

1H-BENZOTRIAZOLE

CAS number: 95-14-7

Synonyms: Benzotriazole, benztriazole, benzoisotriazole, 1,2,3-benzotriazole, aziminobenzene, benzene azimide, 1,2-aminozophenylene, 1,2,3-triazaindene

Chemical formula: C₆H₅N₃

Structural formula:

Workplace exposure standard (interim)

TWA: —

STEL: —

Peak limitation: —

Notations: —

IDLH: —

Sampling and analysis: —

Recommendation and basis for workplace exposure standard

A workplace exposure standard is not recommended as the available data is considered insufficient to support a health-based recommendation.

An evaluation of additional sources, including dermal studies, are recommended at the next scheduled review.

Discussion and conclusions

Benzotriazole is used primarily as a corrosion inhibitor, a UV stabiliser in plastics and in the pharmaceutical industry.

Limited animal studies are available. Studies support carcinogenic and reproductive toxic effects in rats. Eye irritation has been reported and skin contact is expected to contribute to systemic toxicity.

There is an insufficient weight of evidence to support any further recommendations.

Recommendation for notations

The data in the primary and secondary sources is considered insufficient to support recommendation of notations.

Not classified as carcinogenic according to the Globally Harmonized System of Classification and Labelling of Chemicals (GHS).

Not classified as a skin sensitiser or respiratory sensitiser according to the GHS.

Insufficient data available to recommend a skin notation.

APPENDIX

Primary sources with reports

Source	Year set	Standard
SWA	NA	NA
ACGIH	NA	NA
No report		
DFG	2019	Not Assigned
<p>Animal studies provide sufficient weight of evidence to support carcinogenicity (glioma and oligodendroglioma in rat brains) and for this reason carcinogen category 3B notation is assigned.</p> <p>Limited database of studies for embryotoxicity and teratogenic effects.</p> <p>No genotoxic potential effects found in bacterial or animal testing.</p> <p>Anticipated to cause eye irritation based on animal studies.</p> <p>Skin contact is expected to contribute to systemic toxicity; H notation applied.</p> <p>Limited data for evidence of sensitisation.</p> <p>Summary of data:</p> <p>Animal data:</p> <ul style="list-style-type: none"> • NOAEL of 12.5 mg/kg/d for bleeding mucous membranes (mouth and nose) in sub-chronic oral toxicity studies (rats) • Evidence of reproductive toxicity effects with reduced pup bw (rat) during lactation at 300 mg/kg/d • LD₅₀: > 2000 mg/kg (rabbit) and > 1000 mg/kg (guinea pig; dermal) • LD₅₀: 238 mg/kg for acute toxicity (rats, intravenous) • Not mutagenic in <i>Salmonella typhimurium</i> TA1535. 		
SCOEL	NA	NA
No report		
OARS/AIHA	NA	NA
No report		

Source	Year set	Standard
HCOTN	2000	Not Assigned
<p>Database considered inconclusive for carcinogenic potential. Classified as a suspect (weak) carcinogen.</p> <p>Reported as 'harmful following inhalation and oral exposure' based on acute animal lethal toxicity data.</p> <p>A NOAEL could not be established.</p> <p>Summary of additional data:</p> <p>Human data:</p> <ul style="list-style-type: none"> • Dermatitis observed in 4 workers in a dermal study • Sensitisation could not be excluded. <p>Animal data:</p> <ul style="list-style-type: none"> • LC₅₀: 2,153 mg/m³ (rats, 3 h) • LD₅₀: 500-965 mg/kg (rats, oral) • Eye irritation observed in rabbit study (n=6) with reduced irritation following flushing • Mild skin irritation observed in guinea-pigs and rabbits. 		

Secondary source reports relied upon

NIL

Carcinogenicity — non-threshold based genotoxic carcinogens

Is the chemical mutagenic?

Insufficient data

The chemical is not a non-threshold based genotoxic carcinogen.

Notations

Source	Notations
SWA	—
HCIS	—
NICNAS	—
EU Annex	—
ECHA	—
ACGIH	—
DFG	Carcinogenicity – 3B; H (skin)
SCOEL	—
HCOTN	Carcinogenicity – category 3
IARC	—
US NIOSH	—

NA = not applicable (a recommendation has not been made by this Agency); — = the Agency has assessed available data for this chemical but has not recommended any notations

Skin notation assessment

Calculation

Insufficient data available to assign a skin notation.

IDLH

Is there a suitable IDLH value available? No

Additional information

Molecular weight:	119.14
Conversion factors at 25°C and 101.3 kPa:	1 ppm = Number mg/m ³ ; 1 mg/m ³ = Number ppm
This chemical is used as a pesticide:	<input type="checkbox"/>
This chemical is a biological product:	<input type="checkbox"/>
This chemical is a by-product of a process:	<input checked="" type="checkbox"/>
A biological exposure index has been recommended by these agencies:	<input type="checkbox"/> ACGIH <input type="checkbox"/> DFG <input type="checkbox"/> SCOEL

Workplace exposure standard history

Year	Standard
Click here to enter year	

References

Deutsche Forschungsgemeinschaft (DFG) (2019) Benzotriazole / 1*H*-Benzotriazole – MAK value documentation.

Health Council of the Netherlands (HCOTN) (2000) 1,2,3-Benzotriazole. Health-based calculated occupational cancer risk values. The Hague: Health Council of the Netherlands; publication no. 2000/14OSH.