

# POP candidate UV-328 in plastics and suggested exemptions

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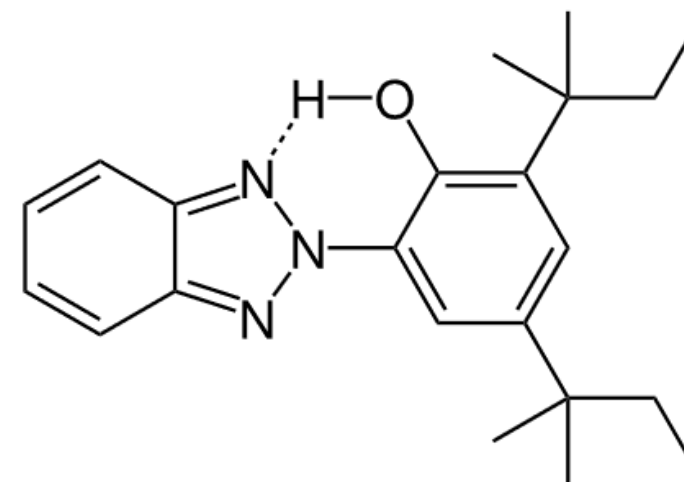
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# UV-328 used as additive in plastics

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- Functions as an ultraviolet (UV) light stabilizer
- Absorbs full spectrum of UV (250-400 nm) in a fully reversible and non-destructive process
- Prevents degradation / discoloration of plastic material and reduces gloss
- Not covalently bound to polymers
- Also has major uses in paints and coatings, as well as other uses not discussed further here



UV-328  
phenolic benzotriazole

# Concentration range used in different polymers

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- Used in PP, PS, PVC, PU, PE, PC, PMMA, rubbers, elastomers, ABS, epoxy resins
- 0.1 – 3 % by weight; polymer-specific recommendations are:
  - 0.15-0.3% in PC
  - 0.2-0.4% in PE
  - 0.2-0.5% in PS and PVC
  - 0.3-0.5% in polyesters

# Regulatory status

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- Listed as a substance of very high concern in the EU since 2014
- In 2020, Switzerland proposed its listing as a POP
- In 2022, POPs Review Committee recommended its listing in the Stockholm Convention's Annex A (elimination) with specific, time-limited exemptions

# Reported applications relevant to plastics

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- Packaging materials, shrink films, incl. non-food contact layer of food packaging
- Printing ink in plastics and rubber for outdoor furniture
- Automotive sector: polarizing film of liquid crystal displays and meters, resins for door handles and levers, bumper systems, radiator grills, paints/coatings
- Electrical machinery and equipment (including accessories and parts) including sound recorders and reproducers, television image, including LCD modules and indicator panels incorporating LCDs and LEDs
- Photographic paper, polarizing film
- Textiles

# Based on monitoring studies, it's been found in...

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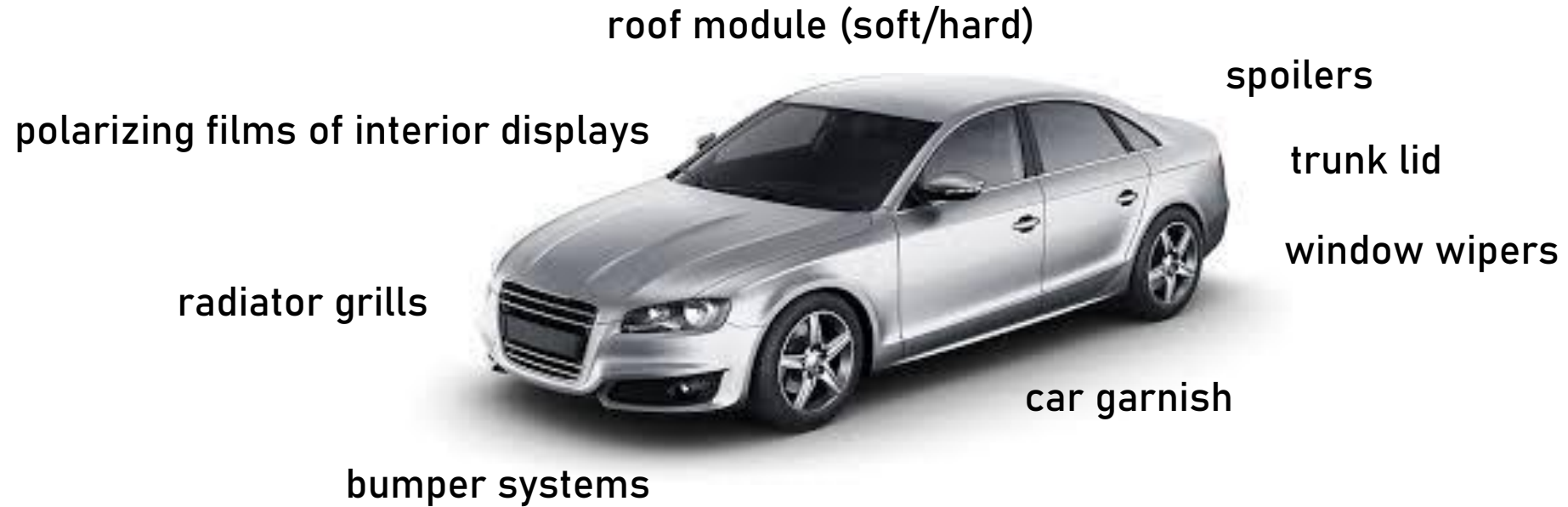
- Milk packaging and snack packaging
- Commercial PET packaging and LDPE packaging
- Recycled post-consumer PET intended for food contact materials
- Toys and hair accessories
- Recycled plastic pellets
- Marine plastic debris (incl. in plastics ingested by seabirds)

# Suggested exemptions

Applications	Duration of exemption
Land-based motor vehicles (i.e. cars, motorcycles, agriculture and construction vehicles and industrial trucks)	According to Article 4 (i.e. five years)
Replacement parts for: <ul style="list-style-type: none"> <li>a) Land-based motor vehicles</li> <li>b) Stationary industrial machines used in agriculture, forestry and construction</li> <li>c) LCDs in medical and in-vitro diagnostic devices</li> <li>d) LCDs in instruments for analysis, measurements etc.</li> </ul>	Until end of service life of the articles or 2044, whichever comes earlier
Industrial coating applications	According to Article 4 (i.e. five years)
Cellulose triacetate film in polarizers	
Photographic paper	
Mechanical separators in blood collection tubes	

# Suggested exemptions – legacy spare parts in vehicles

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99% UV-328 sold for replacement parts may be contained in bumper systems & radiator grills



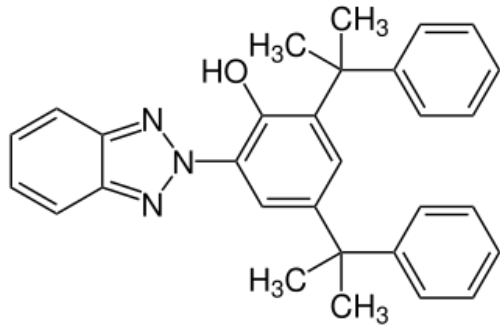
# Alternative UV stabilizers

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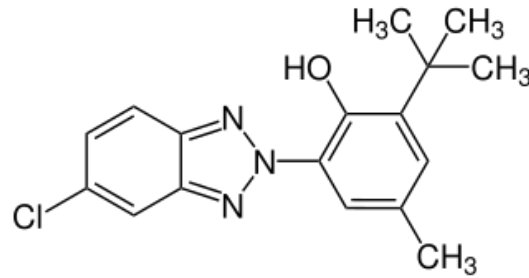
- Other benzotriazoles
- Benzophenones (however, weak absorption after 370 nm)
- Hindered amine light stabilizers
- Oxalanilides
- Cyanoacrylates

# Potential regrettable substitutes

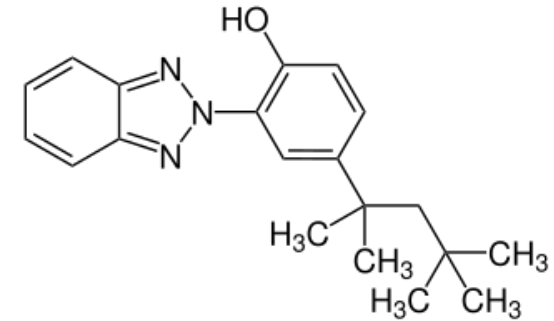
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UV-234



UV-326



UV-329

(potentially very **persistent** and **bioaccumulative** substances)

and several others...

# References

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Draft risk management evaluation: UV-328

(UNEP/POPS/POPRC.18/3/Add.1)

Comments and responses relating to the draft risk management evaluation on UV-328

(UNEP/POPS/POPRC.18/INF/7)

Accessible at: <http://www.pops.int/TheConvention/POPsReviewCommittee/Meetings/POPRC18/Overview/tabid/9165/Default.aspx>

Draft risk profile: UV-328

(UNEP/POPS/POPRC.17/4)

Accessible at: <http://www.pops.int/TheConvention/POPsReviewCommittee/Meetings/POPRC17/Overview/tabid/8900/Default.aspx>

**Thank you for your attention!**

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