

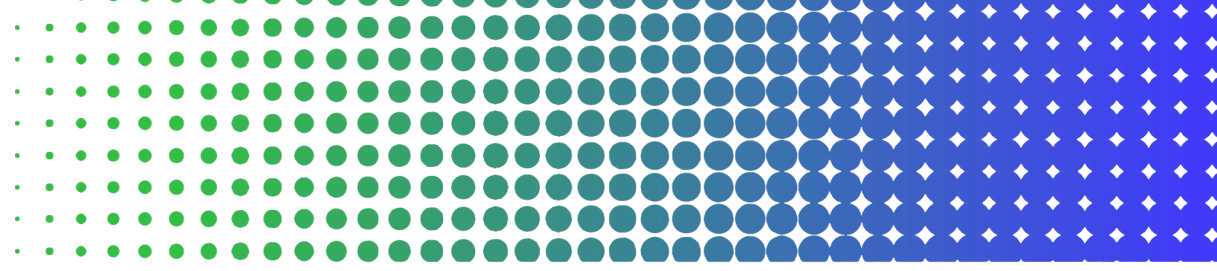
# SCCPs and Deca-BDE Report

Global PCCS

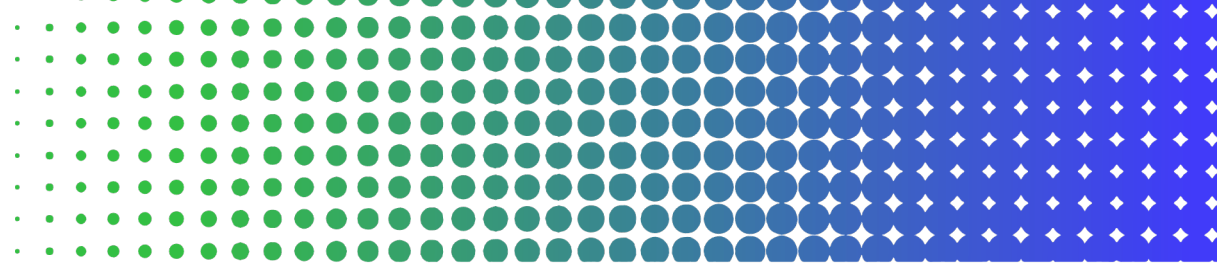
[www.globalpccs.com](http://www.globalpccs.com)



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2. Uses of SCCPs
3. Specific exemptions
4. Potential Alternatives to SCCPs
5. What are chlorinated paraffin.
6. Uses of decaBDE
7. Alternatives to decaBDE

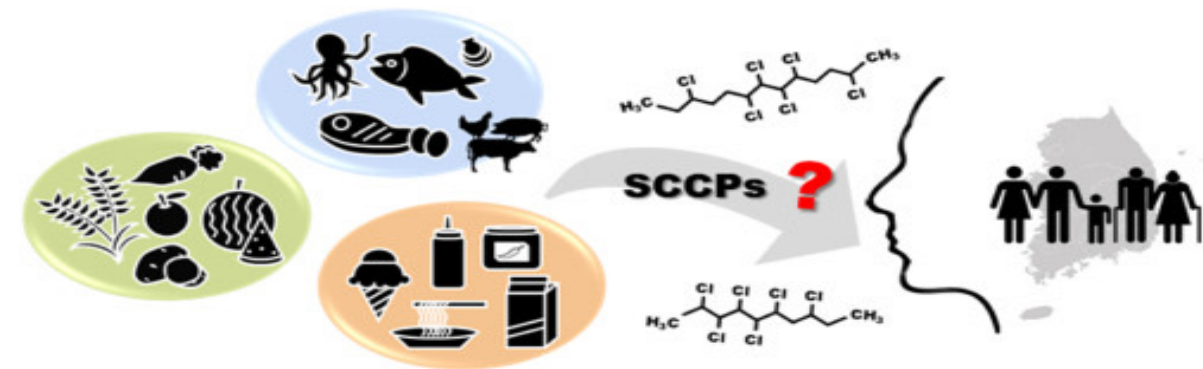


# Short-Chain Chlorinated Paraffins (SCCPs)

Source: Risk management evaluation ([UNEP/POPS/POPRC.12/11/Add.3](https://www.unep.org/poprc/12/11/Add.3)) and additional information related to the draft risk management evaluation ([UNEP/POPS/POPRC12/INF/7](https://www.unep.org/poprc/12/INF/7))

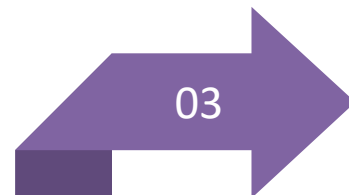
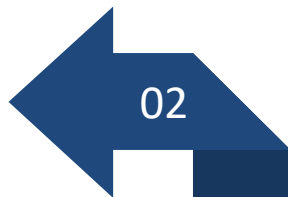
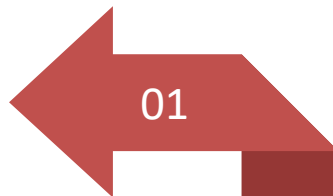


# 1. What are chlorinated paraffins?



Chlorinated paraffins (CPs) are an emerging group of environmental pollutants .

They are bio accumulative in wildlife and humans, are persistent and transported globally in the environment



Have adverse effects on human health, endocrine disrupter and carcinogenic.

They are added to the Stockholm Convention (Annex A) in 2017 as persistent organic pollutants (POPs) (7)



## 2. Uses of SCCP's

Plasticizers, Flame retardants in paints, Adhesives and sealants, Leather Fat liquors, Plastics, rubber, textiles and polymeric materials.



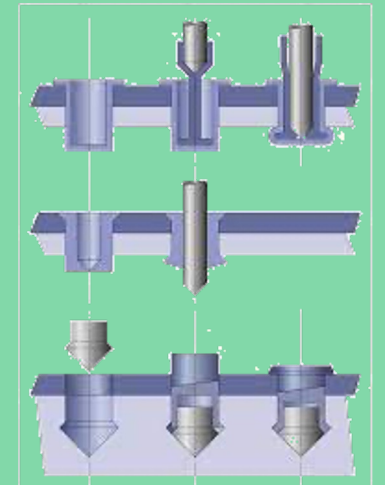
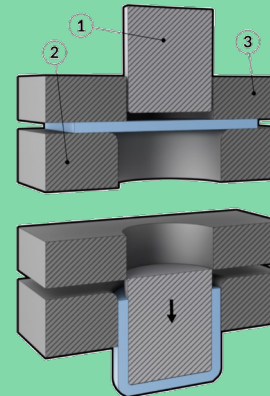
SCCPs are used in metalworking applications and in polyvinyl chloride (PVC) processing



Lubricants and coolants in metalworking fluids.

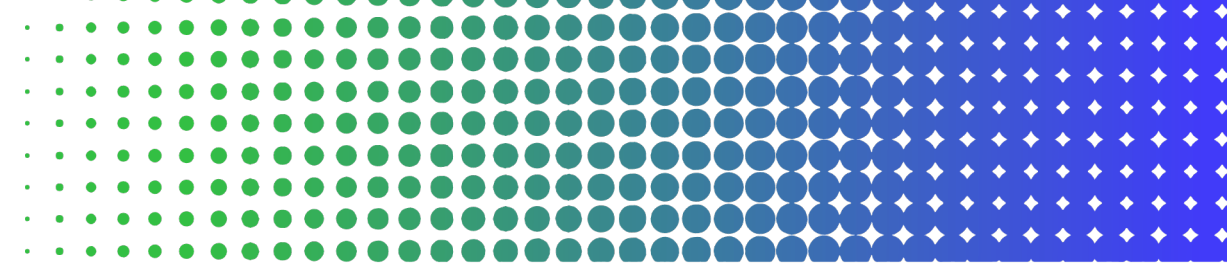


Deep drawing, tube bending and cold heading





## 3. Specific Exemptions



Listing of short-chain chlorinated paraffins identified the following specific exemptions.

- Additives in the production of transmission belts.
- Spare parts of rubber conveyor belts.
- Fat liquoring in leather.
- Lubricant additives, for engines of automobiles, electric generators and wind power facilities,
- Metal processing.

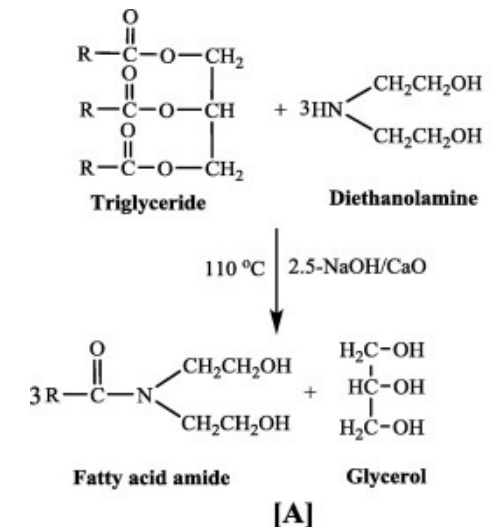
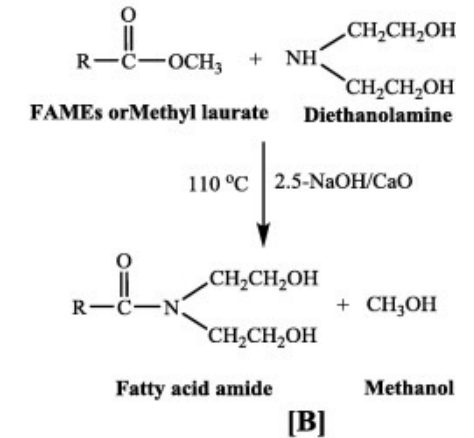
- Tubes for outdoor decoration bulbs.
- Waterproofing and fire-retardant paints.
- Adhesives.
- Secondary plasticizers in flexible polyvinyl chloride, except in toys and children's products.
- For drilling in oil and gas exploration, petroleum refinery to produce diesel oil.





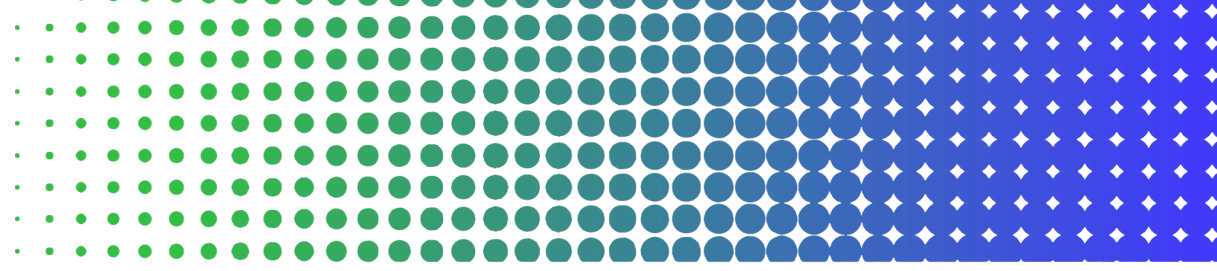
## 4. Alternatives to SCCPs in Metalworking Fluids Applications.

- Alkanol amides (e.g., 2:1 di-ethanolamine (DEA) tall oil fatty acid alkanol amide)
- Isopropyl oleate.
- Long-chain chlorinated paraffins (C18+) (LCCPs).
- Medium-chain chlorinated paraffins (C14-17) (MCCPs).
- Nitrated compounds (e.g. Doverlube NCEP- nitrogen containing compound).
- Over based calcium sulphonates.
- PEP additives.
- Propylene oxide.
- Phosphorus based compounds.
- Sulphur based substitutes.





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### Phosphorus based compounds

- Alkyl phosphate esters
- Phenol, isopropylated, phosphate (ITAP) (3:1)
- Tributyl phosphate (TBP)
- Triaryl phosphate
- Bis(2-ethylhexyl) hydrogen phosphate
- Didodecyl phosphite
- Dimethyl hydrogen phosphite
- 2-ethylhexyl hydrogen phosphate
- Polyethoxy oleyletherphosphate
- Zinc dialkyldithiophosphates
- Zinc Dialkyl Dithiophosphate (Zinc BDBP)

### Sulphur based substitutes.

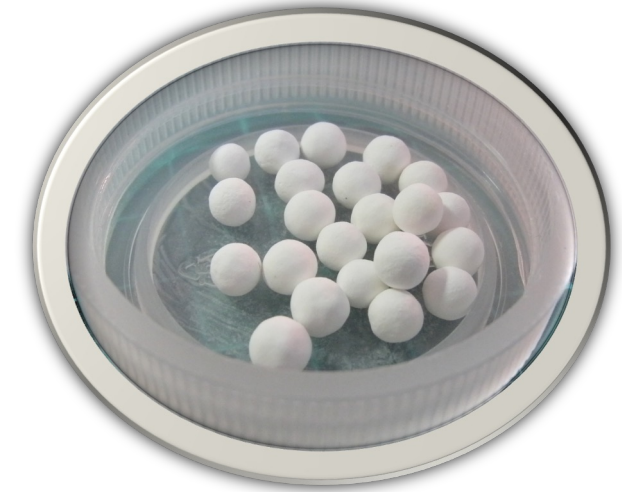
- Sulphurized polyisobutene, polypropylene and polystyrene.
- Tertiary nonylpolysulfide (TNPS).
- Polyolefin Sulphide.
- Sulfonated fatty acid esters.
- Polysulphides or alkyl sulphide, sulphurized alkenes/olefins, sulphurized hydrocarbons (i.e. generally of the type di-tertiary alkyl polysulphides, in particular di-tertiary alkyl pentasulphides) - extreme pressure additive.



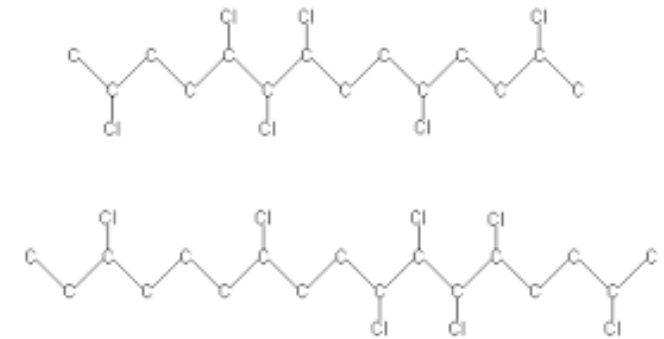


## 4. Potential Alternatives to SCCPs in Polyvinyl Chloride Processing

- Acrylic polymers Alumina trihydrate.
- Aluminum trihydroxide, used in conjunction with antimony trioxide (ATH)
- Aluminum trioxide.
- Antimony trioxide (or Antimony oxide).
- Long-Chain Chlorinated Paraffins (C18+) (LCCPs).
- Medium-Chain Chlorinated Paraffins (C14-17) (MCCPs).
- Tri-octyl trimellitate (TOTM).
- Zinc borate.
- Other Organophosphorus Flame retardants.
- Phthalates (generally, including phthalates esters).



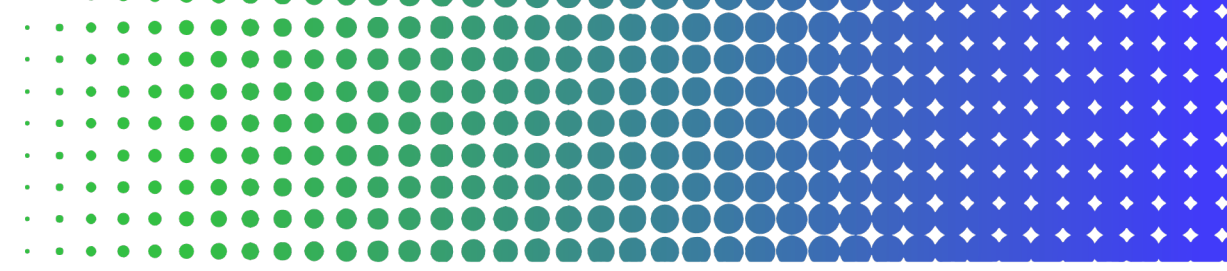
Aluminum trioxide



LCCP's



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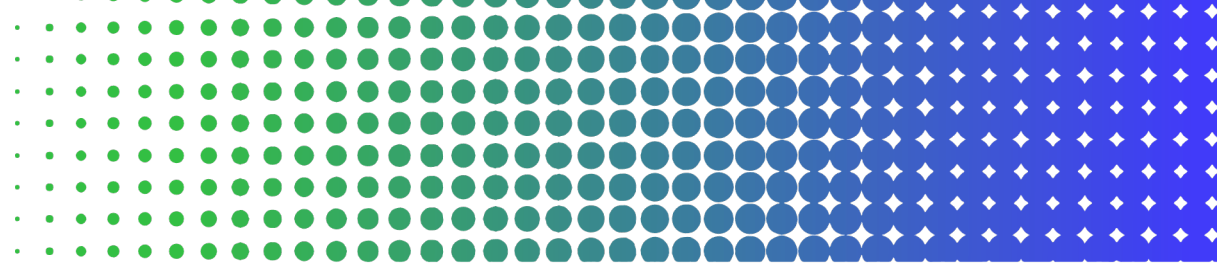


## Other Organophosphorus flame retardants

- Di-isononyl phthalate (DINP)
- Di-isodecyl phthalate (DIDP)
- Bis(2-ethylhexyl) phthalate (DOP aka DEHP)
- Butyl benzyl phthalate (BBP)
- Di-isodecyl phthalate (DIUP)

## Phthalates (generally, including phthalates esters)

- Cresyl diphenyl phosphate (CDP)
- Tertbutylphenyl diphenyl phosphate (TBDPDP)
- Isopropylphenyl diphenyl phosphate (IPDPDP)
- Phosphorus based compounds (in general)
- Tricresyl phosphate (TCP)



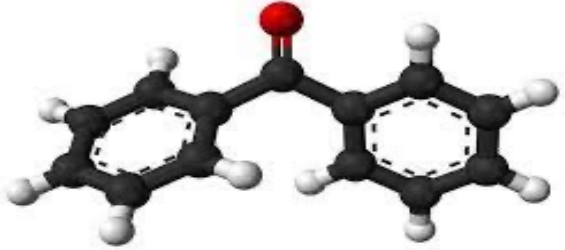
# Decabromodiphenyl Ether or Deca-BDE

Source: Risk management evaluation ([UNEP/POPS/POPRC.12/11/Add.3](#)) and additional information related to the draft risk management evaluation ([UNEP/POPS/POPRC12/INF/7](#))



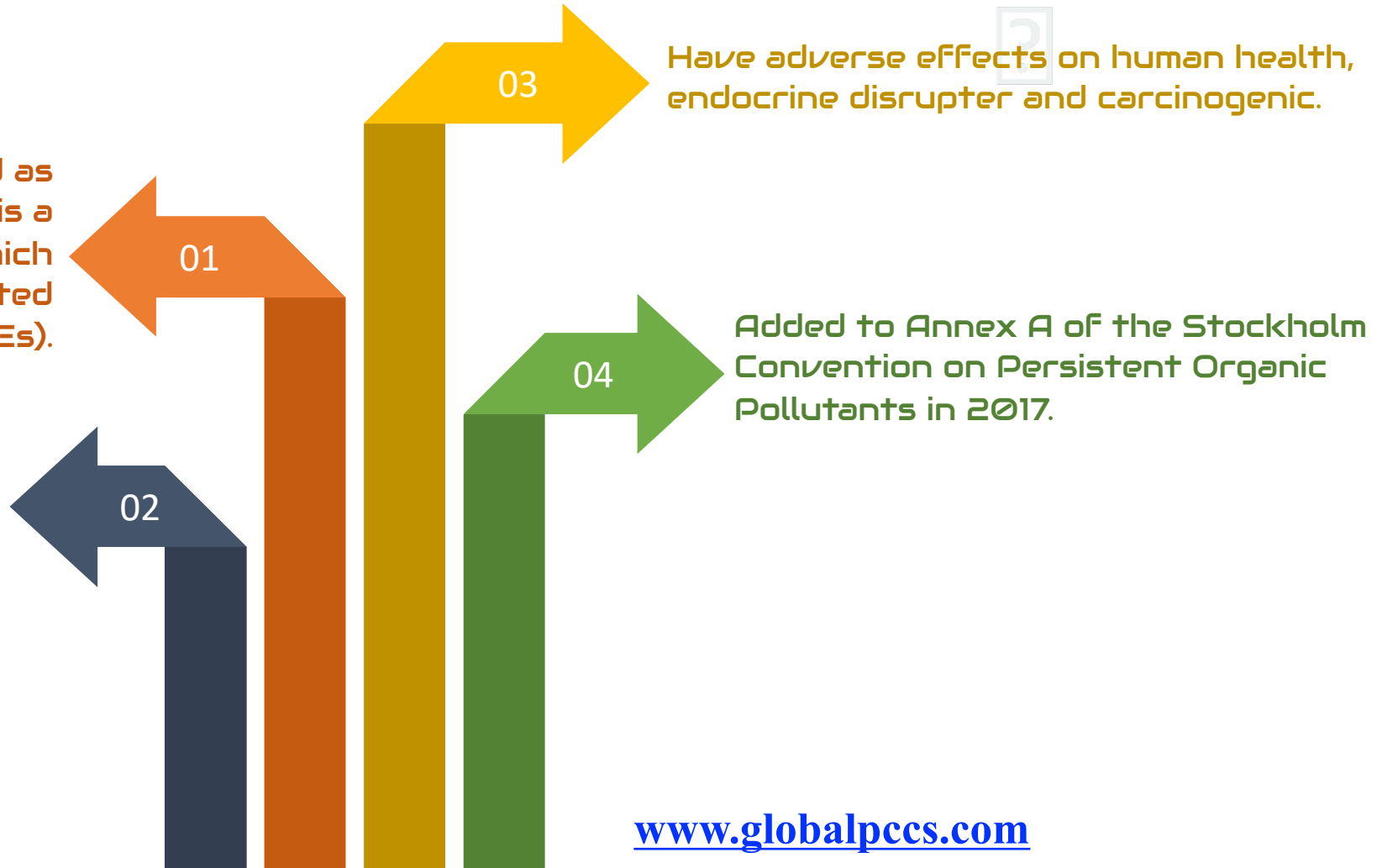
## 5. What is Deca-BDE?

### Decabromodiphenyl Ether



Decabromodiphenyl ether referred as decaBDE, DBDE, BDE-209 is a brominated flame retardant which belongs to the group of polybrominated diphenyl ethers (PBDEs).

They are bio accumulative in wildlife and humans, are persistent and transported globally in the environment





## 2. Uses of Deca-BDE

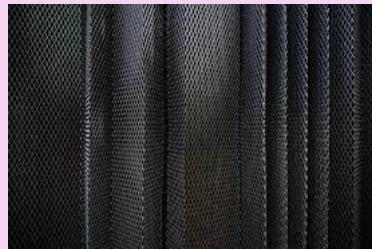
Electrical and electronic equipment (EEE) applications include casings for EEE, wire and cable, and small electrical components



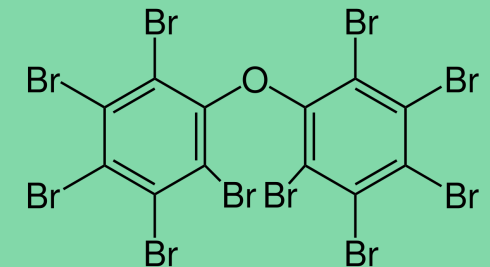
Used in buildings, construction materials, in storage and distribution products such as plastic pallets, in the transportation sector (cars, airplanes, trains and ships).



Flame retardant (FR) in many applications worldwide, primarily in plastic polymers and textiles, coated textiles, upholstered furniture and mattresses



The aviation industry still uses *c*-decaBDE in electrical wiring and cables, interior components, and EEE in older airplanes and spacecraft.

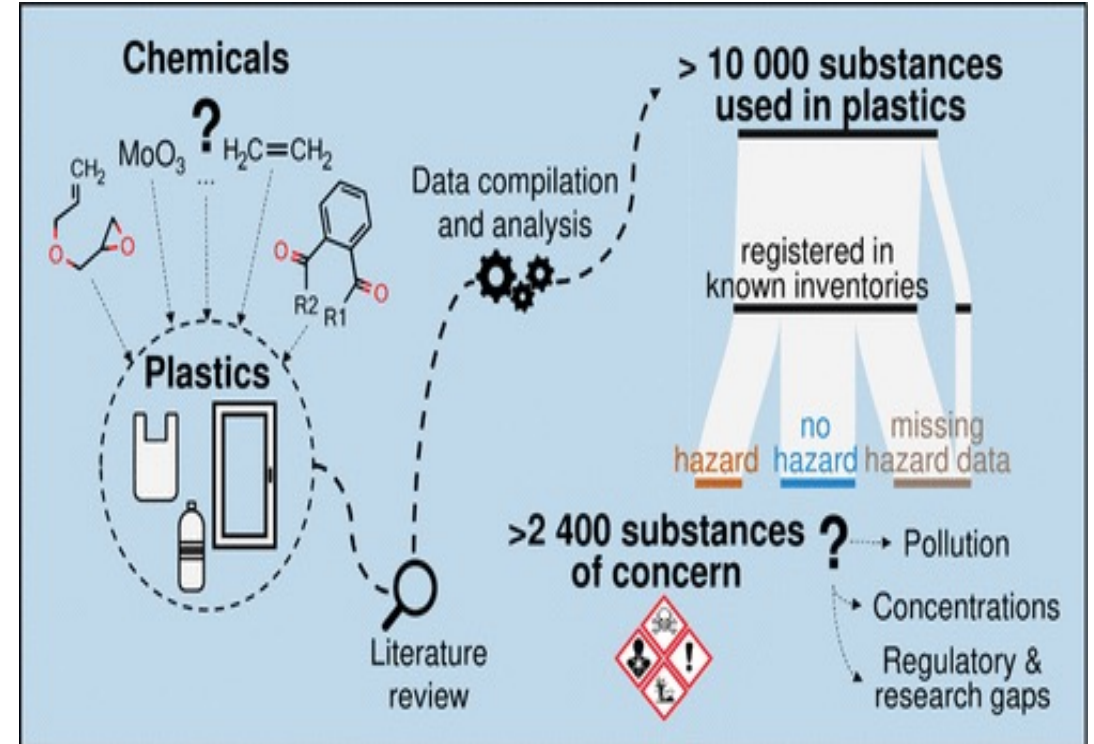






## 7. Alternatives available for use c-decaBDE in plastic

- Decabromodiphenyl ethane (DBDPE);
- Bisphenol A bis(diphenyl phosphate) (BDP/BAPP);
- Resorcinol bis(diphenylphosphate) (RDP);
- Ethylene bis(tetrabromophthalimide) (EBTBP);
- Magnesium hydroxide (MDH);
- Triphenyl phosphate (TPP);
- Aluminium trihydroxide (ATH);
- Red phosphorous.





## 7. Alternatives available for use of c-decaBDE in textiles :

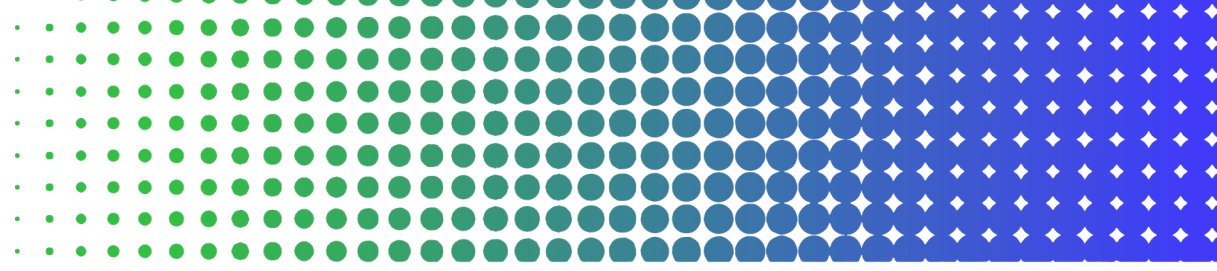
- Aluminum trihydroxide (ATH);
- Magnesium hydroxide (MDH);
- Tris(1,3-dichloro-2-propyl) phosphate (TDCPP);
- Ethylene bis(tetrabromophthalimide) (EBTBP);
- 2,2'-oxybis[5,5-dimethyl-1,3,2-dioxaphosphorinane] 2,2'-disulphide;
- Tetrabromobisphenol A bis (2,3-dibromopropyl ether) (TBBPA) (only in polymer applications);
- Red phosphorous;
- Decabromodiphenyl ethane (DBDPE).







## 7. Alternatives available for use of Deca-BDE in various applications;



Alternatives for C-decaBDE used in sealants, adhesives, architectural foam, and coatings applications in buildings and construction, wall and roof panels are as follows

- Magnesium hydroxide (MDH)
- Aluminum trihydroxide (ATH)
- Ethylene bis(tetrabromophthalimide) (EBTBP)
- Substituted amine phosphate mixture (P/N intumescent systems)
- Red phosphorous
- Decabromodiphenyl ethane (DBDPE).



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It's the only way!!

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