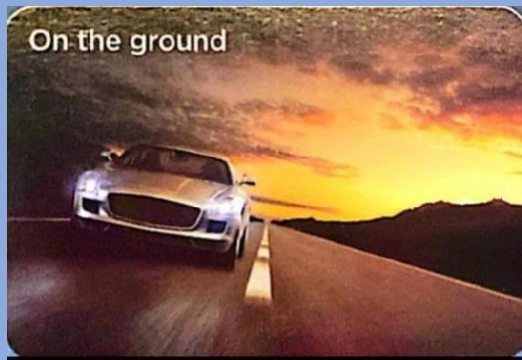
EPS-Epoxy	0-100	20-80	40-60	60-40	80-20	100-0
EEW-g/eq	190	208	229.8	256.65	290.64	335
Curing agent F205(phr)	54.7	50	45.7	40.5	35.8	31
Hardness (shoreD)	84	83	81	60	25	20
Tg (°C)	92.58	118.91	98.42	90.09	35.27	47-78
Elongation at break%	None	2	6	40	65	80
Lap shear strength(psi)	704±111	1137±86	1563±121	1076±124	727±83	202±9

- Lap shear strength were carried out according to ASTM-D1002 on Aluminum panels.

Application

EPS group are used for manufacturing of flexible ,impact – resistant ,crack bridging and corrosion Resistant Coating,Adhesive,Sealant and Composite being used in industrial, marin and protective Coatings,Casting and tooling and high performance adhesives and sealant formulations

EPS – Group



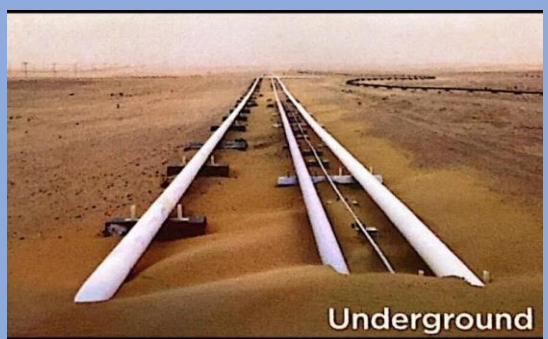
On the ground



In the sky



Underwater



Underground

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