Chemical Guide

For Use Exclusively with Esco Ascent™ Ductless Fume Hoods and Nanocarb™ Activated Carbon Filters

ESCO
WORLD CLASS. WORLDWIDE.

Introduction

Esco Ascent Ductless Fume Cabinets provide protection to both laboratory personnel and the environment from toxic fumes and are quickly becoming a viable alternative to conventional fume hoods.

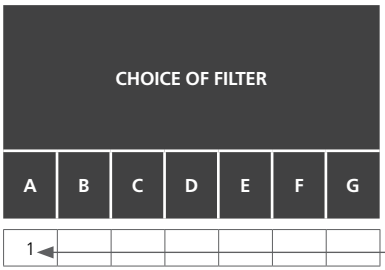
Unlike conventional fume hoods, these cabinets filter out chemical fumes and recycle air directly back to the laboratory, in turn providing energy savings, personnel and environmental protection, convenience as you do not have to deal with complicated ducting systems and mobility as ductless cabinets are free-standing systems which do not require connection to the ductwork.

You might have concerns over which filters to choose for specific chemicals, as there are hundreds of different types of activated carbon in the world, each made for different specific applications. Esco has therefore come up with this Chemical Guide to help you make the right choice.

Nanocarb™ Filter Options

CODE	NAME	SUITABLE APPLICATIONS
A	Standard Filter	All common laboratory chemicals, especially with organics. When no specific requirements are present, or when more than one type of chemical is used.
B	Acid Filter	Applications involving sulphur dioxide, hydroflouric acid fumes. Removes inorganic / organic acid vapours and fumes
C	Mercury Compounds Filter	Highly effective for removal of mercury vapour and compounds. (Stable, non-volatile mercuric sulphide filter media).
D	Sulphur Compounds Filter	Removal of sulphur compounds.
E	Halogen Compounds Filter	Removal of halogen compounds like Chlorine, Flourine, Iodine, Bromine, Astatine etc.
F	Aldehyde Filter	Formaldehyde applications or when aldehydes are present. Hospital pathology and endoscopy applications.
G	Ammonia / Amines Filter	High performance removal of ammonia/amines by chemisorption.
Optional HEPA Filter		HEPA filter with a typical efficiency of 99.99% removes particulates and aerosols. Ductless fume hoods with HEPA filters are suitable for cleanroom applications, or may be used as a Class I Biological Safety Cabinet.
Optional Secondary Backup Carbon Filter		When installed, hood complies with the requirements of ANSI/AIHA Z9.5-2003.

Instructions for Use



1 Suitable for use

2 Moderate adsorption, need frequent monitoring

! Toxic/ explosive/ not suitable for use in ductless

Esco Consult us

HP HEPA Filter

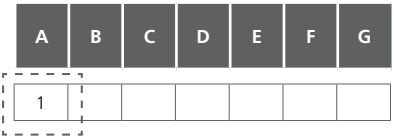
Here are some examples to illustrate how to optimize the use of this guide:

EXAMPLE 1

1. Identify the chemicals you will most commonly use for your applications
   Eg: 1. Acetone - 2. Allyl Alcohol

2. Check Chemical Listing Booklet for most suitable filter

Acetone - Check page 8 →



Allyl Alcohol - Check page 8 →

Conclusion: Purchase Esco Ascent Ductless Cabinet with **Code A** carbon filter

EXAMPLE 2

1. Identify the chemicals you will most commonly use for your applications
   Eg: 1. Acetylene

2. Check Chemical Listing Booklet for most suitable filter

   Acetylene - Check page 8 →

Conclusion: Contact Esco or your Sales Representative for more information

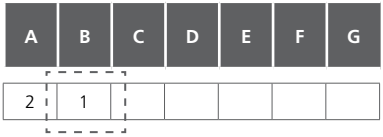
EXAMPLE 3

1. Identify the chemicals you will most commonly use for your applications
   Eg: 1. Acetone - 2. Acetic Acid - 3. Bromine

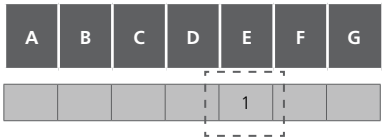
2. Check Chemical Listing Booklet for most suitable filter

   Acetone - Check page 8 →

   Acetic Acid - Check page 8 →



   Bromine - Check page 10 →



Conclusion: For mixture of different types of chemicals, more information is required
Fill up Filtracheck Online Questionaire

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FiltraCHECK™ Questionaire can be found on page 59

EXAMPLE 4

1. Identify the chemicals you will most commonly use for your applications
   Eg: 1. Arsine

2. Check Chemical Listing Booklet for most suitable filter

Arsine - Check page 10 →

A	B	C	D	E	F	G
!						

Conclusion: As long as 1 chemical leads you to the **!** sign, it means that ductless fume cabinets are NOT suitable for your application. Please contact local Esco distributor for information on Esco Fume Hood.

EXAMPLE 5

1. Identify the chemicals you will most commonly use for your applications
   Eg: 1. Acetone - 2. Calcium Carbonate - 3. Allyl Alcohol

2. Check Chemical Listing Booklet for most suitable filter

Acetone - Check page 8 →

A	B	C	D	E	F	G
1						

Calcium Carbonate - Check page 14 →

A	B	C	D	E	F	G
HP						

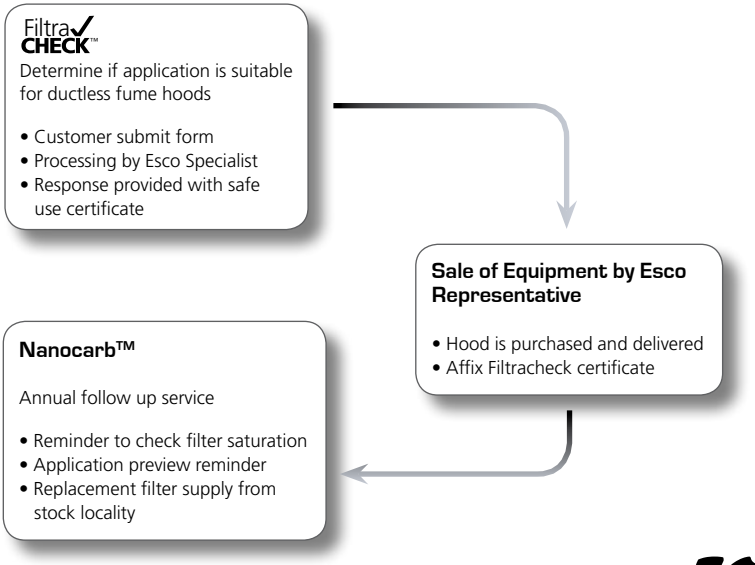
Allyl Alcohol - Check page 8 →

A	B	C	D	E	F	G
1						

Conclusion: Purchase Esco Ascent MAX Ductless Fume cabinet with standard Code A carbon filter and secondary backup HEPA filter (ADC-_**E**_)

ABBREVIATION	DEFINITION
CAS	Chemical Abstracts Service. Unique number for each chemical.
MW	Molecular Weight
Bp	Boiling Point
Mp	Melting Point
TLV	Threshold Limit Value (USA). The airborne limits of permitted concentrations of hazardous chemicals represent conditions under which it is believed that nearly all workers may be repeatedly exposed day after day without adverse effect.
TWA	Time Weighted Average (USA). A time-weighted average concentration for a normal 8-hour working day and a 40-hour working week, to which nearly all workers may be repeatedly exposed day after day, without adverse effect.
FR VME	Average Exposure Value (France). Limit Value in France.
MAK TRK	Maximum Arbeitsplatz Konzentration (Germany). Maximum permissible concentration of a chemical compound present in the air within a working area.
Olf.	Olfactory detection threshold. To determine if smell can be used to detect a danger. This value has to be compared with the limit value.
C	Ceiling limit. Threshold limit not to be exceeded.

Esco Ductless Fume Hoods - Total Lifecycle Service



CHEMICAL NAME	CAS No.	FORMULAR	MOLECULAR WEIGHT	SPECIFIC GRAVITY	pH	DIPOLE MOMENT	BOILING PT	MELTING BT
			MW			Debye	Bp °C	Mp °C
A								
ACETAMIDE	60-35-5	C_2H_5NO					223	
ACETALDEHYDE	75-07-0	C_2H_4O	44	0.79			20	
ACETIC ACID	64-19-7	$C_2H_4O_2$	60	1.05	<0.1		118	
ACETIC ANHYDRIDE	108-24-7	$C_4H_6O_3$	102	1.08			140	
ACETONE	67-64-1	C_3H_6O	58	0.79	7		56.5	
ACETONE CYANOHYDRIN as CN	75-86-5	C_4H_7NO	85	0.93			82	-20
ACETONITRILE	75-05-8	CH_3CN	41	0.78			82	
ACETOPHENONE	98-86-2	C_8H_8O	120				201.7	10
ACETYLENE	74-86-2	C_2H_2	26	0.001092			-84	
ACETYLSALICYLIC ACID	50-78-2	$C_9H_8O_4$	180	1.35				135
ACETYLENE TETRABROMIDE	79-27-6	$C_2H_2Br_4$	346	2.97			239	
ACROLEIN	107-02-8	C_3H_4O	56	0.84			53	
ACRYLAMIDE	79-06-1	C_3H_5NO	71	1.12				84.5
ACRYLIC ACID	79-10-7	$C_3H_4O_2$	72	1.05			142	
ACRYLONITRILE	107-13-1	C_3H_3N	53	0.81	5.5 - 7.5		77	
ADIPIC ACID	124-04-9	$C_6H_{10}O_4$	132		3.2		152	
ADIPONITRILE	111-69-3	$C_6H_8N_2$	108	0.97			295	
ALDICARB	116-06-3	$C_7H_{14}O_2N_2S$					190	100
ALDRIN	309-00-2	$C_{12}H_8C_{16}$	365	1.60				105
ALLYL ALCOHOL	107-18-6	C_3H_6O	58	0.85			97	
ALLYL CHLORIDE	107-05-1	C_3H_5Cl	77	0.94			44.5	
ALLYL GLYCIDYL ETHER	106-92-3	$C_6H_{10}O_2$	114	0.97			154	
ALLYL PROPYL DISULFIDE	2179-59-1	$C_6H_{12}S_2$	148	0.93				
ALUMINIUM (Metal & Oxide)	7429-90-5	Al & Al_2O_3		2.7 4.0				660 2050

OFFICIAL LIMIT VALUES							CHOICE OF FILTER						
ppm					mg/m³								
TLV TWA	FR VME	MAK TRK	Olf.	NIOSH TWA	TLV TWA	NIOSH TWA	A	B	C	D	E	F	G
		50								Esco			
100	100	50	0.05									2	
10		10	0.048	10		25	2	1					
5	5	5	0.13	C5		C20	1						
500	750	500	13	250		590	1						
				C1		C4				Esco			
40	40	40	170	20		34	2						
										Esco			
			620	C2500		C2662				Esco			
					5	5				Esco			
1	1	1					1						
0.1		0.1	0.16	0.1		0.25				!			
	0.1					0.03	2						2
2	10		0.094	2		6	2	1					
2	2	3	17	1		2	2						2
					5			2					
2				4		18				Esco			
										Esco			
					0.25	0.25				Esco			
0.5	2	2	1.1	2		5	1						
1	1	1	1.2	1		3	2	2					
1	5			5		22	1						
2	2			2		12				2			
					10	10				HP			

CHEMICAL NAME	CAS No.	FORMULAR	MOLECULAR WEIGHT	SPECIFIC GRAVITY	pH	DIPOLE MOMENT	BOILING PT	MELTING BT
			MW			Debye	Bp °C	Mp °C
ALUMINIUM (Pyro powders & Welding fume)								
2-AMINO PYRIDINE	504-29-0	$C_5H_6N_2$	94				211	
AMITROLE	61-82-5	$C_2H_4N_4$	84	1.14				159
AMMONIA	7664-41-7	NH_3	17	0.00072	11		-33	
n-AMYL ACETATE	628-63-7	$C_7H_{14}O_2$	130	0.88			148	
Sec-AMYL ACETATE	626-38-0	$C_7H_{14}O_2$	130	0.57			123	
n-AMYL ALCOHOL	71-41-0	$C_5H_{12}O$	88				138	
ANILINE	62-53-3	$C_6H_5NH_2$	93	1.02			184	
Ortho & Para ANISIDINE		$C_7H_7ONH_2$	123	1.10			225	
ARSINE	7784-42-1	AsH_3	78	0.003228			-62.5	
B								
BARIUM & Soluble Cpds		Ba	137				1640	
BARIUM SULFATE	7727-43-7	$BaSO_4$	233	4.25 – 4.5				1580
BENOMYL	17804-35-2	$C_{14}H_{18}N_4O_3$	290					
BENZENE	71-43-2	C_6H_6	78	0.88			80	
BEZENETHIOL	108-98-5	C_6H_6S	110	1.08			169	
BENZIDINE		$C_{12}H_{12}N_2$	184	1.25			402	
BENZYL ACETATE		$C_9H_{10}O_2$	150				212	
BENZYL CHLORIDE	100-44-7	C_7H_7Cl	127	1.10			179	
BIPHENYL	92-52-4	$C_{12}H_{10}$	154	1.04			255	
BISMUTH TELLURIDE	1304-82-1	Bi_2Te_3	802	7.7				573
BORIC ACID	10043-35-3	H_3BO_4	62		3.6 – 4			
BROMINE	7726-95-6	Br_2	160	3.12			59	

OFFICIAL LIMIT VALUES							CHOICE OF FILTER						
ppm					mg/m³								
TLV TWA	FR VME	MAK TRK	Olf.	NIOSH TWA	TLV TWA	NIOSH TWA	A	B	C	D	E	F	G
					5	5	HP						
0.5	0.5	0.5		0.5		2	1						1
	0.06				0.2	0.2	Esco						
25	25	50	5.2	25		18							2
100	100	100	0.054	100		525	1						
125	125	100	0.002	125		650	1						
							1						
2	2	2	1.1				1						1
0.1	0.1	0.1				0.5	Esco						
0.002	0.05	0.05	0.5			C0.002	!						
					0.5	0.5	Esco						
					10	10				2			
0.84	0.8						Esco						
0.5	5		12	0.1		0.3	1						
0.5	0.5		0.00064	C0.1		C0.5	Esco						
	0.001						!						
10							!						
1	1	1	0.044	C1		C5	2	1					
0.2	0.22	0.2		0.2		1	Esco						
					10	10	Esco						
							2						
0.1		0.1	0.051	0.1		0.7					1		

CHEMICAL NAME	CAS No.	FORMULAR	MOLECULAR WEIGHT	SPECIFIC GRAVITY	pH	DIPOLE MOMENT	BOILING PT	MELTING BT
			MW			Debye	Bp °C	Mp °C
BROMINE PENTAFLUORIDE	7789-30-2	BrF_5	175	2.48			40.5	
BROMOETHANE	74-96-4	C_2H_5Br	113	0.			38.5	
BROMOFORM	75-25-2	$CHBr_3$	253	2.89			149.5	
1-BROMONAPHTALENE	90-11-9	$CHBr_3$	207				279	
n-BUTANE	106-97-8	$C_{10}H_7Br$	58	0.002532			-12	
1,3-BUTADIENE	106-99-0	C_4H_{10}	54	0.65			-4.5	
2-BUTOXY ETHANOL	111-76-2	$C_6H_{14}O_2$	118	0.90			171	
2-BUTOXY ETHYL ACETATE	112-07-2	$C_8H_{16}O_3$	160	0.94				
n-BUTYL ACETATE	123-86-4	$C_6H_{12}O_2$	116	0.88			127	
Sec & Ter BUTYL ACETATE		$C_6H_{12}O_2$	116	0.86			96	
n-BUTYL ACRYLATE	141-32-2	$C_7H_{12}O_2$	128	0.89			146	
n-BUTYL ALCOHOL	71-36-3	$C_4H_{10}O$	74	0.81			117.5	
Sec-BUTYL ALCOHOL	78-92-2	$C_4H_{10}O$	74	81			99.5	
Ter-BUTYL ALCOHOL	75-65-0	$C_4H_{10}O$	74	0.79 (solid)			83	
n-BUTYL AMINE	109-73-9	$C_4H_9NH_2$	73	0.74	11.8		78	
Sec-BUTYL AMINE	13952-84-6	$C_4H_9NH_2$	73				63	
n-BUTYL CHLORIDE	109-69-3	C_4H_9Cl	92				78.5	
Sec-BUTYL CHLORIDE	78-86-4	C_4H_9Cl	92				68	
Ter-BUTYL CHROMATE as CrO_3	1189-85-1	$C_8H_{18}CrO_4$	230					-5
BUTYL ETHER	142-96-1	$C_8H_{18}O$	130				142	
n-BUTYL GLYCIDYL ETHER	2426-08-6	$C_7H_{14}O_2$	118	0.91			164	
n-BUTYL LACTATE	138-22-7	$C_7H_{14}O_3$	146	0.98			188	
n-BUTYL MERCAPTAN	109-79-5	C_4H_10S	90	0.83			760 / 900	
n-BUTYL METHACRYLATE	97-88-1	$C_{18}H_{14}O_2$	142				164	
Ortho-sec-BUTYL PHENOL	89-72-5	$C_{10}H_{14}O$	150	0.89			226	

OFFICIAL LIMIT VALUES							CHOICE OF FILTER						
ppm					mg/m³								
TLV TWA	FR VME	MAK TRK	Olf.	NIOSH TWA	TLV TWA	NIOSH TWA	A	B	C	D	E	F	G
0.1	0.1			0.1		0.7	Esco						
5	200		3.1				1						
0.5	0.5		1.3	0.5		5	1						
							Esco						
800	800	1000	2700	800		1900	2						
2		5	1.6					2					
20	25	20	0.1	5		24	1						
		20		5	95	33	Esco						
150	150	100	0.39	150		710	1						
200	200	100		200		950	1						
2	10	2	0.03	10		55	1						
25		100	0.83	C50		C150	1						
100	100	100	2.6	100		305	1						
100	100	100	47	100		300	1						
		5	1.8	C5		C15							2
		5			15								2
							1						
							1						
						0.001	Esco						
							1						
25	25			C5.6		C30	1						
5	5		7	5		25	1						
0.5	0.5	0.5	0.00097	C0.5		C1.8	2						
							1						
5	5			5		30	2						

CHEMICAL NAME	CAS No.	FORMULAR	MOLECULAR WEIGHT	SPECIFIC GRAVITY	pH	DIPOLE MOMENT	BOILING PT	MELTING BT
			MW			Debye	Bp °C	Mp °C
Para-Tert-BUTYL PHENOL		$C_{10}H_{14}O$	150				239	
Para-Tert-BUTYL TOLUENE	98-51-1	$C_{11}H_{16}$	148	0.86			193	
n-BUTYRIC ACID	107-92-6	$C_4H_8O_2$	88				163.5	
C								
CADMIUM Fume, Dust, Salts as Cd	7440-43-9	Cd, CdO	112	8.65			760/900	
			128	8.15/6.95			Decomp	
CALCIUM CARBONATE	471-34-1	$CaCO_3$	100	2.7 - 2.95	8 - 9		Decomp	
sec & Ter BUTYL ACETATE	1305-62-0	$Ca(OH)_2$	74	2.24	12.4		Decomp	
CALCIUM OXIDE	1305-78-8	CaO	56	3.34			2850	
CALCIUM SULFATE	7778-18-9	$CaSO_4{\cdot}2H_2O$	136	2.96				1450
CARBOFURAN	1563-66-2	$C_{12}H_{15}NO_3$	221	1.18				150
CARBON BLACK	1333-86-4		12	1.8 - 2.1			Sublimes	
CARBON DIOXIDE	124-38-9	CO_2	44	0.001836		0	Subl	
CARBON DISULFIDE	75-15-0	CS_2	76	1.26			46	
CARBON MONOXIDE	630-08-0	CO	28	0.001164		0.112	-192	
CARBON TETRABROMIDE	558-13-4	CBr_4	332	3.42			189.5	
CARBON TETRACHLORIDE	56-23-5	CCl_4	154	1.59			77	
CESIUM HYDROXIDE	21351-79-1	CsOH	150	3.68				272
CHLORINE	7785-50-5	Cl_2	70	0.002964		0	-34.5	
CHLORINE DIOXIDE	10049-04-4	ClO_2	68	0.002796			10	
CHLORINE TRIFLUORIDE	7790-91-2	ClF_3	93	0.003852			11.5	
CHLOROACETALDEHYDE sol.50%	107-20-0	C_2H_3OCl	82	1.19 (40%)	1.2		90 100	

OFFICIAL LIMIT VALUES							CHOICE OF FILTER						
ppm					mg/m³								
TLV TWA	FR VME	MAK TRK	Olf.	NIOSH TWA	TLV TWA	NIOSH TWA	A	B	C	D	E	F	G
		0.08					2						
1	10		5	10		60	1						
							2	1					
					0.01		HP						
						10	HP						
					5	5	HP						
					2	2	HP						
					10	10	HP						
					0.1	0.1	Esco						
					3.5	3.5	HP						
5000		5000	74000	5000		9000	Esco						
10	10	2	1.1	1		3				1			
25	50	30	10000	35		40	Esco						
0.1	0.1			0.1		1.4	1				1		
5	2	10	96				1				1		
					2	2	HP						
0.5		0.5	0.31	C0.5		C1.45					1		
0.1	0.1	0.1	9.4	0.1		0.3	!						
		0.1		C0.1		C0.4	!						
		1		C1		C3	2	2					

CHEMICAL NAME	CAS No.	FORMULAR	MOLECULAR WEIGHT	SPECIFIC GRAVITY	pH	DIPOLE MOMENT	BOILING PT	MELTING BT
			MW			Debye	Bp °C	Mp °C
CHLORO ACETONE		C_3H_5ClO	92				119	
2-CHLOROACETOPHENONE	532-27-4	C_8H_7OCl	154	1.32			247	
CHLOROACETYLCHLORIDE	'79-04-9	$C_2H_2OCl_2$	112	1.42			105	
CHLOROBENZENE	108-90-7	C_6H_5Cl	113	1.11			133	
CHLOROBROMOMETHANE	74-97-5	CH_2BrCl	129	1.93			68	
2-CHLOROETHANOL	107-07-3	C_2H_5OCl	80				129	
CHLOROFORM	67-66-3	$CHCl_3$	119	1.48			61	
1-CHLORO-1-NITROPROPANE	600-25-9	$C_3H_6NO_2Cl$	123	1.21			140	
CHLOROPENTAFLUOROETHANE	76-15-3	C_2F_5Cl	154	0.00666			-39	
CHLOROPICRIN	76-06-2	CNO_2Cl_3	163	1.6			112	
CHLOROPRENE 3		C_3H_5Cl	76				45	
Ortho-CHLOROSTYRENE	2039-87-4	C_8H_7Cl	138	1.10			189	
Ortho-CHLOROTOLUENE	95-49-8	C_7H_7Cl	126	1.08			159	
CHLOROTRIFLUOROMETHANE		$CClF_3$	104.5				81.4	
CHROMIUM Metal, Dust	7440-47-3	Cr		7.14				
CHROMIUM ANHYDRIDE	1333-82-0	CrO_3	100	2.70				196
CHROMYL CHLORIDE	14977-61-8	CrO_2Cl_2	154	1.91			116	
CLOPIDOL	2971-90-6	$C_7H_7NOCl_2$	192					320
COBALT (Fume & dust)	7440-48-4	Co		8.92				
COBALT CARBONYL & HYDROCARBONYL		$CO_2(Co)_8$ & C_4HO_4Co	342	1.87			5	-26
COKE (Pyrolysis products of organic materials)								
COTTON Dust, raw								
CRESOL all isomers	108-39-4	C_7H_8O	108	1.03-1.05			191	

OFFICIAL LIMIT VALUES							CHOICE OF FILTER						
ppm					mg/m³								
TLV TWA	FR VME	MAK TRK	Olf.	NIOSH TWA	TLV TWA	NIOSH TWA	A	B	C	D	E	F	G
1							Esco						
0.05	0.05		0.035	0.05		0.3	!						
0.05	0.05			0.05		0.2	!						
10	10	10	0.68				1	1					
200	200	200	400	200		1050	1	1					
		1			3		1	1					
10	5	10	1.3				2	2					
2	2	20		2		10	1						
1000	1000			1000		6320	Esco						
0.1	0.1	0.1	0.78	0.1		0.7	!						
1	1	1	1.2				2	2					
50	50			50		285	Esco						
50	50		0.38	50		250	1						
		1000					Esco						
					0.5	0.5	HP						
					0.05	0.001	HP						
					0.025	0.001	!						
					10	10	HP						
					0.02	0.05	HP						
					0.1	0.1	!						
						C0.2	Esco						
					0.2	0.2	HP						
5	5	5		2.3		10	1						

CHEMICAL NAME	CAS No.	FORMULAR	MOLECULAR WEIGHT	SPECIFIC GRAVITY	pH	DIPOLE MOMENT	BOILING PT	MELTING BT
			MW			Debye	Bp °C	Mp °C
CROTONALDEHYDE	123-73-9	C_4H_6O	70	0.87			102	
CUMENE	98-82-8	C_9H_{12}	120	0.86			152	
Ortho-CUMIDINE		$C_9H_{11}NH_2$	135					225
CYANAMIDE	420-04-2	HCN : C : HCN or N : CNH_3	54	1.26			260	
CYANOGEN	460-19-5	C_2N_2	52	0.002184			-21	
CYANOGEN BROMIDE	506-68-3	CNBr	106				61	
CYANOGEN CHLORIDE	506-77-4	CNCl	61	0.002592			12.5	
CYCLOHEXANE	110-82-7	C_6H_{12}	84	0.78			81	
CYCLOHEXANOL	108-93-0	$C_6H_{12}O$	100	0.96			161.5	
CYCLOHEXANONE	108-94-1	$C_6H_{12}O$	98	0.95			157	
CYCLOHEXENE	110-83-8	C_6H_{10}	82	0.81			83	
CYCLOHEXYLAMINE	108-91-8	$C_6H_{11}NH_2$	99	0.87			134.5	
CYCLOPENTADIENE	542-92-7	C_5H_6	66	0.80			42	
CYCLOPENTANE	287-92-3	C_5H_{10}	70	0.75			49	
D								
2,4-D	94-75-7	$C_8H_6Cl_2O_3$	221	1.57			Decomp	
DDT	50-29-3	$C_{14}H_9Cl_5$	355	0.99				109
DECABORANE	17702-41-9	$B_{10}H_{14}$	122	.94			213	
DECANE	124-18-5	$C_{10}H_{22}$	142				174	
DEMETON (Systox)	8065-48-3	$C_8H_{19}O_3S_2P$	258	1.12			134	
DIACETONE ALCOHOL	123-42-2	$C_6H_{12}O_2$	116	0.94			168	
DIAZOMETHANE	334-88-3	CH_2N_2	42	0.00174			-23	
DIBORANE	19287-45-7	B_2H_6	28	0.001164			-92	
2,6-DI-ter-BUTYL-p-CRESOL	128-37-0	$C_{15}H_{24}O$	220	1.05			265	
Ortho-DICHLOROBENZENE	95-50-1	$C_6H_4Cl_2$	146	1.30			180	

OFFICIAL LIMIT VALUES							CHOICE OF FILTER						
ppm					mg/m³								
TLV TWA	FR VME	MAK TRK	Olf.	NIOSH TWA	TLV TWA	NIOSH TWA	A	B	C	D	E	F	G
	2	0.34	0.12	2		6	1					1	
50	50	50	0.088	50		245	1						
	2									Esco			
					2	2							2
10	2	10		10		20				Esco			
										Esco			
				C0.3		C0.6				Esco			
300	300	200	25	300		1050	1						
50	50	50	0.15	50		200	1						
25	25	20	0.88	25		100	1						
300	300	300	0.18	300		1015	1						
10	10	10	2.6	10		40	2						1
7	75	75	1.9	75		200	1						
600	600			600		1720	1						
					10	10				Esco			
					1	0.5				Esco			
0.05	0.05	0.05	0.25	0.05		0.3				!			
							1						
0.01	0.01	0.01				0.1				!			
50	50	50	0.28	50		240	1						
0.2				0.2		0.4				!			
0.1	0.1	0.1	2.5	0.1		0.1				!			
					10	10				HP			
25		50	0.3	C50		C300	1						

CHEMICAL NAME	CAS No.	FORMULAR	MOLECULAR WEIGHT	SPECIFIC GRAVITY	pH	DIPOLE MOMENT	BOILING PT	MELTING BT
			MW			Debye	Bp °C	Mp °C
3,3-DICHLOROBENZI-DINE and salts	91-94-1	$C_{12}H_{10}N_2Cl_2$	252				178	
Para-DICHLOROBENZENE		$C_6H_4Cl_2$	146	1.25			173	
DICHLORODIFLUOROMETHANE	75-71-8	CCl_2F_2	120	0.00504			-29	
1,1-DICHLOROETHANE	75-34-3	$C_2H_4Cl_2$	98	1.18			57	
1,2-DICHLOROETHANE	107-06-2	$C_2H_4Cl_2$	98				83.5	
DICHLOROETHYLENE 1,2 sym	540-59-0	$C_2H_2Cl_2$	96	1.27			59	
DICHLOROETHYL ETHER	111-44-4	$C_4H_8OCl_2$	143	1.22			178.5	
DICHLORO MONOFLUOROMETHANE	75-43-4	$CHFCl_2$	103	0.004284			9	
DICHLORO METHYL ETHER		$C_2H_4OCl_2$	114				105	
1,1-DICHLORONITROETHANE	594-72-9	$C_2H_3NO_2Cl_2$	143	1.43			124	
1,3-DICHLOROPROPENE (Cis, Trans)	542-75-6	$C_3H_4Cl_2$	110	1.21			103	
2,2-DICHLOROPRO-PANOIC ACID	75-99-0	$C_3H_4O_2Cl_2$	142	1.40			98	
DICHLOROTETRAFLUOROETHANE	76-14-2	$C_2F_4Cl_2$	171	0.007116			4.1	
DICHLORVOS	62-73-7	$C_4H_7Cl_2O_4P$	221	1.42			77	
DICROTOPHOS	141-66-2	$C_8H_{16}NO_5P$	237	1.22			400	
DICYCLOHEXYLMETHANE		$C_5H_{22}N_2O_2$	142				251	
DICYCLOPENTADIENE	77-73-6	$C_{10}H_{12}$	132	0.98			167	
DIELDRIN	60-57-1	$C_{12}H_8OCl_6$	381	1.75				1.75
DIETHANOLAMINE	111-42-2	$C_4H_{11}NO_2$	105	1.10	11.0		Decomp	
DIETHYLAMINE	109-89-7	$C_4H_{11}N$	73	0.71			55.5	
2-DIETHYLAMINOETHANOL	100-37-8	$C_4H_{15}NO$	117	0.89			162	
N-DIETHYLAMINOACETOCHLORIDE		$C_7H_{11}NOCl$	160					
DIETHYLENE TRIAMINE	111-40-0	$C_4H_{13}N_3$	103	0.96			207	

OFFICIAL LIMIT VALUES							CHOICE OF FILTER						
ppm					mg/m³								
TLV TWA	FR VME	MAK TRK	Olf.	NIOSH TWA	TLV TWA	NIOSH TWA	A	B	C	D	E	F	G
		0.003					HP						
10	75	50	0.18				Esco						
1000	1000	1000		1000		4950	Esco						
100	200	100	190	100		400	2				2		
10	10	5	88	1		4	1				1		
200		200	17	200		790	2				2		
5	5	10	0.049	5		30	2				2		
10	10	10		10		40	Esco						
0.001							Esco						
2	2	10		2		10	!						
1		0.11		1		5	!						
1	1	1		1		6	1						
1000	1000	1000		1000		7000	Esco						
	0.1	0.1			0.9	1	1						1
					0.25	0.25	2						2
0.005							1						
5	5	0.5	0.0057	5		30	Esco						
					0.25	0.25	2						1
	3		0.27	3	2	15	1						
5		5	0.13	10		30	!						
2	10	5	0.011	10		50	Esco						
							Esco						
1	1			1		4	HP						

CHEMICAL NAME	CAS No.	FORMULAR	MOLECULAR WEIGHT	SPECIFIC GRAVITY	pH	DIPOLE MOMENT	BOILING PT	MELTING BT
			MW			Debye	Bp °C	Mp °C
DIETHYL KETONE	96-22-0	$C_5H_{10}O$	86	0.81			102	
DIETHYL PHTHALATE	84-66-2	$C_{12}H_{14}O_4$	222	1.12			302	
DIETHYL SULFATE		$C_4H_{10}SO_4$					208	
DIFLUORODIBROMOMETHANE	75-61-6	CBr_2F_2	210	2.29			23	
DIGITOXIN		$C_{41}H_{64}O_{13}$	765					255
DIGLYCIDIL ETHER	2238-07-5	$C_6H_{10}O_3$	130	1.12			260	
DI-ISOBUTYL KETONE	108-83-8	$C_9H_{18}O$	142	0.81			166	
DI-ISOPROPYL AMINE	108-18-9	$C_6H_{15}N$	101	0.72			83	
DI-ISOPROPYL KETONE		$C_7H_{14}O$	114				124	
DIMETHOXYMETHANE	109-87-5	$C_3H_8O_2$	76				42.5	
N,N-DIMETHYLACETAMIDE	127-19-5	C_4H_9NO	87	0.94			165	
2,2 DIMETHYL BUTANE		C_6H_{14}	86				49.7	
DIMETHYLAMINE	124-40-3	C_2H_7N	45	0.001872			7	
DIMETHYL-1,2-DIBROMO-2,2-DICHLOROETHYLPHOSPHATE		$C_4H_7Br_2Cl_2P$	381				Decomp	
DIMETHYLETHOXYSILANE								
N,N-DIMETHYLANILINE	121-69-7	$C_8H_{11}N$	121	0.96			193	
N,n-DIMETHYLETHYLAMINE	598-56-1	$C_4H_{11}N$	71				44	
DIMETHYLFORMAMIDE	68-12-2	C_3H_7NO	73	0.95	6-8		153	
1,1-DIMETHYLHYDRAZINE	57-14-7	$C_2H_8N_2$	60	0.79			63	
1,2-DIMETHYLHYDRAZINE		$C_2H_8N_2$	60				81	
DIMETHYLSULFATE	77-78-1	$C_2H_6SO_4$	126	1.33			188	
DINITROBENZENE all isomers		$C_6H_4N_2O_4$	168	1.57-1.63			299	
DINITRO-ortho-CRESOL	534-52-1	$C_7H_6N_2O_5$	198	1.1			312	
3,5-DINITRO-ortho-TOLUAMIDE	148-01-6	$C_8H_7N_2O_5$	225					177
DI-n-PROPYL KETONE	123-19-3	$C_7H_{14}O$	114				144	
1,4-DIOXANE	123-91-1	$C_4H_8O_2$	88	1.03			101	

OFFICIAL LIMIT VALUES							CHOICE OF FILTER						
ppm					mg/m³								
TLV TWA	FR VME	MAK TRK	Olf.	NIOSH TWA	TLV TWA	NIOSH TWA	A	B	C	D	E	F	G
200	200		2	200		705							
					5	5				!			
		0.03								Esco			
100	100	100		100		860				Esco			
										HP			
0.1	0.1	0.1		0.1		0.5				!			
25	25	50	0.11	25		150	1						
5	5		1.8	5		20	2						2
50							1						
1000	1000	1000					1						
10	10	10	47	10		35				Esco			
		200								Esco			
5		2	0.34	10		18	2						2
					3					!			
0.5										!			
5	5	5	0.13	5		25							2
	5	25					2						1
10	10	10	2.2	10		30	1						
0.01	0.1		1.7	C0.06		C0.15				!			
										!			
0.1	0.1	0.04		0.1		0.5				!			
0.15	0.15					1				!			
						0.2				Esco			
					5	5				!			
50	50						1						
20	10	20	24	C1		C3.6	1						

CHEMICAL NAME	CAS No.	FORMULAR	MOLECULAR WEIGHT	SPECIFIC GRAVITY	pH	DIPOLE MOMENT	BOILING PT	MELTING BT
			MW			Debye	Bp °C	Mp °C
DIOXATHION	78-34-2	$C_{12}H_{26}O_6P_2S_4$	456	1.26				-20
DIPHENYLAMINE	122-39-4	$C_{12}H_{11}N$	169	1.16			302	
DIPHENYLMETHANE DIISOCYANATE	101-68-8	$C_{15}H_{10}N_2O_2$	250					37
DIQUAT	85-00-7	$C_{12}H_{12}Br_2N_2$	344	1.22-1.27			Decomp	
DISULFIRAM	97-77-8	$C_{10}H_{20}N_2S_4$	296	1.30				72
DISULFOTON	298-04-4	$C_8H_{19}O_2PS_3$	274	1.14			62	
DIURON	330-54-1	$C_9H_{10}Cl_2N_2O$	232					154
1,3-DIVINYL BENZENE	108-57-6	$C_{10}H_{10}$	130	0.93			195	
E								
EMERY	1302-74-5		101.9	4.0			2980	
ENDOSULFAN	115-29-7	$C_9H_6Cl_6O_3S$	404	1.74				
EPICHLOROHYDRIN	106-89-8	C_3H_5ClO	93	1.18			115	
ETHANE	74-84-0	C_2H_6	30				-89	
ETHANEDITHIOL		$C_2H_6S_2$	94				146	
ETHANOLAMINE	141-43-5	C_2H_7NO	61	1.02	12.1		170.5	
ETHION	563-12-2	$C_9H_{22}O_4P_2S_4$	384	1.22				-13
ETHYL ACETATE	141-78-6	$C_4H_8O_2$	88	0.90			77	
ETHYL ALCOHOL	64-17-5	C_2H_6O	46	0.79			78	
ETHYLAMINE	75-04-7	C_2H_7N	45	0.001932			16.5	
ETHYLAMYL KETONE	541-85-5	$C_8H_{16}O$	138	0.82			157	
ETHYL BENZENE	100-41-4	C_8H_{10}	106	0.87			136	
ETHYL BUTYL KETONE	106-35-4	$C_7H_{14}O$	114	0.82			148	
ETHYL CHLORIDE	75-00-3	C_2H_5Cl	65	0.002676			12	
ETHYL CYANOACRYLATE		$C_6H_7NO_2$	125				Polymerize	
ETHYLENE CHLOROHYDRIN	107-07-3	C_2H_5OCl	80.5	1.20			128.7	
ETHYLENE DIAMINE	107-15-3	$C_2H_8N_2$	60	0.91			117	

OFFICIAL LIMIT VALUES							CHOICE OF FILTER						
ppm					mg/m³								
TLV TWA	FR VME	MAK TRK	Olf.	NIOSH TWA	TLV TWA	NIOSH TWA	A	B	C	D	E	F	G
					0.2	0.2				!			
		0.001			10	10				Esco			
0.005	0.01	0.01		0.005		0.05				!			
					0.5	0.5				!			
					2	2				!			
					0.1	0.1				!			
					10	10				!			
10	10					50	1						
					10					HP			
					0.1	0.1				!			
0.5		3					2						
			1200				2						
							2						
3	3	2	2.6	3		8	2						2
					0.4	0.4							
400	400	400	3.9	400		1400	1						
1000	1000	500	84	1000		1900	2						2
5	10	5	0.95	10		18	2						
25	25		6	25		130	1						
100	100	100	2.3	100		435	1						
50	50			50		230	2						
1000	1000	9	4.2				2	2					
0.2										!			
1		1		C1		C3	1						
10	10	10	2.5	10		25	2						2

CHEMICAL NAME	CAS No.	FORMULAR	MOLECULAR WEIGHT	SPECIFIC GRAVITY	pH	DIPOLE MOMENT	BOILING PT	MELTING BT
			MW			Debye	Bp °C	Mp °C
ETHYLENE DIAMINE	107-15-3	$C_2H_8N_2$	60	0.91			117	
ETHYLENE DIBROMIDE	106-93-4	$C_2H_4Br_2$	188	2.17			131	
ETHYLENE GLYCOL (Aerosols)	107-21-1	$C_2H_6O_2$	62	1.11			197.5	
ETHYLENE GLYCOL DINITRATE		$C_2H_4N_2O_6$	152	1.49			114	
ETHYLENE OXIDE	75-21-8	C_2H_4O	44	0.001788			11	
ETHYLENIMINE		C_2H_5N	43	0.83			55	
ETHYL ETHER	60-29-7	$C_4H_{10}O$	74	0.71			34.5	
ETHYL FORMATE	109-94-4	$C_3H_6O_2$	74	0.92			49	
ETHYL MERCAPTAN	75-08-1	C_2H_6S	62	0.84			36	
2-ETHOXYETHANOL	110-80-5	$C_4H_{10}O_2$	90	0.93			135	
2-ETHOXY ETHANOL ACETATE	111-15-9	$C_6H_{12}O_3$	132	0.98			156.5	
F								
FENAMIPHOS	22224-92-6	$C_{13}H_{22}NO_3PS$	303	1.14				49
FENSULFOTHION	115-90-2	$C_{11}H_{17}O_4PS_2$	308	1.20			141	
FENTHION	55-38-9	$C_{10}H_{15}O_3PS_2$	278	1.25			87	
FERBAM	14484-64-1	$C_9H_{18}N_3S_6Fe$	417					180
FERROVANADIUM Dust	12604-58-9	FeV	107					
FLUORIDES Aerosols, Gas, Gaseous		F	19					
FLUORIDES Particulates		F	19					
FLUORIDE CARBONYL		COF_2	66				-83	
FLUORINE	7782-41-4	F_2	38	0.001572			-187	
FLUOROTRICHLOROMETHANE	75-69-4	CCl_3F	137	0.005688			24	
FONOFOS	944-22-9	$C_{10}H_{15}OPS_2$	230	1.15			100	

OFFICIAL LIMIT VALUES							CHOICE OF FILTER						
ppm					mg/m³								
TLV TWA	FR VME	MAK TRK	Olf.	NIOSH TWA	TLV TWA	NIOSH TWA	A	B	C	D	E	F	G
10	10	10	2.5	10		25	2						2
5		0.1		0.045			1				1		
39.4	50	10					1						
0.05		0.05					!						
1	1	1	430	0.1		0.18	!						
0.5		0.5	1.5				!						
400	400	400	8.9				1						
100	100	100	31	100		300	1						
0.5	0.5	0.5	0.00076	C0.5		C1.3	!						
5	5	5	2.7	0.5		1.8	1						
5	5	20	0.056	0.5		2.7	1						
					0.1	0.1	!						
					0.1	0.1	!						
					0.2		!						
					10	10	Esco						
					1	1	HP						
					2.5		Esco						
					2.5		HP						
	2						!						
1		0.1	0.14	0.1		0.2					2		
1000		1000	5	C1000		C5600	Esco						
					0.1	0.1	!						

CHEMICAL NAME	CAS No.	FORMULAR	MOLECULAR WEIGHT	SPECIFIC GRAVITY	pH	DIPOLE MOMENT	BOILING PT	MELTING BT
			MW			Debye	Bp °C	Mp °C
FORMALDEHYDE sol.37%	50-00-0	CH_2O	30	1.08				
FORMAMIDE	75-12-7	CH_3NO	45	1.13			200	
FORMIC ACID	64-18-6	CH_2O_2	46	1.22	2.38		101	
FURFURAL	98-01-1	$C_5H_4O_2$	96	1.16			162	
FURFURYL ALCOHOL	98-00-0	$C_5H_6O_2$	98	1.13			170	
G								
GALLIC ACID		$C_7H_6O_5$	170					222
GASOLINE (50 – 100 octane)	8006-61-9			0.72 – 0.76			34	
GLUTARALDEHYDE sol.50%	111-30-8	$C_5H_8O_2$	100	1.10	3.1 – 4.5		187	
GLYCERIN MIST	56-81-5	$C_3H_8O_3$	92	1.26			290	
GLYCIDOL	556-52-5	$C_3H_6O_2$	74	1.12			Decomp	
GRAPHITE (Natural)	7782-42-5	C		2.0 – 2.25				
H								
HAFNIUM and Cpds	7440-58-6	HF		13.31			4602	
HALOTHANE	151-67-7	$C_2HBrClF_3$	197	1.87			50	
n-HEPTANE	142-82-5	C_7H_{16}	100	0.68			98.5	
HEXACHLOROBUTADIENE	87-68-3	C_4Cl_6	258	1.55			212	
HEXACHLORO CYCLOPENTADIENE	77-47-4	C_5Cl_6	270	1.71			239	
HEXAFLUOROACETONE	684-16-2	C_3F_6O	166	0.006912			-27	
HEXAMETHYLENE DIISOCYANATE	822-06-0	$C_8H_{12}N_2O_2$	168	1.04				
n-HEXANE	110-54-3	C_6H_{14}	86	0.66			69	
HEXANE (all isomers)				0.65 – 0.66				
HEXACHLOROETHANE	67-72-1	C_2Cl_6	237					185

OFFICIAL LIMIT VALUES							CHOICE OF FILTER						
ppm					mg/m³								
TLV TWA	FR VME	MAK TRK	Olf.	NIOSH TWA	TLV TWA	NIOSH TWA	A	B	C	D	E	F	G
	0.5	0.5	0.83	0.016							1		
10	20			10		18.5	!						
5		5	49	5		9	2	1					
2		0.1	0.078				Esco						
10	10	10	8	10		40	1						
							2	2					
300							2						
	0.1	0.1		C0.2		C0.8					1		
					10		!						
2	25	50		25		75	1						
					2	2.5	HP						
					0.5	0.5	HP						
50		5	33	C2		C16.2	Esco						
400	400	500	150	85		350	1						
0.02				0.02		0.24	!						
0.01	0.01		0.03	0.01		0.1	!						
0.1	0.1			0.1		0.7	!						
0.005	0.01	0.005		0.005		0.035	!						
50	50	50	130	50		180	1						
500	500	200		100		350	2						
1	1			1		10	Esco						

F
G
H

CHEMICAL NAME	CAS No.	FORMULAR	MOLECULAR WEIGHT	SPECIFIC GRAVITY	pH	DIPOLE MOMENT	BOILING PT	MELTING BT
			MW			Debye	Bp °C	Mp °C
1,6-HEXANEDIAMINE		$C_6H_{16}N_2$	116				24	
1-HEXENE	592-41-6	C_6H_{12}	84				63.5	
Sec-HEXYL-ACETATE	108-84-9	$C_6H_{12}O_2$	144	0.86			146	
HEXYLENE GLYCOL	107-41-5	$C_6H_{14}O_2$	118	0.92			197	
HYDRAZINE	302-01-2	N_2H_4	34	1.01			113.5	
HYDROCHLORIC ACID 35%		HCl	36.5				20.2%	
HYDROFLUORIC ACID 40% as F		HF	20				38.2%	
HYDROGEN BROMIDE	10035-10-6	HBr	81	0.003372			-66.5	
HYDROGEN CHLORIDE	7647-01-0	HCl	36.5	0.001524	0.01	1.03	-85	
HYDROGEN CYANIDE	74-90-8	HCN	27	0.69	<2.0		26	
HYDROGEN FLUORIDE as F	7664-39-3	HF	20	0.002232		1.38	19.5	
HYDROGEN PEROXIDE 90%	7722-84-1	H_2O_2	34	1.39		1.03	152	
HYDROGEN SELENIDE	7783-07-5	H_2Se	81	0.00336			-41	
HYDROGEN SULFIDE	7783-06-4	H_2S	34	0.001428			-60	
HYDROQUINONE	123-31-9	$C_6H_6O_2$	110	1.33			286	
HYPOCHLORUS ACID		HClO	52.5					
I								
INDENE	95-13-6	C_9H_8	116	0.997			182	
INDIUM & Cpds	7440-74-6	In	114	7.31			2080	
INDOLE		C_8H_7N	117				254	
IODINE	7553-56-2	I_2	254	4.93	5.4	0	185	

OFFICIAL LIMIT VALUES							CHOICE OF FILTER						
ppm					mg/m³								
TLV TWA	FR VME	MAK TRK	Olf.	NIOSH TWA	TLV TWA	NIOSH TWA	A	B	C	D	E	F	G
0.5							Esco						
30							2						
50	50	50		50		300	1						
25			50	C25		C125	!						
0.01	0.1			C0.03		C0.04	!						
		5	0.77					1					
		3	0.042					1					
		2	2	C3		C10		2					
5		5	0.77	C5		C7		1					
	2	10	0.58				Esco						
	3	3	0.042	3		2.5		2					
1	1	1		1		1.4	Esco						
0.05	0.02	0.05	0.3	0.05		0.2	!						
10	5	10	0.0081	C10		C15		1					
					2	C2	HP						
							!						
10	10		0.015	10		45	Esco						
					0.1	0.1	HP						
							Esco						
			0.1	C0.1		C1					2		

CHEMICAL NAME	CAS No.	FORMULAR	MOLECULAR WEIGHT	SPECIFIC GRAVITY	pH	DIPOLE MOMENT	BOILING PT	MELTING BT
			MW			Debye	Bp °C	Mp °C
IRON Soluble salts as Fe								
ISOAMYL ACETATE	123-92-2	$C_7H_{14}O_2$	130	0.87	7		142	
ISOAMYL ALCOHOL	123-51-3	$C_5H_{12}O$	88	0.81 – 0.82			132	
ISOAMYL ETHER		$C_{10}H_{22}O$	158				172	
ISOBUTANE	75-28-5	C_4H_{10}	58	0.002472			-11.73	
ISOBUTYL ACETATE	110-19-0	$C_6H_{12}O_2$	116	0.87			117	
ISOBUTYL ALCOHOL	78-83-1	$C_4H_{10}O$	74	0.8			108	
ISOBUTYLAMINE		$C_4H_{11}N$	73				66	
ISOBUTYRIC ACID		$C_4H_8O_2$	88				154	
ISOOCTANE	540-84-1	C_8H_{18}	114				99	
ISOOCTYL ALCOHOL mixed isomers		$C_8H_{18}O$	134	0.83			182	
ISOPENTANE	78-78-4	C_5H_{12}	72				28	
ISOPHORONE	78-59-1	$C_9H_{14}O$	138	0.92			215	
ISOPHORONE DIISOCYANATE	4098-71-9	$C_{12}H_{18}N_2O_2$	222	1.06			158	
ISOPRENE	78-79-5	C_5H_8	68				34	
2-ISOPROPOXYETHANOL	109-59-1	$C_5H_{12}O_2$	104	0.90			139	
ISOPROPYL ACETATE	108-21-4	$C_5H_{10}O_2$	102	0.87			88	
ISOPROPYL ALCOHOL	67-63-0	C_3H_8O	60	0.79			82.5	
ISOPROPYLAMINE	75-31-0	C_3H_8O	59	0.69	11.8		34	
N-ISOPROPYLANILINE	768-52-5	$C_9H_{13}N$	135	0.93			206	
ISOPROPYL ETHER	108-20-3	$C_6H_{14}O$	102	0.73			68.5	
ISOPROPYL GLYCIDYL ETHER	4016-14-2	$C_6H_{12}O_2$	116	0.92			127	
ISOVALERIC ACID		$C_5H_{10}O_2$	104				176	
K								
KETENE	463-51-4	C_2H_2O	42	0.00174			-56	

OFFICIAL LIMIT VALUES							CHOICE OF FILTER						
ppm					mg/m³								
TLV TWA	FR VME	MAK TRK	Olf.	NIOSH TWA	TLV TWA	NIOSH TWA	A	B	C	D	E	F	G
					1	1	HP						
100	100		0.025	100		525	1						
100	100	100	0.042	100		360	1						
							Esco						
		1000		800		1900	2						
150	150	100	0.64	150		700	1						
50	50	100	1.6	50		150	1						
		5											2
							Esco						
							1						
50	50			50		270	Esco						
		1000					1						
5		2	0.2	4		23	1						
0.005	0.01	0.01		0.005		0.045	!						
							1						
25	25	5					Esco						
250	250	200	2.7				1						
400		200	22	400		980	1						
2	5	5	1.2				2						2
2				2		10	Esco						
250	250	500	0.017	500		2100	1						
50	50			C50		C240	1						
							Esco						
0.5	0.5	0.5		0.5		0.9	!						

CHEMICAL NAME	CAS No.	FORMULAR	MOLECULAR WEIGHT	SPECIFIC GRAVITY	pH	DIPOLE MOMENT	BOILING PT	MELTING BT
			MW			Debye	Bp °C	Mp °C
L								
LACTIC ACID		$C_3H_6O_3$	90				123	
LEAD Inorganic Cpds	7439-92-1	Pb		11.34				
LEAD ARSENATE		$Pb_3(AsO_4)_2$						Decomp
LEAD CHROMATE (Basic)		Pb_2OCrO_4						844
LINDANE	58-89-9	$C_6H_6Cl_6$	288	1.85				
LITHIUM HYDRIDE	7580-67-8	LiH	8	0.78			Decomp	680
LPG (Liquified Petroluem Gas)	68476-85-7		42	0.00174			-0.6	
M								
MAGNESITE	546-93-0	$MgCO_3$	84	2.96				
MAGNESIUM Oxide Fume	1309-48-4	MgO	40	3.58	10.3		3568	
MALEIC ANHYDRIDE	108-31-6	$C_4H_2O_3$	98	1.48			188	
MANGANESE and inorganic cpds	7439-96-5	Mn	55	7.20				
MANGANESE TETROXIDE	1317-35-7	Mn_3O_4	229	4.88				1564
MANGANESE CYCLOPENTALDIENYL TRICARBONYL	12079-65-1	$C_5H_5Mn(CO)_3$	203					
MENTHOL		$C_{10}H_{20}O$	156					43
MERCURY & Inorganic Cpds Cold	7439-97-6	Hg	201	13.6			342	
MERCURY & Alkyl Cpds Cold		Hg						
MERCURY & Aryl Cpds Cold		Hg						
MESITYL OXIDE	141-79-7	$C_6H_{10}O$	98	0.86			130	
METHANE	74-82-8	CH_4	16				-162	

OFFICIAL LIMIT VALUES							CHOICE OF FILTER						
ppm					mg/m³								
TLV TWA	FR VME	MAK TRK	Olf.	NIOSH TWA	TLV TWA	NIOSH TWA	A	B	C	D	E	F	G
							Esco						
					0.05	0.05	HP						
					0.15		HP						
					0.05		HP						
					0.5	0.5	Esco						
					0.025	0.025	HP						
1000				1000		1800	Esco						
					10	10	HP						
					10		HP						
0.25		0.1	0.32	0.25		1	Esco						
					0.2	1	HP						
							HP						
					0.1	0.1	HP						
							Esco						
		0.012			0.025	0.05			1				
					0.01	0.01			1				
					0.1				1				
15	15	25	0.45	10		40	1						
							Esco						

L

M

CHEMICAL NAME	CAS No.	FORMULAR	MOLECULAR WEIGHT	SPECIFIC GRAVITY	pH	DIPOLE MOMENT	BOILING PT	MELTING BT
			MW			Debye	Bp °C	Mp °C
METHOMYL	16752-77-5	$C_5H_{10}N_2O_2S$	162	1.29				78
METHOXYPHENOL	150-76-5	$C_7H_8O_2$	124	1.55			246	
METHYL ACETATE	79-20-9	$C_3H_6O_2$	74	0.93			58	
METHYL ACETYLENE	74-99-7	C_3H_4	40	0.001692			-23	
METHYL ACETYLENE PROPADIENE MIX	59355-75-8		40	0.001776			-34.5	
METHYL ACRYLATE	96-33-3	$C_4H_5O_2$	86	0.96			66	
METHYL ACRYLONITRILE	126-98-7	C_4H_5N	67	0.80			90	
METHYL ALCOHOL	67-56-1	CH_4O	32	0.79			65	
METHYLAMINE	74-98-5	CH_5N	31	0.001296			6.3	
N-METHYL ANILINE	100-61-8	C_7H_9N	107	0.99			194	
METHYL BROMIDE	74-83-9	CH_3Br	95	0.004032			3.6	
METHYL-tert-BUTYL ETHER	1634-04-4	$C_4H_{12}O$	88				55	
METHYL BUTYL KETONE	591-78-6	$C_6H_{12}O$	100	0.81			127	
METHYL CELLOSOLVE	109-86-4	$C_3H_8O_2$	76	0.96			124.5	
METHYL CHLORIDE	74-87-3	CH_3Cl	51	0.002136			-24	
METHYL CHLOROFORM	71-55-6	$C_2H_3Cl_3$	133	1.34			74	
METHYL CYCLOHEXANE	108-87-2	C_7H_{14}	98	0.77			100	
METHYL CYCLOHEXANOL	25639-42-3	$C_7H_{14}O$	114	0.92			155	
METHYL CYCLOHEXANONE	583-60-8	$C_7H_{12}O$	112	0.93			165	
METHYLENE CHLORIDE	75-09-2	CH_2Cl_2	85	1.33			40	
4,4-METHYLENE BI-2-CHLOROANILINE	101-14-4	$C_{13}H_{12}Cl_2N_2$	266	1.44				110
METHYLCYCLOHEXYL ISOCYANATE								
METHYL ETHER	115-10-6	C_2H_6O	46				23	
METHYL ETHYL KETONE	78-93-3	C_4H_{80}	72	0.81			79.5	

OFFICIAL LIMIT VALUES							CHOICE OF FILTER						
ppm					mg/m³								
TLV TWA	FR VME	MAK TRK	Olf.	NIOSH TWA	TLV TWA	NIOSH TWA	A	B	C	D	E	F	G
					2.5	2.5				Esco			
					5	5				Esco			
200	200	200	4.6	200		610	2						
1000	1000	1000		1000		1650	2						
1000		1000		1000		1800	2						
2	10	2	0.0048	10		35				Esco			
1	1		7	1		3				Esco			
200	200	200	100	200		260	2						
5		10	3.2	10		12	2						2
0.5	0.5	0.5	1.7	0.5		2				Esco			
1	5									Esco			
40										Esco			
5	5	5	0.76	1		4	1						
5	5	5	2.3	0.1		0.3	1						
50	50	50	10							Esco			
350	300	200	120	C350		C1900	1						
400	400	500	630	400		1600	1						
50	50		500	50		235	1						
50	50	50		50		230	1						
50	100	100	250				2						
0.01						0.003				!			
0.005										!			
		1000					2						
200	200	200	5.4	200		590	1						

CHEMICAL NAME	CAS No.	FORMULAR	MOLECULAR WEIGHT	SPECIFIC GRAVITY	pH	DIPOLE MOMENT	BOILING PT	MELTING BT
			MW			Debye	Bp °C	Mp °C
METHYL ETHYL KETONE PEROXIDE	1338-23-4	$C_8H_{16}O_2$		1.12				
METHYL FORMATE	107-31-3	$C_2H_4O_2$	60	0.98			32	
METHYL IODIDE	74-88-4	CH_3I	142	2.28			42	
METHYL ISOAMYL KETONE	110-12-3	$C_7H_{14}O$	114	0.81			144	
METHYL ISOBUTYL CARBINOL	108-11-2	$C_6H_{14}O$	102	0.81			132	
METHYL ISOBUTYL KETONE	108-10-1	$C_6H_{12}O$	100	0.80			116	
METHYL ISOCYANATE	624-83-9	C_2H_3NO	57	0.96			39	
METHYL ISOPROPYL KETONE	563-80-4	$C_5H_{10}O$	86	0.81			93	
METHYL ISOTHIOCYANATE	551-61-6	C_2H_3NS	73				120	
METHYL MERCAPTAN	74-93-1	CH_4S	48	1.001992			6	
METHYL METHACRYLATE	80-62-6	$C_5H_8O_2$	100	0.94			101	
METHYL-n-AMYL KETONE	110-43-0	$C_7H_{14}O$	114	0.81			151.5	
2 & 3-METHYLPENTANE		C_6H_{14}	86				60	
1-METHYL-2-PYRROLIDI-NONE (Vapors)	872-50-4	C_5H_9NO	99				202	
METHYL SILICATE	681-84-5	$C_4H_{12}O_4Si$	152	1.02			121	
a-METHYL STYRENE	98-83-9	C_9H_{10}	118	0.91			152	
MEVINPHOS	7786-34-7	$C_7H_{13}O_6P$	224				106	
MICA	12001-26-2			2.6-3.2				
MOLYBDENUM insoluble cpds	7439-98-7	Mo		10.28				
MOLYBDENUM soluble cpds		Mo						
MONOCROTOPHOS	6923-22-4	$C_7H_{14}O_5PN$	223				125	
MONOMETHYL HYDRAZINE	60-34-4	CH_6N_2	46	0.87			87.5	

OFFICIAL LIMIT VALUES							CHOICE OF FILTER						
ppm					mg/m³								
TLV TWA	FR VME	MAK TRK	Olf.	NIOSH TWA	TLV TWA	NIOSH TWA	A	B	C	D	E	F	G
0.2				C0.2		C1.5	Esco						
100	100	50	600	100		250	2						
2		0.3		2		10					2		
50	50	20	0.012	50		240	Esco						
25	25	25	0.07	25		100	1						
50	50	100	0.68	50		205	1						
0.02	0.02	0.01	2.1	0.02		0.05	!						
200	200		1.9	200		705	Esco						
							!						
0.5	0.5	0.5	0.0016	C0.5		C1	!						
100	100	50	0.083	100		410	Esco						
50	50		0.35	100		465	1						
		200					Esco						
		19					!						
1	1			1		6	!						
50	50	100	0.29	50		240	1						
	0.01	0.01		0.01	0.092	0.1	!						
					3	3	HP						
					10		HP						
					5		HP						
					0.25	0.25	!						
0.01	0.2		1.7	C0.04		C0.08	!						

CHEMICAL NAME	CAS No.	FORMULAR	MOLECULAR WEIGHT	SPECIFIC GRAVITY	pH	DIPOLE MOMENT	BOILING PT	MELTING BT
			MW			Debye	Bp °C	Mp °C
N								
NAPHTHALENE	91-20-3	$C_{10}H_8$	128	1.15			218	
2-NAPHTHYLAMINE	91-59-8	$C_{10}H_9N$	143	1.06			306	
1,5-NAPHTHYLENE DIISOCYANATE	3173-72-6	$C_{12}H_6N_2O_2$	206					
NICKEL Metal & Dust	7440-02-0	Ni		8.90			2730	
NICKEL CARBONYL	13463-39-3	$Ni(CO)_4$	171	1.32			43	
NICKEL Inorganic insol. cpds		Ni						
NICKEL Soluble cpds								
NICKEL SUBSULFIDE as Ni	12035-72-2	Ni_3S_2	240					790
NITRIC ACID 68% cold/ hot 6	7697-37-2	HNO_3	63	1.50	1.0		Ctc	2
NITRIC OXIDE	10102-43-9	NO	30	0.001248			-152	
Para-NITROANILINE	100-01-6	$C_6H_6N_2O_2$	138	1.42			332	
NITROBENZENE	98-95-3	$C_6H_5NO_2$	123	1.20			210	
NITROETHANE	79-24-3	$C_2H_5NO_2$	75	1.05			114	
NITROGEN DIOXIDE	10102-44-0	NO_2 / N_2O_4	46	0.003144			21	
NITROGEN TRIFLUORIDE	7783-54-2	NF_3	71	0.002952			-129	
NITROGLYCERIN	55-63-0	$C_3H_5N_3O_9$	144	1.60			218	
NITROMETHANE	75-52-5	CH3NO2	61	1.14	6.12		101	
2-NITRONAPHTHALENE	581-89-5	$C_{10}H_7NO_2$						
1-NITROPROPANE	108-03-2	$C_3H_7NO_2$	89	1.00			132	
2-NITROPROPANE	79-46-9	$C_3H_7NO_2$	89	0.99			120	
NITROUS OXIDE	10024-97-2	N_2O	30	0.001836			-88.5	
n-NONANE all isomers	111-84-2	C_9H_20	128	0.72			151	

OFFICIAL LIMIT VALUES							CHOICE OF FILTER						
ppm					mg/m³								
TLV TWA	FR VME	MAK TRK	Olf.	NIOSH TWA	TLV TWA	NIOSH TWA	A	B	C	D	E	F	G
10	10	10	0.084	10		50	Esco						
	0.001						!						
	0.01	0.01		0.005		0.04	!						
					1.5	0.015	HP						
0.05	0.05		0.3	0.001		0.007	!						
					0.2		!						
					0.1		HP						
					0.1		HP						
2	2			2		5		1					
25	25			25		30	Esco						
		1			3	3	Esco						
1	1	1	0.018	1		5	1						
100	100	100	2.1	100		310	1						
3		5	0.39				Esco						
10	10			10		29	!						
0.05	0.15	0.05					!						
20	100	100	3.5				1						
		0.035					Esco						
25	25	25	11	25		90	1						
10		5	70				1						
50				25		46	Esco						
200	200		47	200		1050	1						

CHEMICAL NAME	CAS No.	FORMULAR	MOLECULAR WEIGHT	SPECIFIC GRAVITY	pH	DIPOLE MOMENT	BOILING PT	MELTING BT
			MW			Debye	Bp °C	Mp °C
O								
n-OCTANE all isomers	111-65-9	C_8H_{18}	114	0.70			126	
OSMIUM TETROXIDE	20816-12-0	OsO_4	254	5.10			Subl	
OXALIC ACID	144-62-7	$C_2H_2O_4$	126	1.90			Subl	
OXYGEN DIFLUORIDE	7783-41-7	OF_2	54	0.002256			-145	
P								
PARAFFINE WAX fume	8002-74-2			0.88-0.92				47
PARAQUAT respirable fraction 2 Cl	1910-42-5	$C_{12}H_{14}N_2$	246	1.24			Decomp	300
PARATHION	56-38-2	$C_{10}H_{14}NO_5PS$	291	1.27			375	
PENTABORANE	19624-22-7	B_5H_9	63	0.62			60	
PENTACHLOROETHANE	76-01-7	C_2HCl_5	200	1.68			161	
PENTACHLORO NAPHTALENE	1321-64-8	$C_{10}H_3Cl_5$	301	1.67			326	
n-PENTANE all isomers	109-66-0	C_5H_{12}	72	0.63			36.1	
n-PENTANOIC ACID		$C_5H_{10}O_2$	102				185	
2-PENTANONE	107-87-9	$C_5H_{10}O$	86	0.81			102	
PERCHLORIC ACID sol.70% cold/hot	7601-90-3	$HClO_4$	100					
PERLITE 1% quartz	93763-70-3							
PHENOL cold/hot	108-95-2	C_6H_6O	94	1.06	6		182	
2-PHENOXYETHANOL		$C_8H_{10}O_2$	102				245	
PHENYL ETHER vapor	101-84-8	$C_{12}H_{10}O$	170	1.08			259	
PHENYL GLYCIDYL ETHER cold/hot	122-60-1	$C_9H_{10}O_2$	150	1.11			245	
PHENYLHYDRAZINE	100-63-0	$C_6H_8N_2$	108	1.10			Decomp	
PHOSGENE	75-44-5	CCl_2O	99	0.004176			8.3	

OFFICIAL LIMIT VALUES							CHOICE OF FILTER						
ppm					mg/m³								
TLV TWA	FR VME	MAK TRK	Olf.	NIOSH TWA	TLV TWA	NIOSH TWA	A	B	C	D	E	F	G
300	300	500	48	75		350	1						
0.0002	0.0002	0.0002	0.0019	0.0002		0.0002	!						
					1	1	Esco						
			0.1	C0.05		C0.1	!						
					2	2	Esco						
					0.1	0.1	HP						
					0.1	0.05	!						
0.005	0.005	0.005	0.9	0.005		0.01	!						
		5					1				1		
					0.5	0.5	Esco						
600	600	1000	400	120		350	1						
							Esco						
200	200	200	11	150		530	1						
							Esco						
					10	10	HP						
5	5	5	0.04	5		19	1						
		20					Esco						
1	1	1	0.0012	1		7	1						
0.1	1	1		C1		C6	1						
0.1		5		C0.14		C0.6	Esco						
0.1		0.02	0.9	0.1		0.4	!						

CHEMICAL NAME	CAS No.	FORMULAR	MOLECULAR WEIGHT	SPECIFIC GRAVITY	pH	DIPOLE MOMENT	BOILING PT	MELTING BT
			MW			Debye	Bp °C	Mp °C
PHOSPHINE	7803-51-2	PH_3	34	0.001416			-87.5	
PHOSPHORIC ACID	7664-38-2	H_3PO_4	98	1.87			276	
PHOSPHORUS PENTACHLORIDE	10026-13-8	Cl_5P	208	3.60			Subl	
PHOSPHORUS PENTASULFIDE	1314-80-3	P_2S_5 or P_4S_{10}	126	2.09			-85	
PHOSPHORUS TRICHLORIDE		PCl_3	137.5	1.58			76	
PHOSPHORUS yellow	7723-14-0	P_4	222	1.82			514	
PHTHALIC ANHYDRIDE	85-44-9	$C_8H_4O_3$	148	1.53 (Flake)			Subl	
PICRIC ACID	88-89-1	$C_6H_3N_3O_7$	229	1.76			300	
PLATINUM	7440-06-4	Pt	195	21.45			3827	
PLATINUM Soluble salts		Pt						
POTASSIUM HYDROXIDE	1310-58-3	KOH	56	2.04	13.5			405
POTASSIUM PERMANGANATE		$KMnO_4$	158				Decomp	
POTASSIUM PERSULFATE	7727-21-1	$K_2S_2O_8H_2$	272				Decomp	
PROPANE	74-98-6	C_3H_8	44	0.00186			-42	
PROPARGYL ALCOHOL	107-19-7	C_3H_4O	56	0.97			114	
PROPENE	115-07-1	C_3H_6	42				-48	
PROPIONIC ACID	79-09-4	$C_3H_6O_2$	74	0.99			141	
2-PROPOXYETHANOL		$C_6H_{14}O_2$	118				150	
n-PROPYL ACETATE	109-60-4	$C_5H_{10}O_2$	102	0.84			102	
n-PROPYL ALCOHOL	71-23-8	C_3H_8O	60	0.81			97	

OFFICIAL LIMIT VALUES							CHOICE OF FILTER						
ppm					mg/m³								
TLV TWA	FR VME	MAK TRK	Olf.	NIOSH TWA	TLV TWA	NIOSH TWA	A	B	C	D	E	F	G
0.3	0.1	0.1	0.51	0.3		0.4				!			
					1	1		2					
0.1	0.1					1				!			
					1	1				!			
0.2	0.2	0.5								Esco			
0.02		0.2				0.1				Esco			
1			0.053	1		6				Esco			
					0.1	0.1				!			
					1	1				HP			
					0.002	0.002				HP			
						C2				HP			
										HP			
										HP			
2500		1000	16000	1000		1800	2						
1	1	2		1		2	1						
			76							Esco			
10	10	10		10		30				Esco			
		20					2						
200		200	0.67	200		840	1						
200	200		2.6				1						

CHEMICAL NAME	CAS No.	FORMULAR	MOLECULAR WEIGHT	SPECIFIC GRAVITY	pH	DIPOLE MOMENT	BOILING PT	MELTING BT
			MW			Debye	Bp °C	Mp °C
n-PROPYLAMINE	107-10-8	C_3H_9N	59		11.8		48	
PROPYLENE DICHLORIDE	78-87-5	$C_3H_6Cl_2$	113	1.16			97	
PROPYLENE GLYCOL MONOMETHYL ETHER	107-98-2	$C_4H_{10}O_2$	90	0.96			120	
PROPYLENE IMINE	75-55-8	C_3H_7N	57	0.80			66	
PROPYLENE OXIDE	75-56-9	C_3H_6O	58	0.83			34	
n-PROPYL NITRATE	627-13-4	$C_3H_7NO_3$	105	1.07			110.5	
PROPYNE	74-99-7	C_3H_4	40	0.001692			-23.1	
PYRIDINE	110-86-1	C_5H_5N	79	0.98	8.5		115	
Q								
QUARTZ	14808-60-7	SiO_2	60				2230	
QUINONE	106-51-4	$C_6H_4O_2$	108	1.32			Subl	
R								
RHODIUM insoluble salts		Rh						
RHODIUM soluble salts		Rh						
S								
SELENIUM and Cpds	7782-49-2	Se	79	4.28			690	
SELENIUM HEXAFLUORIDE as Se	7783-79-1	SeF_6	193	0.00792			-34.5	
SILICON Dust	7740-21-3	Si	28	2.33			2600	
SILICON CARBIDE Dust	409-21-2	CSi	40	3.23			Subl	
SILICON TETRAHYDRIDE	7803-62-5	SiH_4	32	0.00332			-112	

OFFICIAL LIMIT VALUES							CHOICE OF FILTER						
ppm					mg/m³								
TLV TWA	FR VME	MAK TRK	Olf.	NIOSH TWA	TLV TWA	NIOSH TWA	A	B	C	D	E	F	G
							2						2
75	75		0.25				1				1		
100		100	10	100		360	2						
2				2		5							2
20	20	2.5	44				2						
25	25	25	50	25		105	Esco						
1000	1000	1000		1000		1650	Esco						
5		5	0.17	5		15	1						1
					0.1	0.05	HP						
0.1	0.1	0.1	0.084	0.1		0.0.4	Esco						
					1	0.1	HP						
					0.01	0.001	HP						
					0.2	0.2	HP						
0.05	0.05			0.05			!						
					10	10	HP						
					10	10	HP						
5				5		7	Esco						

CHEMICAL NAME	CAS No.	FORMULAR	MOLECULAR WEIGHT	SPECIFIC GRAVITY	pH	DIPOLE MOMENT	BOILING PT	MELTING BT
			MW			Debye	Bp °C	Mp °C
SILVER Metal	7440-22-4	Ag	107	10.49			2212	
SILVER Soluble Cpds		Ag						
SOAPSTONE respirable particulate	14807-96-6	$_3MgO_4.SiO_2.H_2O$		2.7-2.8				
SODIUM AZIDE	26628-22-8	NaN_3	65	1.85				Decomp
SODIUM BISULFITE	7631-90-5	$NaHSO_3$	104	1.48				Decomp
SODIUM FLUOROACETATE	62-74-8	$C_2H_2FO_2Na$	100				Decomp	
SODIUM HYDROXIDE	1310-73-2	NaOH	40	2.13	14		1390	
SODIUM METABISULFITE	7681-57-4	$Na_2S_2O_5$	190	1.4			Decomp	
STEARATES								
STIBINE	7803-52-3	SbH_3	125	0.005172			-18.4	
STODDARD SOLVENT	8052-41-3	85% Nonane		0.78			220	
STYRENE monomer	100-42-5	C_8H_8	104	0.91			146	
SULFUR DECAFLUORIDE	5714-22-7	$F_{10}S_2$	254	0.010524			29	
SULFUR DICHLORIDE		SCl_2	103				Decomp	
SULFUR DIOXIDE	7446-09-5	SO_2	64	0.002712			-10	
SULFUR HEXAFLUORIDE	2551-62-4	SF_6	146	0.006132			Subl	
SULFUR TETRAFLUORIDE	7783-60-0	SF_4	108	0.004536			-40	
SULFURIC ACID cold, fuming or heated	7664-93-9	H_2SO_4	98	1.84			296	
SULFURYL FLUORIDE	2699-79-8	F_2O2_S	102	0.004464			-55	

OFFICIAL LIMIT VALUES							CHOICE OF FILTER						
ppm					mg/m³								
TLV TWA	FR VME	MAK TRK	Olf.	NIOSH TWA	TLV TWA	NIOSH TWA	A	B	C	D	E	F	G
					0.1	0.01				HP			
					0.01	0.01				HP			
					3	6				HP			
				C0.1						Esco			
					5	5				HP			
					0.05	0.05				HP			
					2	C2				HP			
					5	5				HP			
					10					HP			
0.1	0.1	0.1		0.1		0.5				!			
100						350	1						
20	50	20	0.32	50		215	1						
0.01		0.025		C0.01		C0.1				Esco			
1		1								Esco			
2	2	0.5	1.1	2		5				1			
1000	1000	1000		100		6000				Esco			
				C0.1		C0.4				!			
					1	1		1					
5	5			5		20				!			

CHEMICAL NAME	CAS No.	FORMULAR	MOLECULAR WEIGHT	SPECIFIC GRAVITY	pH	DIPOLE MOMENT	BOILING PT	MELTING BT
			MW			Debye	Bp °C	Mp °C
T								
TALC containing no Abestos fibers	14807-96-6			2.70-2.80				
TEDP (sulfotep)	3689-24-5	$C_8H_{20}O_5P_2S_2$	322	1.20			136	
TEFLON Decomposition products		$(C_2F_4)n$						
TELLURIUM & Cpds	13494-80-9	Te	128	6.24			990	
TELLURIUM HEXAFLUORIDE as Te	7783-80-4	TeF_6	242	0.010008			Subl	
TERPHENYLS	92-06-8	$C_{18}H_{14}$	230	1.1 (o)			276	
1,1,2,2-TETRACHLORO-1,2-DIFLUOROETHANE	76-12-0	$C_2Cl_4F_2$	204	1.65			92	
1,1,2,2-TETRACHLOROETHANE	79-34-5	$C_2H_2Cl_4$	168	1.59			146	
TETRACHLOROETHYLENE	127-18-4	C_2Cl_4	166	1.62			121	
TETRACHLORONAPHTHALENE	1335-88-2	$C_{10}H_4Cl_4$	266	1.59-1.65			331	
TETRAETHYL LEAD as Pb	78-00-2	$C_8H_{20}Pb$	323	1.65			100	
TETRAETHYL SILOXONE		$C_8H_{20}O_3SiK$						
1,1,1,2-TETRAFLUOROETHANE	811-97-2	$C_2H_2F_4$						
TETRAHYDROFURAN	109-99-9	C_4H_8O	72	0.89			65	
TETRANITROMETHANE	509-14-8	CN_4O_8	196	1.62			126	
TETRYL	479-45-8	$C_7H_5N_5O_8$	287	1.57			187	
THALLIUM and soluble cpds		Tl	204				1457	
4,4-THIO BIS (6-tert-BUTYL-meta-CRESOL)	96-69-5	$C_{22}H_{30}O_2S$	358	1.10				150

OFFICIAL LIMIT VALUES							CHOICE OF FILTER						
ppm					mg/m³								
TLV TWA	FR VME	MAK TRK	Olf.	NIOSH TWA	TLV TWA	NIOSH TWA	A	B	C	D	E	F	G
					2	2	HP						
		0.0075			0.2	0.2	!						
							!						
					0.1	0.1	HP						
0.02	0.02			0.02		0.2	!						
				C0.5		C5	Esco						
500	500	1000		500		4170	Esco						
1	1	1	1.5	1		7	1						
25	50	50	27				1				1		
					2	2	Esco						
					0.1	0.075	Esco						
							Esco						
		1000					Esco						
200	200	50	2	200		590	1						
0.005	1	1		1		8	!						
					1.5	1.5	!						
					0.1	0.1	HP						
					10	10	Esco						

CHEMICAL NAME	CAS No.	FORMULAR	MOLECULAR WEIGHT	SPECIFIC GRAVITY	pH	DIPOLE MOMENT	BOILING PT	MELTING BT
			MW			Debye	Bp °C	Mp °C
TIN inorganic cpds	7440-31-5	Sn	119	7.28			2507	
TIN organic cpds								
TITANIUM DIOXIDE	13463-67-7	TiO_2	80	4.6				1860
TOLUENE	108-88-3	C_7H_8	92	0.87			110	
TOLUIDINE all isomers		C_7H_9N	107	1.05(p), 1.01(o), 0.999(m)			200	
TOLUYLEN-2,4-DIISOCYANATE	584-84-9	$C_9H_6N_2O_2$	174	1.22			251	
TOLUYLEN-2,6-DIISOCYANATE		$C_9H_6N_2O_2$	174				251	
1,2,4-TRICHLOROBENZENE	120-82-1	$C_6H_3Cl_3$	180	1.45			213	
2,3,4-TRICHLORO-1-BUTENE		$C_4H_6Cl_3$	159					
1,1,2-TRICHLOROETHANE	79-00-5	$C_2H_3Cl_3$	132	1.44			114	
TRICHLOROETHYLENE	79-01-6	C_2HCl_3	130	1.46			86	
1,2,3-TRICHLOROPROPANE	96-18-4	$C_3H_5Cl_3$	147	1.39			142	
TRIETHANOLAMINE		$C_6H_{15}O_3N$	149				Decomp	21.2
TRIETHYLAMINE	121-44-8	$C_6H_{15}N$	101	0.73			89.5	
TRIMELLITIC ANHYDRIDE Fumes	552-30-7	$C_9H_4O_5$	192					
TRIMETHYLAMINE	75-50-3	C_3H_9N	59	0.002508			-4	
TRIMETHYLBENZENE	108-97-8	C_9H_{12}	120	0.86-0.89			176	
TRIMETHYLPHOSPHITE	121-45-9	$C_3H_9O_3P$	124	1.05			108	
TRINITROTOLUENE	118-96-7	$C_7H_5N_3O_6$	227	1.65			Explo	

OFFICIAL LIMIT VALUES							CHOICE OF FILTER						
ppm					mg/m³								
TLV TWA	FR VME	MAK TRK	Olf.	NIOSH TWA	TLV TWA	NIOSH TWA	A	B	C	D	E	F	G
					2	2	HP						
					0.1	0.1	HP						
					10		HP						
50	100	50	2.9	100		375	1						
2	2	0.01	0.17				!						
0.005	0.01	0.01	0.25				!						
		0.01					!						
	5	5	1.4	C5		C40	Esco						
		0.005					!						
10		10		10		45	1						
50	75	50	28				1						
10				10		60	1						
					5		Esco						
1		10	0.48				2						2
	0.005			0.005		0.04	!						
5			0.00044	10		24	2						2
25	25	20	0.55	25		125	1						
2	2		0.0001	2		10	!						
		0.011			0.1	0.5	!						

CHEMICAL NAME	CAS No.	FORMULAR	MOLECULAR WEIGHT	SPECIFIC GRAVITY	pH	DIPOLE MOMENT	BOILING PT	MELTING BT
			MW			Debye	Bp °C	Mp °C
Tri-ortho-CRESYL PHOSPHATE	78-30-8	$C_{21}H_{21}O_4P$	368	1.20			410	
TRIPHENYL AMINE	603-34-9	$C_{18}H_{15}N$	245	0.77			365	
TUNGSTEN soluble cpds		W					5900	
TUNGSTEN and insoluble cpds	7440-33-7	W		19.3				
TURPENTINE	8006-64-2	$C_{10}H_{16}$	136	0.86			154	
U								
URIC ACID		$C_5H_4O_3N_4$	168					Decomp
V								
VANADIUM Dust or fume	1314-62-1	V_2O_5	182	3.36				
VINYL ACETATE	108-05-4	$C_4H_6O_2$	86	0.93			73	
VINYL BROMIDE	593-60-2	C_2H_3Br	107	0.004548			16	
VINYL BUTYL ETHER		$C_6H_{12}O$	100				94	
VINYL FLUORIDE		C_2H_3F		0.00192			-72	
VINYLIDENE CHLORIDE	75-35-4	$C_2H_2Cl_2$	96	1.21			37	
VINYLIDENE FLUORIDE	75-38-7	$C_2H_2F_2$	64	0.002652			-83	
VINYL TOLUENE	25013-15-4	C_9H_{10}	118	0.89			170	
VINYL CHLORIDE	75-01-4	C_2H_3Cl	63	0.002652			-14	
VM & NAPTHA	8032-32-4			0.73-0.76			80	
W								
WAR FARIN	81-81-2	$C_{19}H_{16}O_4$	308					161

OFFICIAL LIMIT VALUES							CHOICE OF FILTER						
ppm					mg/m³								
TLV TWA	FR VME	MAK TRK	Olf.	NIOSH TWA	TLV TWA	NIOSH TWA	A	B	C	D	E	F	G
					0.1	0.1	Esco						
					5	5	Esco						
					1	1	HP						
					5	5	HP						
100	100	100		100		560	Esco						
							Esco						
					0.05	C0.05	HP						
10	10	10	0.5	C4		C15	1						
0.5							Esco						
							1						
1							Esco						
5	5	2					Esco						
500				1			Esco						
50	50	100	10	100		480	1						
5			3000								2		
100						350	Esco						
					0.1	0.1	Esco						

CHEMICAL NAME	CAS No.	FORMULAR	MOLECULAR WEIGHT	SPECIFIC GRAVITY	pH	DIPOLE MOMENT	BOILING PT	MELTING BT
			MW			Debye	Bp °C	Mp °C
X								
m-XYLENE	108-38-3	C_8H_{10}	106	0.86			138	
o-XYLENE	95-47-6	C_8H_{10}	106	0.88			138	
p-XYLENE	106-42-3	C_8H_{10}	106	0.86			138	
XYLIDINE	1300-73-8	$C_8H_{11}N$	121	0.98			213	
Y								
YTTRIUM & cpds	7440-65-5	Y		4.47				
Z								
ZINC CHROMATE as Cr	13530-65-9	$ZnCrO_4.7H_2O$	183					
ZINC OXIDE Fume	1314-13-2	ZnO	81					
ZINC OXIDE Dust	1314-13-2	ZnO	81	5.61				
ZIRCONIUM Cpds as Zr	7440-67-7	Zr		6.51				

OFFICIAL LIMIT VALUES							CHOICE OF FILTER						
ppm					mg/m³								
TLV TWA	FR VME	MAK TRK	Olf.	NIOSH TWA	TLV TWA	NIOSH TWA	A	B	C	D	E	F	G
100	100	100	1.1	100		435	1						
100	100	100	1.1	100		435	1						
100	100	100	1.1	100		435	1						
0.5	2	5	0.056	2		10	Esco						
					1	1	HP						
					0.01		HP						
					5	5	HP						
					10	5	HP						
					5	5	HP						

Thank you for reading this data sheet.

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