EASTMAN

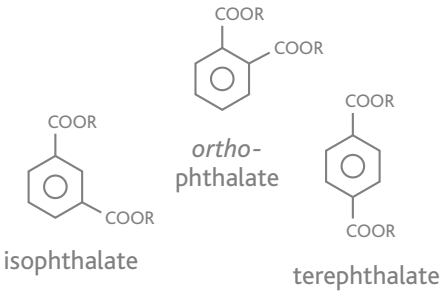
Eastman 168™ non-phthalate plasticizer

The science of safety and innovation

A detailed review of existing science, toxicology, and consumer protection laws demonstrates that Eastman 168 is recognized as a non-phthalate plasticizer.

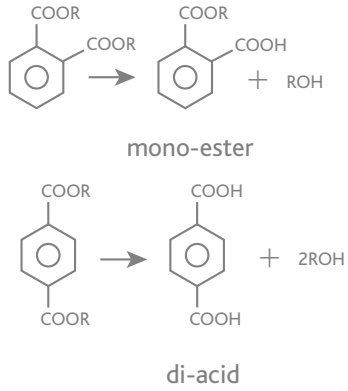
Eastman 168 is structurally different.

- The term "phthalate" is taken in chemistry to mean *ortho*-phthalate.
- The U.S. EPA has consistently and explicitly specified "phthalate" to mean dialkyl *ortho*-phthalate ester.[1]



Eastman 168 is toxicologically different.

- Terephthalates are metabolized differently from *ortho*-phthalates.
- Studies demonstrate that Eastman 168 is not a carcinogen, mutagen, or reproductive toxicant.
- A senior EPA toxicologist has stated that terephthalates are biologically "inactive" and have zero potential for reproductive effects.[2]
- The terephthalate structure does not allow the formation of the stable monoester moiety that is implicated in phthalate toxicity.



Eastman 168 is recognized as an alternative.

- Numerous competent authorities and private organizations have reviewed terephthalates as viable alternatives in their phthalate-alternative assessments.
- The U.S. CPSC, European SCENIHR, Danish EPA, and Dutch Food Safety Authority have positively reviewed Eastman 168 as a phthalate alternative.
- Eastman 168 (or DEHT) has been evaluated in a number of independent chemical hazard assessments as one possible alternative to *ortho*-phthalates in applications such as:
  - Wire and cable (replacing DINP and DIDP)[3]
  - Toys and child care articles (replacing DEHP, BBP, and DBP)[4]
  - Textile print applications (replacing DEHP, BBP, and DBP)[5]
  - Electronics cables in computers (replacing DEHP, BBP, DBP, and DIBP)[6]
- DEHT consistently rates as one of the best alternatives available to replace restricted phthalates using hazard- and risk-based assessments.

Eastman 168™ non-phthalate plasticizer

References

[1]U.S. EPA Existing Chemicals, Phthalates Action Plan, Clean Water Act, Safe Drinking Water Act, Comprehensive Environment Responsibility Compensation & Liability Act (Superfund), Office of Pollution Prevention & Toxics (TSCA and ITC)

[2]Gray et al., *Toxicological Sciences,* 58, 350-365 (2000)

[3]Green Chemistry and Commerce Council (GC3) Report on Chemical Hazard Assessments of Alternative Plasticizers for Wire & Cable Applications, http://greenchemistryandcommerce.org/documents/PilotProjectFullReportOct2-final_000.pdf, as viewed on 9 April 2014.

[4]Subsport, Alternatives to phthalates in toys and childcare articles, Danish EPA, http://www.subsport.eu/case-stories/026-en?lang= as viewed on 9 April 2014.

[5]Subsport, Substitution of phthalates in textile print applications, Inditex, http://www.subsport.eu/casestories/377-en?lang= as viewed on 9 April 2014.

[6]Subsport, Proactively eliminating the phthalates DEHP, BBP, DBP and DIBP from electronic products, Dell Inc., http://www.subsport.eu/case-stories/304-en?lang= as viewed on 9 April 2014.

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The results of **insight**™

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