REACH

L-menthyl acetate

EC number: 220-076-0 | CAS number: 2623-23-6

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:	33.6 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):	12.5
Modified dose descriptor starting point:	NOAEC
Value:	420 mg/m³
Explanation for the modification of the dose descriptor starting point:	8 h exposure time, extrapolation from 50% bioavailability oral to 100% bioavailability inhalation, no inhalation study available. Corrected inhalatory NOAEC = 476 mg/kg bw/day*(1/0.38 m3/kg/day)*(50%/100%)*(6.7 m3 (8h)/10 m3 (8h)) = 420 mg/m3
AF for dose response relationship:	1
Justification:	not required, starting point is NO(A)EL
AF for differences in duration of exposure:	1
Justification:	not required, extrapolation from chronic study
AF for interspecies differences (allometric scaling):	1
Justification:	not for concentrations
AF for other interspecies differences:	2.5
Justification:	default factor for remaining differences
AF for intraspecies differences:	5
Justification:	default factor for worker
AF for the quality of the whole database:	1
Justification:	not required
AF for remaining uncertainties:	1
Justification:	not 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

Workers - Hazard via dermal route

Systemic effects

Long term exposure

Hazard assessment conclusion:	DNEL (Derived No Effect Level)
Value:	9.5 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
Modified dose descriptor starting point:	NOAEL
Value:	476 mg/kg bw/day
Explanation for the modification of the dose descriptor starting point:	assumed that rat oral and dermal absorptions are equal to human oral and dermal absorption
AF for dose response relationship:	1
Justification:	not required, starting point is NO(A)EL
AF for differences in duration of exposure:	1
Justification:	not required, extrapolation from chronic study
AF for interspecies differences (allometric scaling):	4
Justification:	allometric scaling factor rat-human
AF for other interspecies differences:	2.5
Justification:	default factor for remaining differences
AF for intraspecies differences:	5
Justification:	default factor for worker
AF for the quality of the whole database:	1
Justification:	not required
AF for remaining uncertainties:	1
Justification:	not required

Acute/short term exposure

Hazard assessment conclusion:	no hazard identified
Most sensitive endpoint:	acute toxicity
Route of original study:	Dermal

DNEL related information

Local effects

Long term exposure

Hazard assessment	no hazard identified

conclusion:

Acute/short term exposure

Hazard assessment conclusion:	no hazard identified
Most sensitive endpoint:	skin irritation/corrosion

Workers - Hazard for the eyes

Local effects

Hazard assessment conclusion:	no hazard identified

Additional information - workers

The long-term inhalation DNEL for systemic effects is derived from the chronic oral toxicity study (103-week feeding study) conducted with the read across substance DL-Menthol resulting in a NOAEL > 476 mg/kg bw/day for L-Menthyl acetate. Route-to-route (oral-inhalation) extrapolation was performed. The calculated DNEL is 33.6 mg/m³, applying the assessment factor of 12.5.

The acute/short term inhalation DNEL for systemic effects was not required, since the substance is unlikely to exhibit significant acute inhalation toxicity. Please refer to the waiver for the acute inhalation toxicity study for more discussion (section 7.2.2).

The long-term inhalation DNEL for local effects was not derived, since no hazard was identified based on absence of local irritation potential from skin and eye irritation studies.

The acute/short term inhalation DNEL for local effects was not derived, since there is no hazard identified. From the skin and eye irritation study it is known that Menthyl acetate shows no irritating properties and therefore has no hazard for local effects.

The long-term dermal DNEL for systemic effects is derived also on the basis of the same chronic oral toxicity study (103-week feeding study). For the route-to-route extrapolation it was assumed that oral and dermal absorption in the rat are equal to human oral and dermal absorption. The calculated DNEL is 9.5 mg/kg bw/day, applying the assessment factor of 50.

The acute/short term dermal DNEL for systemic effects was not required, since the substance showed no acute dermal toxicity and the hazard was not identified.

The long-term dermal DNEL for local effects was not derived, since no hazard was identified based on absence of skin sensitising or skin irritating potential.

The acute/short term dermal DNEL for local effects was not derived, since there is no hazard identified. From the skin irritation study it is known that Menthyl acetate shows no irritating properties and therefore has no hazard for local effects.

General Population - Hazard via inhalation route

Systemic effects

Long term exposure

Hazard assessment conclusion:	DNEL (Derived No Effect Level)
Value:	8.3 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
Modified dose descriptor starting point:	NOAEC
Value:	207 mg/m³
Explanation for the modification of the dose descriptor starting point:	24 h exposure time, extrapolation from 50% bioavailability oral to 100% bioavailability inhalation, no inhalation study available. Corrected inhalatory NOAEC = 476 mg/kg bw/day*(1/1.15 m3/kg/day)*(50%/100%) = 207 mg/m3
AF for dose response relationship:	1
Justification:	not required, starting point is NO(A)EL
AF for differences in duration of exposure:	1
Justification:	not required, extrapolation from chronic study
AF for interspecies differences (allometric scaling):	1
Justification:	not for concentration
	2.5

AF for other interspecies differences:	
Justification:	default factor for remaining differences
AF for intraspecies differences:	10
Justification:	default factor for general population
AF for the quality of the whole database:	1
Justification:	not required
AF for remaining uncertainties:	1
Justification:	not 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:	4.8 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
Modified dose descriptor starting point:	NOAEL
Value:	476 mg/kg bw/day
Explanation for the modification of the dose descriptor starting point:	assumed that rat oral and dermal absorptions are equal to human oral and dermal absorptions
AF for dose response relationship:	1
Justification:	not required, starting point is NOAEL
AF for differences in duration of exposure:	1
Justification:	not required, extrapolation from chronic study
AF for interspecies differences (allometric scaling):	4
Justification:	allometric scaling factor rat-human
AF for other interspecies differences:	2.5
Justification:	default factor for remaining differences
AF for intraspecies differences:	10
Justification:	default factor for general population

AF for the quality of the whole database:	1
Justification:	not required
AF for remaining uncertainties:	1
Justification:	not required

Acute/short term exposure

Hazard assessment conclusion:	no hazard identified
Most sensitive endpoint:	acute toxicity

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:	4.8 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
Modified dose descriptor starting point:	NOAEL
Value:	476 mg/kg bw/day
Explanation for the modification of the dose descriptor starting point:	no route-to-route extrapolation performed
AF for dose response relationship:	1
Justification:	not required, starting point is NO(A)EL
AF for differences in duration of exposure:	1
Justification:	not required, extrapolation from chronic study
AF for interspecies differences (allometric scaling):	4
Justification:	allometric scaling factor rat-human
AF for other interspecies differences:	2.5
Justification:	default factor for remaining differences
AF for intraspecies differences:	10
Justification:	default factor for general population
AF for the quality of the whole database:	1
Justification:	not required
AF for remaining uncertainties:	1
Justification:	not required

Acute/short term exposure

Hazard assessment conclusion:	no hazard identified
Most sensitive endpoint:	acute toxicity

DNEL related information

General Population - Hazard for the eyes

Local effects

Hazard assessment conclusion:	no hazard identified

Additional information - General Population

The long-term inhalation DNEL for systemic effects is derived from the chronic oral toxicity study (103-week feeding study) conducted with the read across substance DL-Menthol resulting in a NOAEL > 476 mg/kg bw/day L-Menthyl acetate. Route-to-route (oral-inhalation) extrapolation was performed. The calculated DNEL is 8.3 mg/m³, applying the assessment factor of 25.

The acute/short term inhalation DNEL for systemic effects was not required, since the substance is unlikely to exhibit significant acute inhalation toxicity. Please refer to the waiver for the acute inhalation toxicity study for more discussion (section 7.2.2).

The long-term inhalation DNEL for local effects was not derived, since no hazard was identified based on absence of local irritation potential from skin and eye irritation studies.

The acute/short term inhalation DNEL for local effects was not derived, since there is no hazard identified. From the skin and eye irritation study it is known that Menthyl acetate shows no irritating properties and therefore has no hazard for local effects.

The long-term dermal DNEL for systemic effects is derived also on the basis of the same chronic oral toxicity study (103-week feeding study). For the route-to-route extrapolation it was assumed that oral and dermal absorption in the rat are equal to human oral and dermal absorption. The calculated DNEL is 4.8 mg/kg bw/day, applying the assessment factor of 100.

The acute/short term dermal DNEL for systemic effects is not required, since the substance showed no acute dermal toxicity and the hazard was not identified.

The long-term dermal DNEL for local effects was not derived, since no hazard was identified based on absence of skin sensitising or skin irritating potential.

The acute/short term dermal DNEL for local effects was not derived, since there is no hazard identified. From the skin irritation study it is known that Menthyl acetate shows no irritating properties and therefore has no hazard for local effects.

The long-term oral DNEL for systemic effects is derived from the chronic oral toxicity study (103-week feeding study) with read across substance DL-Menthol giving a NOAEL > 476 mg/kg bw/day for Menthyl acetate. The calculated DNEL is 4.8 mg/kg bw/day, applying the assessment factor of 100.

The acute/short term oral DNEL for systemic effects is not required, since the substance showed no acute oral toxicity and the hazard was not identified.