EASTMAN

Standing the test of time

Eastman 168™ non-phthalate plasticizer for flooring

Building on a foundation of trust

Eastman 168™ non-phthalate plasticizer

A trusted choice for PVC applications for 40 years, Eastman 168™ non-phthalate plasticizer is a general-purpose plasticizer that offers a ready replacement to general-purpose phthalate plasticizers. Ideal for resilient sheet flooring, luxury vinyl tile, vinyl composite tile, PVC-backed carpet applications, and cove molding, it is compatible with current pressure-sensitive adhesives used in flooring applications. Eastman 168 also offers the advantage of similar efficiency and fusion properties and promotion of consistent foam quality in foamed layers.

For a simple unfilled formulation, as shown in Figure 1, Eastman 168 is a preferred replacement for diisononyl phthalate (DINP). Shown in Table 1, the fusion properties, efficiency, and mechanical properties are all very similar to DINP and—in some cases—superior to diisononyl cyclohexane-1,2-dicarboxylate (Hexamoll® DINCH®). In addition, PVC made with Eastman 168 shows improved heat stability compared to both DINP and Hexamoll® DINCH® in both plastisol and compound formulations.

Performance benefits

- Good migration resistance into the adhesive
- Non-phthalate
- 40 years of reliability
- Improved heat stability
- Often a drop-in replacement
- Lower fusion temperature than Hexamoll® DINCH®
- Global availability

Table 1

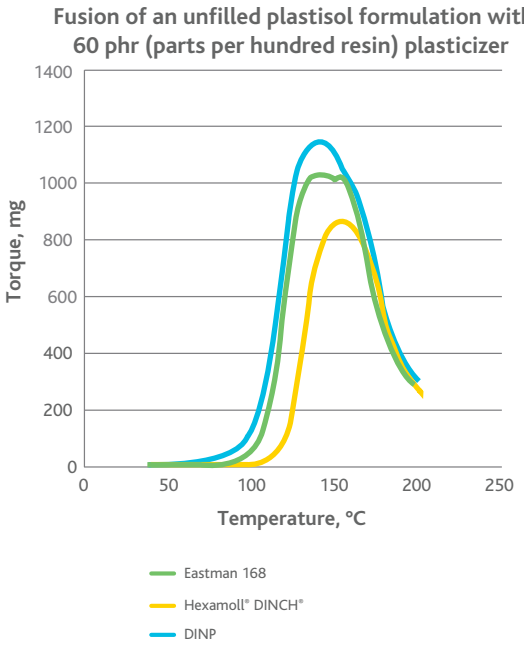
Physical properties: General-purpose plasticizer comparison

Plasticizer	Eastman 168	DINP	Hexamoll® DINCH®
Typical plasticizer properties			
Molecular weight	391	421	425
Specific gravity @ 20°C/20°C	0.984	0.972	0.949
Viscosity @ 25°C, cP	63	52	52*
Flash point, COC, °C	238	232	224
VOC, % (TGA 1 hour @ 110°C)	0.11	0.18	0.15
PVC from 60 phr plasticizer in unfilled plastisol formulation			
Gel temperatures, °C	121	116	132
Fusion temperatures, °C	142	139	154
Shore A hardness	74.1	73.4	73.0
Mechanical properties**			
Modulus of elasticity, psi	1379	1329	1368.0
Elongation at break, %	293	292	253.0
Tensile strength at break, Mpa	17.5	16.2	16.0
Viscosity, cP	3300	4740	2680

*@ 20°C

**ASTM D412 and D624

Figure 1



The Brabender torque rheometer fusion data for the 60 phr plastisol formulations in Figure 1 show similar fusion curves for Eastman 168 and DINP versus the significantly higher temperatures required to fuse diisononyl, cyclohexane-1,2-dicarboxylate (Hexamoll® DINCH®).

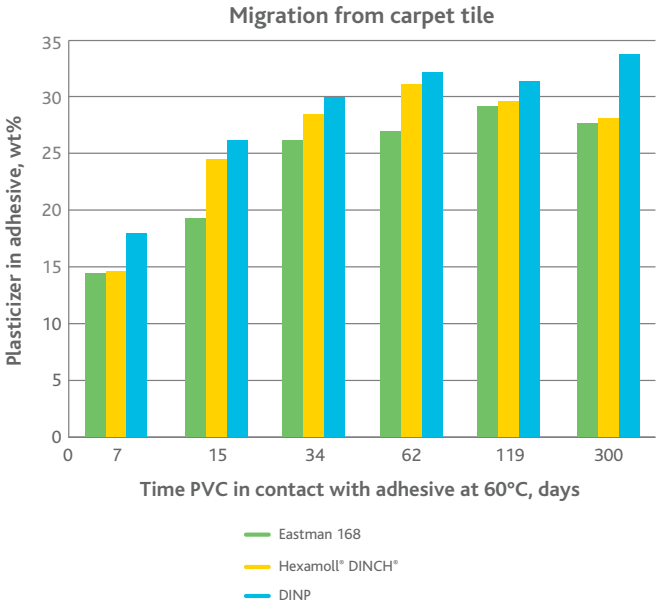
Blend to optimize

Eastman 168™ non-phthalate plasticizer can be blended with a non-phthalate fast-fusing plasticizer, such as Eastman Effusion™ plasticizer or Benzoflex™ RF-532 plasticizer. The blended formulation provides desired rheology and fusion characteristics in a completely non-phthalate solution. By blending fast-fusing and general-purpose plasticizers, manufacturers have more processing options during production.

Staying true to the application

Eastman 168™ non-phthalate plasticizer is a reliable option for manufacturers who need to minimize migration into their adhesive backing. Pressure-sensitive adhesives hold carpet tiles and vinyl tiles in place; yet they still allow relatively easy removal of individual tiles if they need to be replaced. These adhesive formulations typically consist of some combination of isobutyl, butyl, and 2-ethylhexyl acrylates; methyl methacrylate; and styrene monomers along with other additives. The adhesives are very compatible with the typical plasticizers contained in PVC so a certain amount of migration of plasticizer into the adhesive should be expected. In most cases, Eastman 168 migrates less when compared to DINP, as shown in the accelerated test data in Figure 2.

Figure 2



Your next step: contact us

Whether your formulation requires only a general-purpose non-phthalate plasticizer or a blended solution with a fast-fusing plasticizer, Eastman 168 is a trusted and market-proven solution. And when you switch, an Eastman technical specialist will be by your side to help make your transition seamless.

To find out more about Eastman 168™ non-phthalate plasticizer for flooring, call your Eastman representative today or visit www.EastmanPlasticizers.com.

Applications

- Resilient sheet flooring
- Luxury vinyl tile
- Vinyl composite tile
- PVC-backed carpet applications
- Cove molding

EASTMAN

The results of **insight**™

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