

Mining the ECHA Website

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What is REACH?

- REACH is an EU Regulation:
 - Registration, Evaluation, Authorisation and Restriction of Chemicals
 - EC1907/2006
 - Requires all manufacturers and importers of chemical substances to register those substances and provide the authorities and users with information on safe use.
 - To date 22419 unique substances registered
 - Contains information from 96336 dossiers.

Registration Search Page

- <https://echa.europa.eu/information-on-chemicals/registered-substances>

▼ Substance identity

Substance name:	<input type="text"/>	CAS number:	<input type="text"/>
EC / List number:	<input type="text"/>	Other Numerical Identifiers:	<input type="text"/> <input type="button" value="Type"/>

> Administrative data

> Substance data

> Uses and exposure

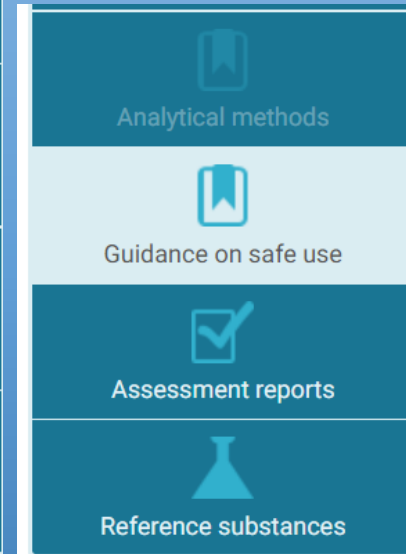
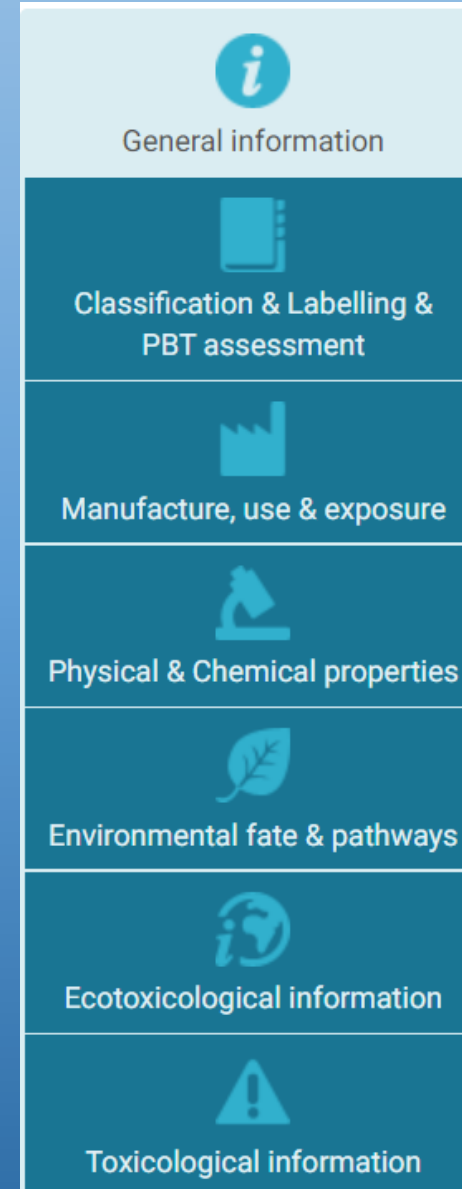
What are the different registrations?

- Full, Intermediate, Different Tonnage Bands









Name	EC / List no.	CAS no.	Registration type	Submission type	Total tonnage band	
Hexamethylene diisocyanate	212-485-8	822-06-0	Full		10 000 - 100 000 tonnes per annum	
Hexamethylene diisocyanate	212-485-8	822-06-0	Intermediate		Intermediate Use Only	
Hexamethylene diisocyanate, oligomerisation product, blocked with 2-butanone oxime	617-779-3	85940-94-9	Full		1 000 - 10 000 tonnes per annum	
Hexamethylene diisocyanate, oligomerisation product, blocked with 3,5-Dimethyl-1H-pyrazole	605-318-9	163206-31-3	Full		1 000 - 10 000 tonnes per annum	
Hexamethylene diisocyanate, oligomerisation product, blocked with N-butyl-1-butanamine	924-903-2	-	Full		100 - 1 000 tonnes per annum	
Hexamethylene diisocyanate, oligomers, reaction products with 3-methoxypropylamine	500-740-9	162492-07-1	Full		Tonnage Data Confidential	

What kind of data is included?

- Classification and Labeling
- Physical and Chemical Properties
- Environmental Data
- Tox Data
- Safe Use Information



Toxicity Data









 General information	- Toxicological Summary
 Classification & Labelling & PBT assessment	▶ Toxicokinetics, metabolism and distribution
 Manufacture, use & exposure	▼ Acute Toxicity <ul style="list-style-type: none">- Endpoint summary- Acute Toxicity: oral- Acute Toxicity: inhalation- Acute Toxicity: dermal- Acute Toxicity: other routes
 Physical & Chemical properties	▶ Irritation / corrosion
 Environmental fate & pathways	▶ Sensitisation
 Ecotoxicological information	▶ Repeated dose toxicity
 Toxicological information	▶ Genetic toxicity <ul style="list-style-type: none">- Carcinogenicity
	▶ Toxicity to reproduction
	▶ Specific investigations
	▶ Exposure related observations in humans <ul style="list-style-type: none">- Toxic effects on livestock and pets
	- Additional toxicological data

-□Reference 1

Endpoint:	acute toxicity: oral
Type of information:	experimental study
Adequacy of study:	key study
Study period:	before July 1970
Reliability:	2 (reliable with restrictions)
Rationale for reliability incl. deficiencies:	study well documented, meets generally accepted scientific principles, acceptable for assessment
Qualifier:	equivalent or similar to
Guideline:	OECD Guideline 401 (Acute Oral Toxicity)
Deviations:	yes
Remarks:	no data on body weights or necropsy findings
GLP compliance:	no
Test type:	standard acute method
Dose descriptor:	LD50
Effect level:	959 mg/kg bw
95% CL:	>= 837 - <= 1 103

Where does the data come from?

- Chemical Manufacturer's and Importers pool their data
- “One chemical – one registration”
- Registrants are identified on the general tab

Registrant / Supplier details	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
BASF Polyurethanes GmbH Elastogranstr. 60 49448 Lemförde Niedersachsen Germany											
BASF SE Carl-Bosch-Str. 38 67056 Ludwigshafen am Rhein Rheinland-Pfalz Germany											
● BorsodChem Zrt. - OR Bolyai ter 1. H-3700 Kazincbarcika Hungary											
Chemours Netherlands B.V. Baanhoekweg 22 3313 LA Dordrecht Netherlands											
● Covestro Deutschland AG Kaiser-Wilhelm-Allee 60 51373 Leverkusen Germany											
● Covestro Deutschland AG OR CN_001554 Kaiser-Wilhelm-Allee 60 51373 Leverkusen Germany											
● Covestro Deutschland AG OR US_001257 Kaiser-Wilhelm-Allee 60 51373 Leverkusen Germany											
Envigo Research Limited Shardlow Business Park London Road DE72 2GD Shardlow Derbyshire United Kingdom											

DNELS (Derived No Effect Levels)

- Benchmark not an exposure limit.
- The manufacturer or importer uses the DNEL to identify the correct Risk Management Measures for a specific use of the substance.
- Calculated based on toxicity data (safety factors applied)
- Exposure for workers and the general public should not exceed the DNEL

Hexamethylene Diisocyanate

Workers - Hazard via inhalation route

Systemic effects

Long term exposure

Hazard assessment conclusion: no hazard identified

Acute/short term exposure

Hazard assessment conclusion: no hazard identified

DNEL related information

Local effects

Long term exposure

Hazard assessment conclusion: DNEL (Derived No Effect Level)

Value: 0.035 mg/m³

Most sensitive endpoint: irritation (respiratory tract)

DNEL related information

DNEL derivation method: other: German MAK commission (national OEL Germany)

Acute/short term exposure

Hazard assessment conclusion: DNEL (Derived No Effect Level)

Value: 0.07 mg/m³

Most sensitive endpoint: irritation (respiratory tract)

DNEL related information

DNEL derivation method: other: German MAK commission (national OEL Germany)

N-Hexane

Workers - Hazard via inhalation route

Systemic effects

Long term exposure

Hazard assessment conclusion: DNEL (Derived No Effect Level)

Value: 75 mg/m³

Most sensitive endpoint: neurotoxicity

DNEL related information

Overall assessment factor (AF): 3

Modified dose descriptor starting point: LOAEC

Acute/short term exposure

Workers - Hazard via dermal route

Systemic effects

Long term exposure

Hazard assessment conclusion: DNEL (Derived No Effect Level)

Value: 11 mg/kg bw/day

Most sensitive endpoint: neurotoxicity

DNEL related information

Overall assessment factor (AF): 3

Modified dose descriptor starting point: NOAEL

Acute/short term exposure

DNEL related information

General Population - Hazard via inhalation route

Systemic effects

Long term exposure

Hazard assessment conclusion: DNEL (Derived No Effect Level)

Value: 16 mg/m³

Most sensitive endpoint: neurotoxicity

DNEL related information

Overall assessment factor (AF): 5

Modified dose descriptor starting point: NOAEC

Acute/short term exposure


DNEL related information

Worker DNEL Website


- <https://www.dguv.de/ifa/gestis/gestis-dnel-liste/index-2.jsp>

International Limit Values

<https://limitvalue.ifa.dguv.de/>

**IFA**
Institut für Arbeitsschutz der
Deutschen Gesetzlichen Unfallversicherung

GESTIS International Limit Values

Substance 

CAS No.

[A](#)|[B](#)|[C](#)|[D](#)|[E](#)|[F](#)|[G](#)|[H](#)|[I](#)|[J](#)|[K](#)|[L](#)|[M](#)|[N](#)|[O](#)|[P](#)|[Q](#)|[R](#)|[S](#)|[T](#)|[U](#)|[V](#)|[W](#)|[X](#)|[Y](#)|[Z](#)

Alphabetical Listing - A

Substance	Remark
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Substance	Toluene			
CAS No.	108-88-3			
	Limit value - Eight hours			Limit value - Short term
	ppm	mg/m ³	ppm	mg/m ³
Australia	50	191	150	574
Austria	50	190	100	380
Belgium	20 (1)	77 (1)	100 (1)(2)	384 (1)(2)
Canada - Ontario	20			
Canada - Québec	50	188		
Denmark	25	94	50	188
European Union	50	192	100 (1)	384 (1)
Finland	25	81	100 (1)	380 (1)
France	20	76,8	100 (1)	384 (1)
Germany (AGS)	50	190	200 (1)	760 (1)
Germany (DFG)	50	190	200	760
Hungary		190		380
Ireland	50	192	100 (1)	384 (1)
Israel	50	188		
Italy	50	192		

<u>Japan (MHLW)</u>	20			
Japan (JSOH)	50	188		
Latvia	14	50	40 (1)	150 (1)
New Zealand	50	188		
People's Republic of China		50		100 (1)
Poland		100		200
Romania	50	192	100 (1)	384 (1)
Singapore	50	188		
South Korea	50	188	150	560
Spain	50	191	100	384
Sweden	50	192	100 (1)	384 (1)
Switzerland	50	190	200	760
The Netherlands		150		384
Turkey	50	192	100 (1)	384 (1)
USA - NIOSH	100	375	150 (1)	560 (1)
USA - OSHA	200		300	
United Kingdom	50	191	100	384

Practical Example

- Your company started using a new “safer” pesticide (EPA 25b). Landscape workers are complaining of skin rashes and eye irritation. You wonder if this new pesticide might be to blame. You get the US SDS for the product.

Flammable Liquid	Category 2
Eye Damage	Category 1
Skin sensitization	Category 1
Specific Target Organ Toxicity – Single Exposure	Category 3

Composition

Chemical name	CAS-No	Percent
Water	7732-18-5	20-40
Isopropanol	67-63-0	20-40
Isopropyl Myristate	110-27-0	10-15
Triethyl Citrate	77-93-0	10-15
Geraniol	106-24-1	1-3
Vanillin	121-33-5	1-3

Manufacturer Contact

- The manufacturer offers a replacement product with a different formulation – will that solve the problem?

Chemical name	CAS-No	Percent
Water	7732-18-5	20-40
Ethanol	67-63-0	10-20
Propylene Glycol	110-27-0	10-15
Sodium Citrate	77-93-0	10-15
Geraniol	106-24-1	1-3
Vanillin	121-33-5	1-3

Ingredient Classifications from ECHA

Chemical name	CAS-No	Percent	Substance Classification
Water	7732-18-5	20-40	Not classified as hazardous
Isopropanol	67-63-0	20-40	Eye Irritation Category 2A Specific Target Organ Toxicity Single Exposure Category 3 (nervous system)
Isopropyl Myristate	110-27-0	10-15	Not classified as hazardous
Triethyl Citrate	77-93-0	10-15	Not classified as hazardous
Geraniol	106-24-1	1-3	Skin Irritation Category 2 Eye Damage Category 1 Skin Sensitizer Category 1
Vanillin	121-33-5	1-3	Eye Irritation Category 2A