HallStar
Right Chemistry...Positive Solutions

HALLSTAR PHTHALATE ALTERNATIVES

With environmental concerns taking center stage, the desire to remove phthalates from polymer compounds in the EU and US is increasing rapidly. As a result, HallStar has announced several commercially available Phthalate Alternatives / Replacements, for use in all types of polymer applications, especially PVC and synthetic elastomers. These economical products offer the same or improved functional benefits as phthalates, without the environmental concerns.

Beyond these non-phthalates, HallStar also offers a line of renewable esters. Our HALLGREEN product line is manufactured from renewable raw material streams. These innovative products provide excellent functionality in various biopolymers (PLA, PSM etc…) as well as traditional elastomers.

Below is detailed information about these offerings:

PLASTHALL® LCOA

This product is a low molecular weight, long chain oligomer, recommended for use in PVC and nitrile rubber. It is a designed to provide excellent extraction resistance to many fluids and is comparable to various phthalates in terms of efficiency in lowering compound hardness. PLASTHALL LCOA offers improvements in migration resistance and volatility. Suggested uses include adhesives, sealants, electrical tapes, as well as PVC applications including film and gasketing.

HALLSTAR® DIOPLEX ™ VLV

This product is a low molecular weight, short change oligomer with very low viscosity which makes it well suited for plastisol applications. HALLSTAR DIOPLEX VLV is a highly efficient, very easy processing; offering a similar handling profile to standard monomerics. HALLSTAR DIOPLEX VLV provides an improvement in the level of resistance to extraction by various media when compared to monomerics such as DOP, DINP and linear phthalates. In addition, HALLSTAR DIOPLEX VLV offers excellent cold flex properties and compares favorably with most phthalates.

PLASTHALL® PR-A100

This product is a monomeric plasticizer with excellent functionality in PVC and all types of synthetic elastomers. It is outstanding in low temperature applications. PLASTHALL PR-A100 also offers improvements in volatility and extraction resistance versus standard phthalates. It is generally used in applications that require improved permanence. Such applications consist of general-purpose films and low viscosity plastisols.

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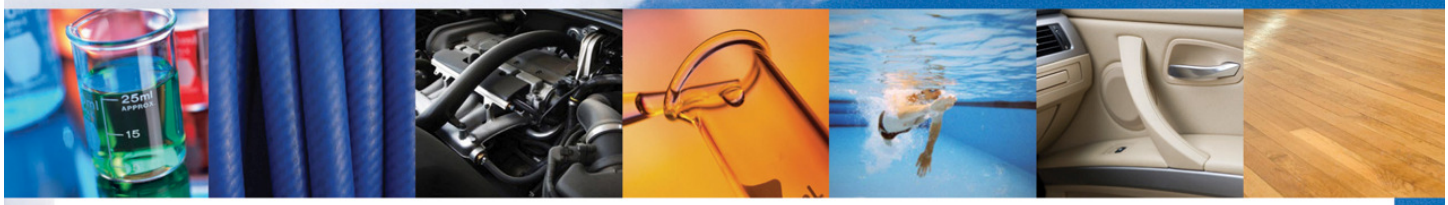

Plasticizer	*LCOA*	*VLV*	*PR-A100*	*DOP*
Original Physical Properties				
Hardness, Duro A, pts.	65	63	67	67
100% Modulus, Mpa	5.9	5.0	6.6	6.2
Elongation at Break, %	415	495	380	390
Tensile Strength, psi	2295	2075	1950	2025
Tensile Strength, Mpa	15.8	14.3	13.5	14.0
Specific Gravity	1.241	1.207	1.161	1.200
Low-Temperature, ℃				
Brittle Point	-24	-44	-53	-30
T-45,000 psi	-27	-49	-46	-44
T-135,000 psi	-37	-59	-61	-53
Air Oven Aging, 3 days at 121℃ (*136℃)				
Tensile Change, %	0*	+24*	-1	+17
Elongation Change, %	-11*	-16*	-25	-45
Weight Change, %	-2.6*	-13*	-12	-20
Percent Weight Change after:				
n-Hexane, 24h @ 23℃, DO	-6.6	-24	-34	-34
1% Soapy Water, 7d @ 90℃, DO	-3.3	-8.4	-10	-15
Cottonseed Oil, 24h @ 60℃	-7.8	-17	-28	-19
Distilled Water, 24h @ 60℃, DO	-0.8	-1.4	-1.9	-0.6
High Humidity, 9d @ 90℃, DO	-0.3	-1.0	-4.1	-1.0

Formulation:
PVC K=70 – 100.0 phr, Heavy Metal Free Stabilizer System- 7.0, Plasticizer Variable – 67.0