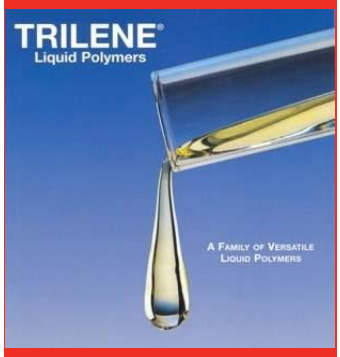
LION ELASTOMERS

A leading producer of EPDM polymers and largest producer of hot emulsion SBR polymers globally.

Lion pioneered the use of EPDM in specialty applications leading to the development of Trilene® Liquid EPDM polymers for coatings.



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TRILENE® LIQUID EPDM FOR COATINGS

ADHESION, DURABILITY, PERFORMANCE

Trilene®65, a low molecular weight EPDM terpolymer, provides coatings formulators with strong adhesion to a variety of substrates, excellent durability under the harshest environmental conditions, and superior impact resistance and flexibility at low temperatures. Trilene®65 can be formulated into high solids, VOC compliant coatings that have the performance of traditional EPDM materials.

TRILENE® 65 BENEFITS

- **Strong adhesion to most substrates**
- **Superior toughness, and impact resistance, even at low temperatures**
- **Resistance to ozone, UV, water and chemical degradation**
- **Hydrophobic with low surface energy**
- **Extremely low moisture vapor permeability**
- **Unique electrical properties**
- **Supports high filler and plasticizer loading**
- **Heat, UV and chemical crosslinking options**

The durability and toughness of traditional EPDM is now available in a liquid form for coatings formulators

KEY APPLICATIONS

- **Roof Coatings**
- **Barrier coatings that provide air, water and chemical impermeability**
- **DTM applications in corrosive environments**
- **Electrically resistant or conductive coatings**
- **Extreme environment protective coating systems**
- **Marine applications**

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BASIC FORMULATIONS (wt. %)

Material	Peroxide-cured	UV-cured
Part A		
Trilene® 65 liquid EPDM polymer	32.92	28.37
Liquid polybutadiene co-agent	2.74	2.36
Triacrylate co-agent	0.69	
Saturated hydrocarbon solvent (e.g. mineral spirits, naphtha, …)	20.67	16.55
Exempted solvent(s)	10.00	21.28
Dispersant	1.10	0.70
TiO_2 pigment	8.23	9.46
Silica filler (surface treated)		9.46
Kaolin clay filler	16.46	
Cobalt-based drier	0.27	
Zinc-based drier	0.27	
Photoinitiator (e.g. Omnirad® 819 from IGM Resins)		2.36
Toluene co-solvent (for photoinitiator)		9.46
Part B		
Peroxide curative (e.g. Peroxan® PIN from Pergan)	1.65	
Saturated hydrocarbon solvent (e.g. mineral spirits, naphtha, …)	5.00	
Total	**100**	**100**

WET PAINT CHARACTERISTICS

Property	Test standard	Peroxide-cured	UV-cured*
Solids content (wt. %)	ASTM D3960	64.3%	52.7%
VOC (g/L)	ASTM D3960	243	247
Viscosity (Brookfield, cP @ 25˚C)	ASTM D2196	4600	5400
Specific gravity	ASTM D1475	0.946	0.955
Density (lb/gal)	ASTM D1475	7.89	7.97
Shelf life (@ 25˚C)		> 1 year	> 1 year
APPLICATION DETAILS			
Suggested application methods		Squeegee, roller, brush, airless spray	
Optimal airless spray conditions		0.519 tip, > 50 psig, mineral spirit thinner as needed	
Recommended film thickness (DFT, for roofing)		20 mil	20 mil
Coverage (sq-ft/gal, roofing)	Calculated	49	40
Pot life		> 1 year	na
Sagging resistance	ASTM D4400	> 25 mil	> 25 mil
Dry-to-touch (25˚C, based on 20 mil DFT)	ASTM D1640	3-4 hours	30-60 min
Fully dry (25˚C, based on 20 mil DFT)	ASTM D1640	7 days	7 days

* UV cured system under typical sunshine

COATING PERFORMANCE

Property	Test standard	Peroxide-cured	UV-cured*
Tensile strength (Mpa)	ASTM D412	7.24	6.55
Elongation at break (%)	ASTM D412	110	130
Hardness (Shore A)	ASTM D2240	40	35
Abrasion resistance (weight loss in mg, 500 g load @ 50 cycles)	ASTM D4060	4.4 (good)	4.9 (good)
Scratch resistance (g, cut from a weight load)	ASTM D7027	> 1500 (excellent)	> 1500 (excellent)
Impact resistance (2 lb, 0.25" dia.,20 inch fall)	ASTM D2794	Pass	Pass
Surface contact angle with water (degree)	ASTM D7490	92	91
Moisture vapor transmission resistance (MVTR) (perm)	ASTM E96	0.10	0.10
Ponding water resistance (surface effects after 30 days)	ASTM D7281	Pass	Pass
Water immersion (defects & delamination after 30 days)	ASTM D870	Pass	Pass
Adhesion - cold rolled steel (Mpa)	ASTM D4541	15.2 (good)	13.6 (good)
Adhesion - aluminum (Mpa)	ASTM D4541	8.7 (OK)	8.7 (OK)
Adhesion - aged EPDM membrane (Mpa)	ASTM D4541	17.8 (very good)	16.9 (very good)
Adhesion - TPO membrane (Mpa)	ASTM D4541	6.3 (OK)	5.7 (OK)
Adhesion - KILZ®2 primer (Mpa)	ASTM D4541	16.9 (very good)	16.4 (very good)
Adhesion - Intersleek® 235 epoxy primer (Mpa)	ASTM D4541	13.8 (good)	12.9 (good)
Solar reflectance (fresh coating)	ASTM E903	0.77 (good)	0.76 (good)
QUV accelerated weathering (ΔE, 5000 hours)°	ASTM D4587	3.0 (OK)	6.1 (OK)
Salt fog corrosion (4 weeks)	ASTM D5894	Similar to epoxy (good)	Similar to epoxy (good)
Chemical resistance – acid (H_2SO_4 5%, 2 weeks, surface)	ASTM D6943	Pass	Pass
Chemical resistance – base (NaOH 5%, 2 weeks, surface)	ASTM D6943	Pass	Pass

* UV cured system under typical sunshine ° No added UV absorbers or antioxidants