ExxonMobil

Enhanced wire and cable applications

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Jayflex™ DINP offers the optimal balance of processability and performance for your wire and cable applications.

By creating opportunities for cost savings and improved performance of wire and cable products, Jayflex DINP is a cost-effective substitute for DOP in many flexible PVC applications.

Key advantages

- Significant cost savings (lower plasticizer density)
- Increased plasticizer retention (lower volatility)
- Suitable for broader range of applications (better aging performance)
- Higher extrusion rate and productivity

Significant cost savings (lower plasticizer density)

Alternatively, the lower density of Jayflex DINP allows the amount of filler to be increased, thereby reducing the formulation cost.

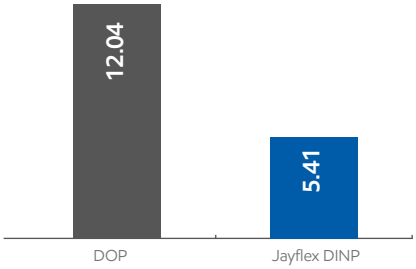
Raw Material	Density (g/cm³)	Formulation A (phr)	Formulation B (phr)	Formulation C (phr)
SPVC	1.4	100	100	100
DOP	0.986	50	0	0
DINP	0.974	0	50	52
Filler	2.7	50	50	54
Formulation	Density (g/cm³)	1.4219	1.4156	1.4218

To explore your formulation possibilities, please contact your local ExxonMobil Sales Representative.

Increased plasticizer retention (lower volatility)

Due to its higher molecular weight, Jayflex DINP is discernibly less volatile than DOP, which means lower plasticizer evaporation during the gelation/fusion process and lower plasticizer loss during the product lifecycle. Along with helping you meet industrial wire and cable standards, Jayflex DINP can also help you improve the performance of your wire and cable products — from less cracking and fogging to better aging and longer service life.

Percentage of neat plasticizer weight loss
(after 24h at 155°C forced ventilated oven)

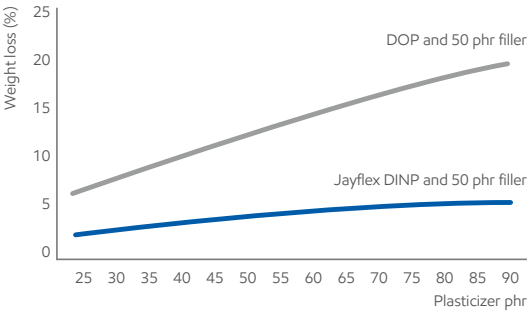


Data source: TSR 2015-048
Test Method: Based on ASTM D2288

Suitable for broader range of applications (better aging performance)

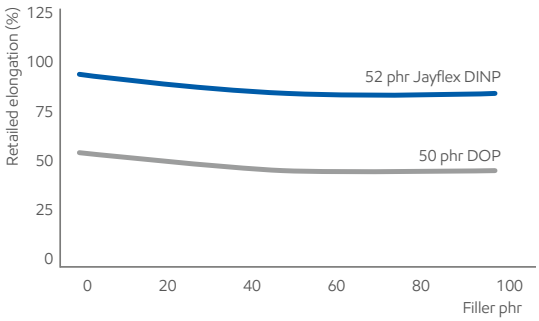
When wire and cable products age and are exposed to heat, their mechanical properties (such as elongation and tensile strength) deteriorate. This is especially true when using lower-molecular weight plasticizers such as DOP. In contrast, the superior mechanical properties of Jayflex™ DINP can significantly improve durability, extend the service life of your wire and cable products, meet a wider variety of specifications and allow your final products to be produced in a broader range of insulation thicknesses.

Weight loss (%) vs. plasticizer phr



COPPCO model simulation based on UL1581 Formulation: S-PVC 100 phr, DOP or DINP 25-95, $CaCO_3$ 50 phr. Condition: Dumbbell specimen: ~1mm forced ventilation oven aging for 7 days at 100°C with air exchanged ~125 times/hr.

Retained elongation (%)

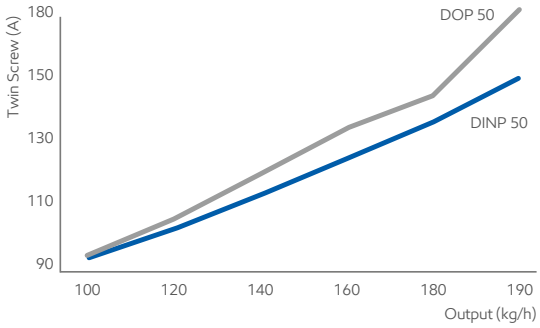


COPPCO model simulation based on UL1581 Formulation: S-PVC 100 phr, $CaCO_3$ 0-100 phr. Condition: Dumbbell specimen: ~1mm forced ventilation oven aging for 7 days at 100°C with air exchanged ~125 times/hr.

Energy saving or higher output seen in compounding step with DINP

Jayflex DINP based compounds result in lower motor amperage (lower energy consumption) for the same output depending on extrusion conditions and equipment. At a given motor amperage, Jayflex DINP based compounds can yield higher output. Plasticizer structure and molecular weight influence the lubricating effect of plasticizer. Jayflex DINP plasticizer exhibits lower density (more volume per weight), increasing their external and decreasing their internal lubricating action. (1)

Twin Screw (Am) - Output



Process Parameters: Screw speed: 150rpm, Die head temperature: 160C, Twin screw barrel temperature: 140C

Formulation

Raw Material	Formulation A	Formulation B
SPVC-K70	100	100
DOP	50	
DINP		50
Ca/Zn Stabilizer	5	5
Stearic acid	0.25	0.25
Filler ($CaCO^3$)	50	50

Note: (1) Lubrication, Single screw extrusion rates and plasticizer structure in flexible PVC compounds. Journal of Vinyl & Additive Technology, 2007, 13(1):22–25, Paul H. Daniels, ExxonMobil Chemical Company

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