

EASTMAN

Efficiency meets fast fusing

Eastman Effusion™ plasticizer for flooring



The efficient choice for flooring

Eastman Effusion™ plasticizer

Eastman Effusion™ plasticizer is a unique, fast-fusing solution that enables increased production line speeds and lower processing temperatures, allowing you to reduce your energy costs. Ideal for resilient sheet flooring, luxury vinyl tile, vinyl composite tile, and PVC-backed carpet applications, Effusion is both highly efficient and effective at lowering fusion temperatures. And it outperforms traditional “fast fusers,” such as butylbenzyl phthalate (BBP), making Effusion a viable non-phthalate alternative . . . and possibly the only plasticizer you’ll need in applications where fusion speed is paramount. When compared to traditional fast-fusing plasticizers, Effusion provides similar low-temperature processing of PVC, yet it is more efficient at lowering hardness (Table 1).

Figure 1

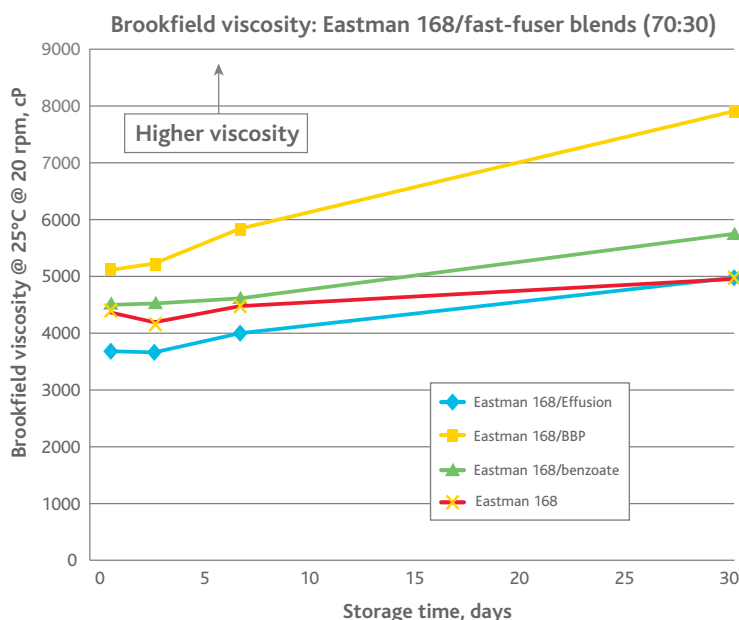


Table 1

Mechanical properties: Fast-fuser comparison

Property	Eastman Effusion 36 phr	BBP 40 phr	Benzoate plasticizer 40 phr
	7.5 phr TXIB ^a	7.5 phr TXIB	7.5 phr TXIB
Fusion temperature, °C	103	103	103
Tensile strength, MPa	16.2	16.5	16.8
Elongation at break, %	252	244	260
Modulus at 100% elongation, MPa	9.0	9.4	9.1
Shore A hardness	72	72	73
Tear resistance, kN/m	65	67	63
Tear energy, N*mm	2597	2529	2674
Brittleness temperature, °C	–14	–6	–6

^aEastman TXIB™ formulation additive

Applications

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



Blend to optimize

Effusion can be blended with other plasticizers, such as Eastman 168™ non-phthalate plasticizer, allowing flooring manufacturers to customize and optimize formulations to specific processing needs. Platisols made by blending these two plasticizers, for example, exhibit lower initial and aged viscosities as shown in Figure 1, while imparting similar mechanical properties when compared to other fast fusers (Table 2).

Blending plasticizers can also give brand owners more options when trying to target a replacement of traditional phthalate plasticizers. For instance, specific blends of Eastman 168 and Effusion can give equivalent processing and performance properties to phthalate plasticizers as shown in Figures 2 and 3.

Figure 2

Eastman Effusion blends versus common phthalates:
Fusion temperature at 60 phr loading

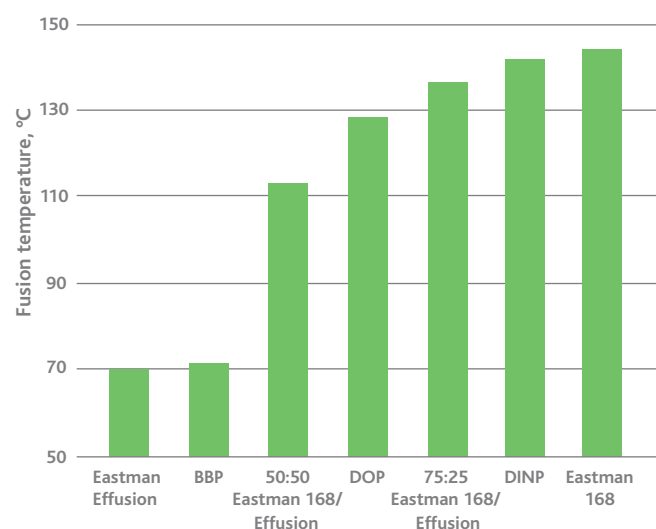
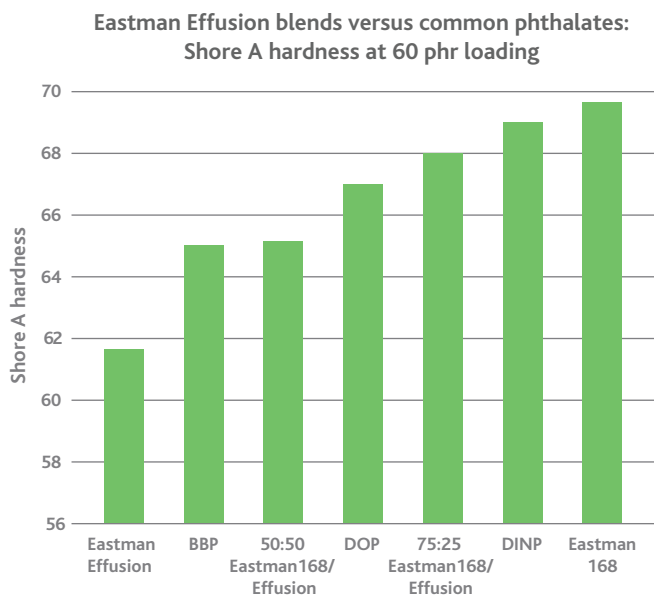


Table 2

Mechanical properties: Eastman 168 blends

Property	Eastman 168/ Effusion 70/30 at 60 phr	Eastman 168/ BBP 70/30 at 60 phr	Eastman 168/ benzoate 70/30 at 60 phr	Eastman 168 at 60 phr
Fusion temperature, °C	128	131	134	148
Tensile strength, MPa	17.4	17.2	17.5	17.9
Elongation at break, %	299	304	298	321
Modulus at 100% elongation, MPa	9.4	8.5	8.6	9.1
Shore A hardness	67	67	67	71
Tear resistance, kN/m	65	65	65	64
Tear energy, N*mm	1191	1250	1123	1136
Brittleness temperature, °C	−45	−36	−39	−47

Figure 3



Your next step: contact us

Whether your formulation requires a fast-fusing plasticizer to achieve extremely low fusion temperatures or you're looking to blend a fast fuser with a general-purpose plasticizer, Eastman Effusion is your non-phthalate 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 Effusion as a fast-fusing non-phthalate plasticizer for flooring, call your Eastman representative today or visit www.EastmanPlasticizers.com.

Performance benefits

- Excellent solvating ability in PVC
 - Lower temperature processing of PVC
 - Faster line speeds
 - Wider processing windows
- Lower density when compared to other plasticizers in the market, which can be a benefit when selling by volume
- Excellent viscosity stability when formulated with general-purpose plasticizers, such as Eastman 168
- Improved in-process heat stability vs. BBP
- Greater efficiency at lowering hardness
 - Reduction of plasticizer usage in formulation
 - Better low-temperature flexibility

EASTMAN
The results of insight™

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