

TP-SERIES PLASTICIZERS

TP-759® TP-90B® TP-95®

Hallstar's TP-Series of specialty ester plasticizers is well known for high performance in critical industrial applications. Hallstar is a leading global provider of specialty chemical solutions with decades of esterification experience. We take a collaborative approach to every engagement, delivering technical support, chemistry expertise and industry knowledge to help customers create and enhance next generation products.



TP-759®

Compatibility: AEM/ACM, ECO, HNBR, NBR

Uses: Automotive – hose and tubing, gaskets, transmission seals, molded and extruded parts, wire jacketing, high temperature applications

Description:

- High molecular weight, high polarity plasticizer that exhibits low volatility for high temperature applications
- Retains low temperature flexibility characteristics when subjected to high heat and hydrocarbons
- Compounds made with TP-759® retain their properties after heat aging

TP-90B®

Compatibility: CR, ECO, HNBR, NBR

Uses: Automotive – hose and tubing, gaskets, molded and extruded parts, shoes and boots, wire jacketing

Description:

- Highly compatible plasticizer designed to provide maximum low temperature flexibility in NBR
- Used only in moderate concentrations (20-30 PHR); functions without seriously degrading the rubber's physical characteristics
- Volatile, but very efficient

TP-95®

Compatibility: AEM/ACM, CR, ECO, NBR, PVA, PVB, PVC

Uses: Automotive – hose and tubing, gaskets, seals, molded and extruded parts, shoes and boots, wire jacketing, high temperature applications

Description:

- Low volatility general purpose plasticizer effective over a broad range of temperatures while providing excellent plasticizing efficiency
- Acceptable under FDA CFR 177.2600 (within migration limitation)
- Molecular weight and polarity is between TP-759® and TP-90B®

Technical test data on reverse.

TP-SERIES PLASTICIZERS TP-759® TP-90B® TP-95® (continued)

TEST DATA IN ETHYLENE ACRYLIC ELASTOMERS

	PLASTICIZER
	TP-759®
Processing Properties Viscosity and Curing Properties Mooney Viscosity @ 121°C	
Minimum Viscosity	22
t35, minutes	15.4
Oscillating Disc Rheometer @ 177°C	
M _L	6.5
M _H	46.7
t'c(90), minutes	6.9
1.25* tc(90), minutes	8.6
Original Physical Properties	
Tensile, Ultimate, MPa	14.2
Tensile, Ultimate, psi	2065
Elongation @ Break, %	205
Hardness, pts.	76
Low Temperature Brittleness, °C	-42
T _g , °C	-44
Air Oven, 168h @ 177°C	
Weight Change, %	-5.4
IRM 901 Oil, 1wk @ 150°C	
Volume Change, %	0.2
Weight Change, %	-1.2
IRM 903 Oil, 168h @ 150°C	
Volume Change, %	50
Weight Change, %	37
ASTM SF 105, 168h @ 150°C	
Volume Change, %	17
Weight Change, %	11
Transmission Fluid, 168h @ 150°C	
Volume Change, %	11
Weight Change, %	6
Formulation: Vamac G - 100.0 PHR, N-550 - 68.0, Naugard 445 - 2.0, Stearic Acid - 1.5, Armeen 18D - 0.5, Vanfre VAM - 1.0, Plasticizer - 20.0 Mill Addition: Vulcofac ACT 55 - 1.8, Diak 1 - 1.5	

TEST DATA IN MEDIUM ACRYLONITRILE ELASTOMERS

	PLASTICIZER	
	TP-95®	TP-90B®
Processing Properties Viscosity and Curing Properties Mooney Viscosity @ 121°C		
Minimum Viscosity	28.4	27.4
t35, minutes	5.5	4.4
Oscillating Disc Rheometer @ 170°C		
M _L	5.9	5.8
M _H	48.2	47.6
t _{s2} , minutes	0.9	0.8
t'c(90), minutes	2.7	2.5
Original Physical Properties		
Tensile Ultimate, MPa	13.8	14.2
Tensile, Ultimate, psi	1995	2065
Elongation @ Break, %	495	490
Hardness, pts.	60	61
Low Temperature Brittleness, °C	-42	-46
T _g , °C	-44.8	-49.2
Air Oven, 70h @ 125°C		
Weight Change, %	-3.5	-10.5
IRM 901 Oil, 70h @ 125°C		
Volume Change, %	-11.3	-12.1
Weight Change, %	-10.5	-10.9
IRM 903 Oil, 70h @ 125°C		
Volume Change, %	0.5	0.5
Weight Change, %	-0.8	-0.5
Distilled Water, 70h @ 100°C		
Volume Change, %	5.5	6.4
Weight Change, %	4.8	5.7
Formulation: Krynac 3345F - 100.0, Carbon Black N-660 - 65.0, Antioxidant DQ - 1.0 PHR, Stearic Acid - 1.0, Kadox 920 - 5.0, Plasticizer - 20.0 Mill Addition: Sulfur - 0.4 PHR, Methyl Zimate - 1.5, MBTS - 2.0		