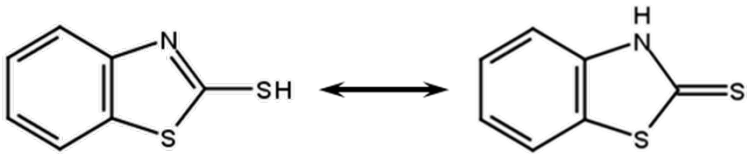
FACTSHEET **HBM-value for** **2-MBT**			
Substance name	**2-Mercaptobenzothiazole, Benzothiazole-2-thiol**		
Parameter	**Value / Descriptor**	**Dimension**	**Comments**
HBM Guide value			
Guide value II (HBM-II, Health hazard value)	-		
Guide value I (HBM-I, Precautionary value)	Children: 4,5 Adults: 7	mg/l	urine
Year of issue	2015		
status	final		
General Information			
CAS No. substance	149-30-4		
IUPAC name	1,3-benzothiazole-2-thiol		
Molar mass substance	167,24	g/mol	
HBM-parameter	2-MBT and glucuronides after enzymatic hydrolysis to release 2-MBT		
Database (TDI or key study)			
Key study: Author(s) (Year)	NTP (1988)		
Species	mouse		
Route/type of study	oral		
Study length (Exposure duration)	90	d	
Exposure pattern			
Critical endpoint/ effect	Rel. liver weight		
PoD_{HBM-I}	94	mg/(kg bw x d)	NOAEL
Assessment factors for the key study			
Severity of effect	n.a.		
Adjusted exposure duration factor (time scaling)	n.a.		e.g. 6 hrs/d to 24 hrs/d
Adjusted study length factor	2		Subchronic → chronic
Route-to-route extrapolation factor	n.a.		
Adjusted absorption factor	n.a.		
Interspecies factor	7		allometric
	2,5		dynamic
Intraspecies factor	10		general population
Sensitive population factor			
Other adjustment factors e.g. quality of whole database	n.a.		e.g. Klimisch (reliable with restrictions)
Total assessment factor (TAF)	350		
Kinetik terms for HBM value calculation			
fue	0,45		fraction of dose excreted in urine, molar basis

Urine volume	0.02 0.03	l/(kg bw x d) l/(kg bw x d)	adults children
Result (Calculation)			
PoD $_{HBM-I}$/TAF	94 : 350 = 0,27 → 0,3	mg/(kg bw x d)	Tolerable daily intake for humans, basis for HBM-I value derivation
Kinetic extrapolation and HBM value calculation for children	0,3 x 1 x 0,45 : 0,03 → 4,5	mg/l	PoD $_{HBM-I}$/TAF x (molecular weight 2-MBT/molecular weight 2-MBT) x fue : 0,03 → HBM-I children
Kinetic extrapolation and HBM value calculation for adults	0,3 x 1 x 0,45 : 0,02 → 6,8 (rounded value: 7)	mg/l	PoD $_{HBM-I}$/TAF x (molecular weight 2-MBT/molecular weight 2-MBT) x fue : 0,02 → HBM-I adults
Management			
The values apply to children or adults, respectively. If the HBM values are exceeded a check-up will be necessary at first. Skin sensitization was not considered for the HBM value derivation			

*) "Grundsatzpapier" for the derivation of HBM guide values. Bundesgesundheitsbl 2014:57:

Rationale

2-mercaptobenzothiazole (2-MBT, CAS-No 149-30-4) is mainly used as vulcanization accelerator in the production of rubber. Other applications are as fungicide in paints and varnishs or for the external treatment of animals. Because of its manifold application in consumer products an exposure of the general public can't be excluded.

For the toxicological evaluation of a possible body burden the German HBM-commission derived HBM-I values for 2-MBT in the urine of children and adults. The No Observed Adverse Effect Level (NOAEL) of 94 mg/kg bw/d from a subchronic oral study with mice was thereby used as point of departure (POD). After consideration of a total assessment factor of 350 a tolerable daily intake of 0,3 mg/kg bw/d was deduced for humans. Consideration of the percentage of 2-MBT and its glucuronide excreted in urine together with the body weight proportional urine volume leads to a HBM-I value for 2-MBT in the urine of children of 4,5 mg/l and for 2-MBT in the urine of adults of 7 mg/l.

Skin sensitization was not considered for the HBM value derivation**.**