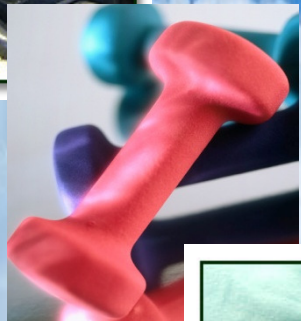


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# **DIOPLEX™ SPECIALTY ESTERS**



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## HALLSTAR<sup>®</sup> DIOPLEX<sup>®</sup> PLASTICIZER PERFORMANCE SUMMARY

Recipe: Resin - 100 pphr; Plasticizer - as indicated; Ca/ZnStabilizer - 2.0 pphr; Paraplex<sup>®</sup> G-62 5.0 pphr

Plasticizer shown is at 67 pphr (40%) of total compound:

Plasticizer	PLA	904	195	430	925	VLV	214LA	DOP
<b>Original Physical Properties</b>								
Hardness Duro A, pts.	72	70	70	74	65	63	69	66
100% Modulus, psi	1320	1195	1200	1375	1075	720	1075	885
Elongation @ Break, %	395	395	390	420	473	495	450	410
Tensile Strength, MPa	17.7	17.4	17.3	18.1	15.9	14.3	17.3	14.8
Tensile Strength, psi	2560	2530	2505	2630	2310	2075	2510	2145
Specific Gravity	1.263	1.267	1.267	1.274	1.242	1.207	1.260	1.203
T <sub>g</sub> , °C	-15	-16	-16	-15	-21	-32	-18	-28

### Low Temperature

Brittle Point, °C	-14	-17	-14	-14	-18	-44	-18	-30
T-45,000 psi, °C	-27	-28	-28	-27	-26	-49	-24	-43
T-135,000 psi, °C	-38	-37	-38	-38	-35	-59	-32	-54

### Air Oven Aging, 3 days @ 136°C

Tensile Change, %	-3	0	-1	0	+7	+24	+1	rigid
Elongation Change, %	0	+4	+1	+7	-8	-16	0	rigid
Weight Change, %	-0.9	-1.1	-1.4	-0.8	-1.7	-13	-1.4	-30

### Immersion/Extraction, Percent Weight Change After:

n-Hexane, 24hrs @23°C, DO	-2.3	-2.1	-3.0	-0.4	-5.4	-24	-3.2	-30
1% Soapy Water, 7d @90°C, DO	-9.8	-0.8	-11	-14	-5.9	-8.4	-7.7	-6.8
Cottonseed Oil, 24hrs @ 60°C	-4.0	-4.0	-4.9	-2.6	-4.9	-17	-4.8	-14
Distilled Water, 24hrs. @ 60°C, DO	-1.2	+1.9	-1.2	-6.6	-0.9	-1.4	-1.0	-0.8
High Humidity, 9d @ 90°C, DO	-2.1	-0.3	-2.2	-9.9	-0.5	-1.0	-0.6	-0.4

### Compatibility and Permanence

ABS Migration	G	F	F	G	E	G	F	P
Polystyrene Migration	E	E	E	G	E	P	G	P

KEYS: E = Excellent, G = Good; F = Fair, P = Poor; DO = Dry Out

# PLASTICIZER PHYSICAL PROPERTIES

Trade Name	Generic Name	Acid Number	Color, APHA	Molecular Weight, Mn	Refractive Index	Specific Gravity @ 25°C	Viscosity @ 25°C, cps
HALLSTAR DIOPLEX PLA	Polyester Adipate	0.5	250 max	2500	1.465	1.10	4,000
HALLSTAR DIOPLEX 904	Polyester Adipate	0.5	250 max	2300	1.465	1.05	3,300
HALLSTAR DIOPLEX 925	Polyester Adipate	1.0	200 max	1800	1.465	1.05	1,800
HALLSTAR DIOPLEX 214LA	Polyester Adipate	0.5	100 max	2400	1.465	1.09	3,300
HALLSTAR DIOPLEX VLV	Polyester Adipate	1.5	250 max	850	1.452	1.00	100
HALLSTAR DIOPLEX 430	Polyester Adipate	4.0	200 max	2550	1.469	1.12	10,000
HALLSTAR DIOPLEX 195	Polyester Adipate	0.8	250 max	1900	1.463	1.10	2,300

## PLASTICIZED PVC COMPOUND APPLICATIONS INCLUDE:

### by INDUSTRY

Automotive  
Aerospace  
Appliances  
Adhesives  
Caulks  
Coatings

Packaging  
Medical  
Construction  
Transportation  
Hydrocarbon and Chemical  
Transmission and Storage

### by END USE

Hose and Tubing  
Rollers  
Belting  
Tank Linings  
Gloves and Boots  
Refrigerator Gaskets

Upholstery  
Instrument Panels  
Wall Covering  
Rainwear  
Food Wrap  
Wire & Cable

Automotive  
(interior and exterior)  
Roofing Membrane  
Decals  
Pond and tank liners  
Decorative Film & Tape

## SUGGESTED APPLICATIONS

Polymeric plasticizers are used in PVC applications to provide flexibility, softness and lower modulus values and to maintain these characteristics after exposure of the PVC compound to severe use conditions or harsh environments. Polymeric plasticizers are more permanent (stable) under extended, high heat conditions and less likely to volatilize out of the PVC compound than are monomeric plasticizers. Polymeric plasticizers are resistant to extraction (leeching) by solvents, oils and fluids, and they resist migration to other polymer compounds in contact with the PVC material. In short, polymeric plasticizers provide greater permanence than monomeric plasticizers in PVC applications.



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