REACH

Pentaerythritol tetrakis(3-(3,5-di-tert-butyl-4-hydroxyphenyl)propionate)

EC number: 229-722-6 | CAS number: 6683-19-8

Toxicological information

Toxicological Summary

Administrative data

Workers - Hazard via inhalation route

Systemic effects

Long term exposure

Hazard assessment conclusion:	DNEL (Derived No Effect Level)
Value:	10 mg/m³

DNEL related information

DNEL derivation method:	other: The general exposure limit for dust is applied

Acute/short term exposure

Hazard assessment conclusion:	no hazard identified

DNEL related information

Local effects

Long term exposure

Hazard assessment conclusion:	no hazard identified

Acute/short term exposure

Hazard assessment conclusion:	no hazard identified

DNEL related information

Workers - Hazard via dermal route

Systemic effects

Long term exposure

Hazard assessment conclusion:	DNEL (Derived No Effect Level)
Value:	89.2 mg/kg bw/day
Most sensitive endpoint:	repeated dose toxicity
Route of original study:	Oral

DNEL related information

DNEL derivation method:	ECHA REACH Guidance
Overall assessment factor (AF):	50
Dose descriptor starting point:	NOAEL
Value:	446 mg/kg bw/day
Modified dose descriptor starting point:	NOAEL
Value:	4 460 mg/kg bw/day
Explanation for the modification of the dose descriptor starting point:	The dermal route is typically covered by oral route information in the absence of data for this administration route. No data on skin permeation is available. However, since the test article has

	a molecular weight of > 500 and the log Pow is not within -1 to 4, a skin penetration of 10% can be assumed and the NOAEL is modified by a factor of 10 (ECHA GD chapter R7c).
AF for dose response relationship:	1
Justification:	The dose response relationship is considered unremarkable, therefore no additional factor is used.
AF for differences in duration of exposure:	1
Justification:	chronic study
AF for interspecies differences (allometric scaling):	4
Justification:	extrapolation from rat to human
AF for other interspecies differences:	2.5
Justification:	standard factor for remaining uncertainties
AF for intraspecies differences:	5
Justification:	standard factor for worker
AF for the quality of the whole database:	1
Justification:	study valid and similar to guideline
AF for remaining uncertainties:	1
Justification:	The approach used for DNEL derivation is conservative. No further assessment factors are required.

Acute/short term exposure

Hazard assessment conclusion:	no hazard identified

DNEL related information

Local effects

Long term exposure

Hazard assessment conclusion:	no hazard identified

Acute/short term exposure

Hazard assessment conclusion:	no hazard identified

Workers - Hazard for the eyes

Local effects

Hazard assessment conclusion:	no hazard identified

Additional information - workers

Identification of relevant dose descriptor

The NOAEL of 446 mg/kg body weight observed in the chronic feeding study in rats was identifies as the most relevant value and was chosen for derivation of the DNEL.

General Population - Hazard via inhalation route

Systemic effects

Long term exposure

Hazard assessment conclusion:	DNEL (Derived No Effect Level)
Value:	7.7 mg/m³
Most sensitive endpoint:	repeated dose toxicity
Route of original study:	Oral

DNEL related information

DNEL derivation method:	ECHA REACH Guidance

Overall assessment factor (AF):	25
Dose descriptor starting point:	NOAEL
Value:	446 mg/kg bw/day
Modified dose descriptor starting point:	NOAEC
Value:	193.9 mg/m³
Explanation for the modification of the dose descriptor starting point:	Because no inhalation study is available, a route to route extrapolation was performed. The NOAEL (oral) has to be modified into a NOAEC (corrected) in accordance to guidance on information requirements and chemical safety assessment, Chapter R.8, ECHA, May 2008. Here, the NOAEL has to be divided by a factor of 1.15 m³/kg body weight. In addition, a default factor of 2 is applied to account for differences in oral and inhalative absorption properties. The corrected starting point is therefore: NOAEC (corrected) = 446 mg/kg / 1.15 m³/kg x 0.5 = 193.9 mg/m³
AF for dose response relationship:	1
Justification:	The dose response relationship is considered unremarkable, therefore no additional factor is used.
AF for differences in duration of exposure:	1
Justification:	chronic study used as stating point
AF for interspecies differences (allometric scaling):	1
Justification:	Allometric scaling is part of the route to route extrapol
AF for other interspecies differences:	2.5
Justification:	standard factor for r ining uncertainti
AF for intraspecies differences:	10
Justification:	st tor for the al population
AF for the quality of the database:	
Justifi tion:	study co to guideline
AF unce	1
Justifica	The approach used for DNEL derivation is conservative. No further assessment factors are required.

Acute/short term exposure

Hazard assessment conclusion:	no hazard identified

DNEL related information

Local effects

Long term exposure

Hazard assessment conclusion:	no hazard identified

Acute/short term exposure

Hazard assessment conclusion:	no hazard identified

DNEL related information

General Population - Hazard via dermal route

Systemic effects

Long term exposure

Hazard assessment conclusion:	DNEL (Derived No Effect Level)
Value:	44.6 mg/kg bw/day
Most sensitive endpoint:	repeated dose toxicity

Route of original study:	Oral

DNEL related information

DNEL derivation method:	ECHA REACH Guidance
Overall assessment factor (AF):	100
Dose descriptor starting point:	NOAEL
Value:	446 mg/kg bw/day
Modified dose descriptor starting point:	NOAEL
Value:	4 460 mg/kg bw/day
Explanation for the modification of the dose descriptor starting point:	The dermal route is typically covered by oral route information in the absence of data for this administration route. No data on skin permeation is available. However, since the test article has a molecular weight of > 500 and the log Pow is not within -1 to 4, a skin penetration of 10% can be assumed and the NOAEL is modified by a factor of 10 (ECHA GD chapter R7c).
AF for dose response relationship:	1
Justification:	The dose response relationship is considered unremarkable, therefore no additional factor is used.
AF for differences in duration of exposure:	1
Justification:	chronic study
AF for interspecies differences (allometric scaling):	4
Justification:	extrapolation from rat to human
AF for other interspecies differences:	2.5
Justification:	standard factor for r ining uncertainties
AF for intraspecies differences:	10
Justification:	sta or for the g al population
AF for the quality of the database:	
Justification:	study va milar to guideline
Ar inin unc	1
Justific	The approach used for DNEL derivation is conservative. No further assessment factors are required.

Acute/sho erm exposure

Hazard assessment conclusion:	no hazard identified

DNEL related information

Local effects

Long term exposure

Hazard assessment conclusion:	no hazard identified

Acute/short term exposure

Hazard assessment conclusion:	no hazard identified

General Population - Hazard via oral route

Systemic effects

Long term exposure

Hazard assessment conclusion:	DNEL (Derived No Effect Level)
Value:	4.6 mg/kg bw/day
Most sensitive endpoint:	repeated dose toxicity
Route of original study:	Oral

DNEL related information

DNEL derivation method:	ECHA REACH Guidance
Overall assessment factor (AF):	100
Dose descriptor starting point:	NOAEL
Value:	446 mg/kg bw/day
AF for dose response relationship:	1
Justification:	The dose response relationship is considered unremarkable, therefore no additional factor is used.
AF for differences in duration of exposure:	1
Justification:	chronic study
AF for interspecies differences (allometric scaling):	4
Justification:	extrapolation from rat to human
AF for other interspecies differences:	2.5
Justification:	standard factor for remaining uncertainties
AF for intraspecies differences:	10
Justification:	standard factor for the general population
AF for the quality of the whole database:	1
Justification:	Valid study similar to guideline
AF for remaining uncertainties:	1
Justification:	The approach used fo NEL derivation is c nse o further assessment ors are required.

Acute/short term exposure

Hazard assessment conclusion:	no h ified

DNEL related info

G al R ulation - Ha or the eyes

Loca cts

Hazard as conclusion:	no hazard identified

Additional information - General Population