

Hexamethylene diisocyanate (HDI) CAS-No. 822-06-0 (January 2016)

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Country / Region	Limit type	Value [ppm]	Value [mg/m3]	Remarks and additional information (not exhaustive; refer to regulation)
Australia	Short Term Exposure Limit (STEL)		0.07 mg/m3	
Australia	Time Weighted Average (TWA)		0.02 mg/m3	
Austria	MAK Ceiling Limit Value	0.005 ppm	0.035 mg/m3	
Austria	Maximum allowable concentration	0.005 ppm	0.035 mg/m3	
Belarus	Short-term Exposure Limit STEL (Maximum allowable concentrations, MAC)		0.05 mg/m3	Exposure: Vapour
Belgium	Time Weighted Average (TWA)	0.005 ppm	0.034 mg/m3	
Fed. of Bosnia and Herzegovina	Maximum allowable concentration	0.005 ppm	0.035 mg/m3	
Bulgaria	Time Weighted Average (TWA)		0.1 mg/m3	
Canada Alberta	Time Weighted Average (TWA)	0.005 ppm	0.03 mg/m3	
Canada British Columbia	Ceiling Limit Value	0.01 ppm		
Canada British Columbia	Time Weighted Average (TWA)	0.005 ppm		
Canada Manitoba (MB)	Time Weighted Average (TWA)	0.005 ppm		
Canada Ontario	Ceiling Limit Value (CEV)	0.02 ppm		
Canada Ontario	Time Weighted Average (TWAEV)	0.005 ppm		
Canada Quebec	Time Weighted Average (TWA)	0.005 ppm	0.034 mg/m3	Exposure must be minimized.
Canada Saskatchewan	15 minute average contamination limit	0.015 ppm		
Canada Saskatchewan	8 hour average contamination limit	0.005 ppm		
China	Permissible concentration - Time Weighted Average (PC-TWA)		0.03 mg/m3	
Czech Republic	Time Weighted Average (TWA)		0.035 mg/m3	
Czech Republic	Ceiling Limit Value		0.07 mg/m3	
Denmark	Threshold Limit Values (TLV)	0.005 ppm	0.035 mg/m3	
Estonia	Ceiling Limit Value	0.01 ppm	0.07 mg/m3	
Estonia	Time Weighted Average (TWA)	0.005 ppm	0.03 mg/m3	
Finland	Short Term Exposure Limit (STEL)		0.035 mg/m3	expressed as NCO
France	French Short Term Limit (VLE)	0.02 ppm	0.15 mg/m3	Indicative limit (VL)
France	French Time Weighted Average (VME)	0.01 ppm	0.075 mg/m3	Indicative limit (VL)
Germany	Maximum allowable concentration (MAK value)	0.005 ppm	0.035 mg/m3	Exposure: Vapour and aerosol
Germany	Exposure limit(s) (TRGS 900)	0.005 ppm	0.035 mg/m3	Exposure: Sum of vapours and aerosols. The workplace limit value (AGW) applies as a rule only for monomers. Oligomers or polymers: refer to TRGS 430 'Isocyanates'
Greece	Time Weighted Average (TWA)	0.01 ppm	0.075 mg/m3	
Greece	Short Term Exposure Limit (STEL)	0.02 ppm	0.15 mg/m3	
Hungary	Short Term Exposure Limit (STEL)		0.035 mg/m3	
Hungary	Time Weighted Average (TWA)		0.035 mg/m3	

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Country / Region	Limit type	Value [ppm]	Value [mg/m3]	Remarks and additional information (not exhaustive; refer to regulation)
Iceland	Short Term Exposure Limit (STEL)	0.01 ppm	0.07 mg/m3	5 minutes
Iceland	Time Weighted Average (TWA)	0.005 ppm	0.03 mg/m3	
Ireland	Time Weighted Average (TWA)	0.005 ppm		expressed as NCO
Italy	Time Weighted Average (TWA)	0.005 ppm		
Japan	Time Weighted Average (TWA)	0.005 ppm	0.034 mg/m3	
Kazakhstan	Ceiling Limit (MAC)		0.05 mg/m3	Exposure: Vapour
Latvia	Time Weighted Average (TWA)		0.05 mg/m3	
Lithuania	Ceiling Limit Value	0.01 ppm	0.07 mg/m3	
Lithuania	Time Weighted Average (TWA)	0.005 ppm	0.03 mg/m3	
Norway	Threshold Limit Value	0.005 ppm	0.035 mg/m3	
Norway	Short Term Exposure Limit (STEL)	0.01 ppm		
Poland	Short Term Exposure Limit (NDSch)		0.08 mg/m3	
Poland	Time Weighted Average (NDS)		0.04 mg/m3	
Portugal	Time Weighted Average (TWA)	0.005 ppm		
Romania	Short Term Exposure Limit (STEL)	0.14 ppm	1 mg/m3	
Romania	Time Weighted Average (TWA)	0.007 ppm	0.05 mg/m3	
Russian Federation	Ceiling Limit Value		0.05 mg/m3	Exposure: Vapour
Serbia	Maximum allowable concentration value	0.005 ppm	0.035 mg/m3	
Slovakia	Time Weighted Average (TWA)	0.005 ppm	0.035 mg/m3	
Slovenia	Time Weighted Average (TWA)	0.005 ppm	0.035 mg/m3	
Spain	Time Weighted Average (TWA)	0.005 ppm	0.035 mg/m3	
Sweden	Time Weighted Average (TWA)	0.002 ppm	0.02 mg/m3	
Sweden	Ceiling Limit Value	0.005 ppm	0.03 mg/m3	
Switzerland	Short Term Exposure Limit (STEL)		0.02 mg/m3	expressed as NCO
Switzerland	Time Weighted Average (TWA)		0.02 mg/m3	expressed as NCO
UK	Time Weighted Average (TWA)		0.02 mg/m3	expressed as NCO
UK	Short Term Exposure Limit (STEL)		0.07 mg/m3	expressed as NCO
Ukraine	Ceiling limit (MAC)		0.05 mg/m3	Exposure: Vapour
USA	Time Weighted Average (TWA)	0.005 ppm		
USA California	Permissible Exposure Limit (PEL)	0.005 ppm	0.034 mg/m3	

Isophorone diisocyanate (IPDI) CAS-No. 4098-71-9 (January 2016)

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Country/ Region	Limit type	Value [ppm]	Value [mg/m3]	Remarks and additional information (not exhaustive; refer to regulation)
Australia	Short Term Exposure Limit (STEL)		0.07 mg/m3	
Australia	Time Weighted Average (TWA)		0.02 mg/m3	
Austria	Maximum allowable concentration	0.005 ppm	0.046 mg/m3	
Austria	MAK Ceiling Limit Value	0.01 ppm	0.092 mg/m3	8x5 minutes/shift
Belgium	Time Weighted Average (TWA)	0.005 ppm	0.046 mg/m3	
Fed. of Bosnia and Herzegovina	Maximum allowable concentration	0.01 ppm	0.09 mg/m3	
Bulgaria	Time Weighted Average (TWA)		0.1 mg/m3	
Canada Alberta	Time Weighted Average (TWA)	0.005 ppm	0.05 mg/m3	
Canada British Columbia	Time Weighted Average (TWA)	0.005 ppm		
Canada British Columbia	Ceiling Limit Value	0.01 ppm		
Canada Manitoba (MB)	Time Weighted Average (TWA)	0.005 ppm		
Canada Ontario	Time Weighted Average (TWAEV)	0.005 ppm		
Canada Ontario	Ceiling Limit Value (CEV)	0.02 ppm		
Canada Quebec	Time Weighted Average (TWA)	0.005 ppm	0.045 mg/m3	Exposure must be minimized
Canada Saskatchewan	15 minute average contamination limit	0.015 ppm		
Canada Saskatchewan	8 hour average contamination limit	0.005 ppm		
China	Permissible concentration - Time Weighted Average (PC-TWA)		0.05 mg/m3	
China	Permissible concentration - Short Term Exposure Limit (PC-STEL)		0.1 mg/m3	
Denmark	Threshold Limit Values (TLV)	0.005 ppm	0.045 mg/m3	
Estonia	Ceiling Limit Value	0.01 ppm	0.09 mg/m3	
Estonia	Time Weighted Average (TWA)	0.005 ppm	0.05 mg/m3	
Finland	Short Term Exposure Limit (STEL)		0.035 mg/m3	expressed as NCO
France	French Short Term Limit (VLE)	0.02 ppm	0.18 mg/m3	Indicative limit (VL)
France	French Time Weighted Average (VME)	0.01 ppm	0.09 mg/m3	Indicative limit (VL)
Germany	Maximum allowable concentration (MAK value)	0.005 ppm	0.046 mg/m3	Exposure: Vapour and aerosol
Germany	Exposure limit(s) (TRGS 900)	0.005 ppm	0.046 mg/m3	Exposure: Sum of vapors and aerosols. The workplace limit value (AGW) applies as a rule only for monomers. Oligomers or polymers: refer to TRGS 430 'Isocyanates'
Greece	Time Weighted Average (TWA)	0.01 ppm	0.09 mg/m3	
Greece	Short Term Exposure Limit (STEL)	0.02 ppm	0.18 mg/m3	
Iceland	Time Weighted Average (TWA)	0.005 ppm	0.05 mg/m3	
Iceland	Short Term Exposure Limit (STEL)	0.01 ppm	0.09 mg/m3	5 minutes
Ireland	Time Weighted Average (TWA)	0.005 ppm		expressed as NCO
Italy	Time Weighted Average (TWA)	0.005 ppm		
Lithuania	Ceiling Limit Value	0.01 ppm	0.09 mg/m3	
Lithuania	Time Weighted Average (TWA)	0.005 ppm	0.05 mg/m3	
Norway	Threshold Limit Value	0.005 ppm	0.045 mg/m3	
Norway	Short Term Exposure Limit (STEL)	0.01 ppm		
Poland	Time Weighted Average (NDS)		0.04 mg/m3	
Portugal	Time Weighted Average (TWA)	0.005 ppm		
Serbia	Maximum allowable concentration value	0.01 ppm	0.09 mg/m3	
Slovenia	Time Weighted Average (TWA)	0.01 ppm	0.092 mg/m3	
Spain	Time Weighted Average (TWA)	0.005 ppm	0.046 mg/m3	
Sweden	Ceiling Limit Value	0.005 ppm	0.046 mg/m3	
Sweden	Time Weighted Average (TWA)	0.002 ppm	0.018 mg/m3	
Switzerland	Time Weighted Average (TWA)		0.02 mg/m3	expressed as NCO
Switzerland	Short Term Exposure Limit (STEL)		0.02 mg/m3	expressed as NCO
UK	Time Weighted Average (TWA)		0.02 mg/m3	expressed as NCO
UK	Short Term Exposure Limit (STEL)		0.07 mg/m3	expressed as NCO
USA	Time Weighted Average (TWA)	0.005 ppm		
USA California	Time Weighted Average (TWA) Permissible Exposure Limit (PEL)	0.005 ppm	0.045 mg/m3	
USA California	Short Term Exposure Limit (STEL)	0.02 ppm		

Dicylohexylmethane-4,4'-diisocyanate (H12MDI) CAS-No. 5124-30-1 (January 2016)

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Country/Region	Limit type	Value [ppm]	Value [mg/m3]	Remarks and additional information (not exhaustive; refer to regulation)
Australia	Short Term Exposure Limit (STEL)		0.07 mg/m3	
Australia	Time Weighted Average (TWA)		0.02 mg/m3	
Austria	MAK Ceiling Limit Value	0.005 ppm	0.054 mg/m3	
Austria	Maximum allowable concentration	0.005 ppm	0.054 mg/m3	
Belgium	Time Weighted Average (TWA)	0.005 ppm	0.055 mg/m3	
Fed. of Bosnia and Herzegovina	Maximum allowable concentration	0.11 ppm	0.11 mg/m3	
Canada Alberta	Time Weighted Average (TWA)	0.005 ppm	0.05 mg/m3	
Canada British Columbia	Time Weighted Average (TWA)	0.005 ppm		
Canada British Columbia	Ceiling Limit Value	0.01 ppm		
Canada Manitoba (MB)	Time Weighted Average (TWA)	0.005 ppm		
Canada Ontario	Time Weighted Average (TWA/VEV)	0.005 ppm		
Canada Ontario	Ceiling Limit Value (CEV)	0.02 ppm		
Canada Quebec	Time Weighted Average (TWA)	0.005 ppm	0.054 mg/m3	Exposure must be minimized.
Canada Saskatchewan	15 minute average contamination limit	0.015 ppm		
Canada Saskatchewan	8 hour average contamination limit	0.005 ppm		
Denmark	Threshold Limit Values (TLV)	0.005 ppm	0.054 mg/m3	
Estonia	Ceiling Limit Value	0.01 ppm		
Estonia	Time Weighted Average (TWA)	0.005 ppm		
Finland	Short Term Exposure Limit (STEL)		0.035 mg/m3	expressed as NCO
Germany	MAK value (DFG)			Included in the regulation but with no data values. See regulation for further details
Greece	Short Term Exposure Limit (STEL)	0.01 ppm	0.11 mg/m3	
Greece	Time Weighted Average (TWA)	0.01 ppm	0.11 mg/m3	
Iceland	Time Weighted Average (TWA)	0.005 ppm	0.054 mg/m3	
Ireland	Time Weighted Average (TWA)		0.02 mg/m3	expressed as NCO
Ireland	Short Term Exposure Limit (STEL)		0.07 mg/m3	expressed as NCO
Italy	Time Weighted Average (TWA)	0.005 ppm		
Lithuania	Time Weighted Average (TWA)	0.005 ppm		
Lithuania	Ceiling Limit Value	0.01 ppm		
Norway	Short Term Exposure Limit (STEL)	0.01 ppm		
Norway	Threshold Limit Value	0.005 ppm	0.05 mg/m3	
Portugal	Time Weighted Average (TWA)	0.005 ppm		
Serbia	Maximum allowable concentration value	0.11 ppm	0.11 mg/m3	
Slovenia	Time Weighted Average (TWA)		0.054 mg/m3	
Spain	Time Weighted Average (TWA)	0.005 ppm	0.055 mg/m3	
Sweden	Ceiling Limit Value	0.005 ppm		
Sweden	Time Weighted Average (TWA)	0.002 ppm		
Switzerland	Time Weighted Average (TWA)		0.02 mg/m3	expressed as NCO
Switzerland	Short Term Exposure Limit (STEL)		0.02 mg/m3	expressed as NCO
UK	Time Weighted Average (TWA)		0.02 mg/m3	expressed as NCO
UK	Short Term Exposure Limit (STEL)		0.07 mg/m3	expressed as NCO
USA	Time Weighted Average (TWA)	0.005 ppm		
USA California	Time Weighted Average (TWA) Permissible Exposure Limit (PEL)	0.005 ppm	0.054 mg/m3	

Generic limits for isocyanates (January 2016)

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Country / Region	Limit type	Value [ppm]	Value [mg/m3]	Remarks and additional information (not exhaustive; refer to regulation)
Germany	TRGS 430 Expositionsleitwert (ELW)		0.018 mg/m3	expressed as NCO
UK	Time Weighted Average (TWA)		0.02 mg/m3	expressed as NCO
UK	Short Term Exposure Limit (STEL)		0.07 mg/m3	expressed as NCO
Ireland	Short Term Exposure Limit (STEL)		0.07 mg/m3	expressed as NCO
Ireland	Time Weighted Average (TWA)		0.02 mg/m3	expressed as NCO
Norway	Short Term Exposure Limit (STEL)	0.01 ppm		
Norway	Threshold Limit Value	0.005 ppm		
Estonia	Ceiling Limit Value	0.01 ppm		
Estonia	Time Weighted Average (TWA)	0.005 ppm		
Finland	Short Term Exposure Limit (STEL)		0.035 mg/m3	expressed as NCO
Lithuania	Ceiling Limit Value	0.01 ppm		
Lithuania	Time Weighted Average (TWA)	0.005 ppm		
Switzerland	Short Term Exposure Limit (STEL)		0.02 mg/m3	expressed as NCO
Switzerland	Time Weighted Average (TWA)		0.02 mg/m3	expressed as NCO
Australia	Short Term Exposure Limit (STEL)		0.07 mg/m3	expressed as NCO
Australia	Time Weighted Average (TWA)		0.02 mg/m3	expressed as NCO