TECHNICAL GUIDANCE DOCUMENT

Standards and Limits for Pollution to Air and Marine Environments Occupational Exposure Pesticides and Chemical Use

هيئة البيئة-ابوظبي
Environment Agency- ABU DHABI
أبحاث • تنمية • حماية
RESEARCH • DEVELOPMENT • PROTECTION

TECHNICAL GUIDANCE DOCUMENT
TG-0003R

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Pollution to Air and Marine Environments
Occupational Exposure
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مقدمة

تعتبر هذة الوثيقة الفنية واحدة من سلسلة نشرات تعدها هيئة البيئة - أبوظبي (الهيئة) كي تستفيد منها الدوائر الحكومية المحلية، والمستثمرين، والمهتمين بالتطوير، والاستشاريين، والمقاولين، حيث تتطرق إلى المواصفات القياسية لجميع النواحي البيئية و المذكورة في القانون الإتحادي رقم 24 لعام 1996 و ما تبعه من لوائح تنفيذية. و تعتبر هذه الوثيقة الفنية تلخيصاً للتشريعات و القوانين البيئة المعمول بها حيث تساعد الجهات المعنية للوفاء بالتزاماتها نحو حماية بيئة إمارة أبوظبي، ولتحقيق الالتزام بمتطلبات القوانين والأنظمة البيئية السارية في إمارة أبوظبي.

تحتوي الوثيقة على المواصفات المعتمدة و المطروحة لحماية البيئة في أبوظبي و هي كالتالي:

1. قائمة المشاريع المتطلبة لدراسة تقييم الأثر البيئي قبل الإنشاء أو التعديل
2. حدود الانبعاث الجوية للمصادر الساكنة (المداخن)
3. حدود الانبعاث الجوية لمصادر الاحتراق الساكنة باستخدام وقود هيدروكربوني
4. حدود الانبعاث الجوية لمحارق النفايات الصلبة
5. حدود الانبعاث الجوية لمحارق النفايات الطبية و الخطرة
6. حدود الضوضاء و الضجيج
7. المقاييس المقترحة للبيئة الجوية في إمارة أبوظبي
8. الحدود القصوى المسموحة لملوثات الهواء الكيميائية داخل مناطق العمل
9. النفايات السائلة الملوثة القابلة للتحلل و يمكن تصريفها في البيئة البحرية
10. المواد الملوثة الغير قابلة للتحلل (في البيئة البحرية)
11. المقاييس المقترحة للبيئة البحرية في إمارة أبوظبي
12. جدول المواد السائلة الضارة المشحونة بكميات كبير
13. المبيدات المحظور استيرادها و تداولها لشدة مخاطرها الصحية و البيئية
14. المبيدات المقيدة الإستخدام (يتم استخدامها تحت اشراف فني فقط)

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Projects that Require an Environmental Impact Assessment (EIA) Study Before Construction, Modification or Expansion

(As mandated by the Federal Environmental Law 24 / 1999)

Fossil Natural Resources Projects

- Exploration, extraction, processing, re-processing, storage, transportation, sale and collection of petroleum and all its derivatives (for example, but not limited to, gasoline, diesel oils, and lubricants), including all related facilities and equipment.
- Exploration, extraction, processing, storage and transportation of natural gas, including all related facilities and equipment.

Non-fossil Natural Resources Projects

- Exploration, excavation, storage and transportation of sand (silica), including all related facilities and equipment.
- Exploration, excavation, storage and transportation of rocks, including all related facilities and equipment.
- Melting, processing and storage of aluminum, including all relevant facilities and equipment.
- Melting, processing and storage of iron, including all related facilities and equipment.
- Melting and processing of metals as gold and others.
- Metal plating and manufacturing, as steel and others.
- Processing and storage of cement and concrete materials.
- Processing and storage of fiberglass, sponge and glass.
- Processing and storage of cement and lime blocks, and ceramics.
- Processing and storage of insulating materials.
- Processing and storage of paper for printing.
- Textile manufacture.

Other Industrial Projects

- Processing, packaging and storage of chemicals of all types and purposes.
- Processing, packaging and storage of medicines and pharmaceutical / medical formulations.
- Processing, packaging, storage and transportation of pesticides of all types.
- Processing, packaging and storage of dyes of all types and purposes.
- Processing, packaging and transportation of gases of all types and purposes.
- Processing and storage of batteries of all types.
- Processing and storage of tires of means of transportation and their accessories.

Food, Livestock and Agricultural Projects

- Production, packaging and storage of food products.
- Gathering, raising, slaughter and skinning of livestock.
- Leather dying and manufacture.
- Land cultivation and preparation, including related facilities and equipment.
- Processing of animal and vegetable oil and derivatives.

Power Generation and Water Desalination Projects

- Power generating plants (regardless of the source of energy), including related electric cables, substations, facilities and equipment.
- Water desalination plants (regardless of the method used), including pipelines, collection, storage, distribution, sterilization, treatment, and related facilities and equipment.
- Utilization of ground water resources, including exploration, extraction, transportation, processing, storage, injection, and related facilities and equipment.

Land, Air and Marine Transportation Projects

- Highway, including bridges and roads.
- Underground tunnels.
- Marine ports and anchorage areas regardless of size.
- Dredging of marine ports, anchorage areas and channels.
- Marine bridges.
- Construction of dry docks for ship repair, painting, maintenance and related facilities.
- Construction of ships and boats and related facilities.
- Construction of airports and related facilities, regardless of their size.

Projects Related to Wastes

- Disposal of wastes (regardless of the method used, whether by landfill, incineration or others), whether solids, semi-solids, liquids or gases; hazardous or non-hazardous; municipal, industrial, or medical; including related locations, facilities, equipment and transportation.
- Handling of wastes (regardless of the method used, whether through recycling reuse or others), whether solids, semi-solids, liquids or gases; hazardous or non-hazardous; municipal, industrial, or medical; including related locations, facilities, equipment and transportation.

Projects Related to Housing and Industries

- New horizontal housing projects, regardless of location.
- New vertical housing projects, regardless of location.
- New cities projects, regardless of location.
- Construction of industrial zones.

Projects of Special Nature

- Projects located in or close to protected areas, or areas that are environmentally or ecologically sensitive.
- Establishment of any activities, facilities, and works on the islands and coastal zones of the United Arab Emirates.
- Reclamation / landfill operations on coastlines and island edges.
- Projects that may affect the historical, archeological, entertainment, scientific, cultural, and service character of adjacent areas.
- Hospitals and health facilities including laboratories and medical incinerators.

المشاريع التي قد تحتاج لدراسة تقييم الأثر البيئي قبل البدء في تنفيذها أو تعديل أو توسعة القائم منها

(حسب القانون الاتحادي رقم 24 / 1999)

مسلسل	**مشاريع الموارد الطبيعية ذات الأصل الاحفوري**
1	مشاريع تنقيب (استكشاف واستخراج) وتصنيع وإعادة تصنيع وتخزين ونقل وبيع وتجميع البترول وكل مشتقاته (مثل البنزين والديزل والزيوت والشحوم على سبيل المثال وليس الحصر)، بما فيها المنشآت والمعدات ذات العلاقة.
2	مشاريع تنقيب (استكشاف واستخراج) وتصنيع وتخزين ونقل الغاز، بما فيها كل المنشآت والمعدات ذات العلاقة.

مسلسل	**مشاريع الموارد الطبيعية غير ذات الأصل الاحفوري**
1	مشاريع استكشاف واستخراج وتخزين ونقل الرمل، بما فيها المنشآت والمعدات ذات العلاقة.
2	مشاريع استكشاف واستخراج وتصنيع وتخزين ونقل الصخور، بما فيها المنشآت والمعدات ذات العلاقة.
3	مشاريع صهر وتصنيع وتخزين الألمونيوم، بما فيها المنشآت والمعدات ذات العلاقة.
4	مشاريع صهر وتصنيع وتخزين الحديد، بما فيها المنشآت والمعدات ذات العلاقة.
5	مشاريع صهر وتصنيع المعادن كالذهب وأخرى.
6	مشاريع طلي المعادن وتصنيعها كالحديد الصلب وأخرى.
7	مشاريع تصنيع وتخزين المواد الاسمنتية والخرسانية.
8	مشاريع تصنيع وتخزين الفيبر جلاس والاسفنج والزجاج.
9	مشاريع تصنيع وتخزين الطابوق الاسمنتي والجيري والبلاط.
10	مشاريع تصنيع وتخزين المواد العازلة.
11	مشاريع تصنيع وتخزين ورق الطباعة.
12	مشاريع تصنيع النسيج.

مسلسل	**مشاريع صناعية أخرى**
1	مشاريع تصنيع وتعبئة وتخزين المواد الكيمائية بمختلف أنواعها واستخداماتها.
2	مشاريع تصنيع وتعبئة وتخزين الأدوية والمستحضرات الطبية.
3	مشاريع تصنيع وتعبئة وتخزين ونقل المبيدات بكافة أنواعها.
4	مشاريع تصنيع وتعبئة وتخزين الأصباغ بمختلف أنواعها واستخداماتها.
5	مشاريع تصنيع وتعبئة الغازات ونقلها بمختلف أنواعها واستخداماتها.
6	مشاريع تصنيع وتخزين البطاريات بأنواعها المختلفة.
7	مشاريع تصنيع وتخزين إطارات وسائل النقل وأجهزتها المختلفة.

مسلسل	**مشاريع الغذاء والثروة الحيوانية والزراعية**
1	مشاريع إنتاج وتعبئة وتخزين المواد الغذائية.
2	مشاريع تجميع وتربية وذبح وسلخ الحيوانات.
3	مشاريع دبغ وصناعة جلود الحيوانات.
4	مشاريع زراعة الأراضي وتحضيرها بما فيها المنشآت والمعدات ذات العلاقة.
5	مشاريع تصنيع الزيوت النباتية والحيوانية ومشتقاتها.
مسلسل	**مشاريع توليد الطاقة وتحلية المياه**
1	مشاريع محطات توليد الكهرباء (بغض النظر عن مصدر الطاقة) بما فيها خطوط نقل الكهرباء والمحطات الفرعية والمنشآت والمعدات المستخدمة ذات العلاقة.
2	مشاريع تحلية المياه (بغض النظر عن الطريقة) بما فيها خطوط النقل والتجميع والتخزين والتوزيع والتعقيم والمعالجة والمنشآت والمعدات المستخدمة ذات العلاقة.
3	مشاريع استخدام الموارد المائية الجوفية بما فيها استكشافها واستخراجها ونقلها وتصنيعها وتخزينها وحقنها والمنشآت والمعدات المستخدمة ذات العلاقة.

مسلسل	مشاريع النقل البري والجوي والبحري
1	مشاريع الخطوط السريعة بما فيها الجسور والطرق البرية.
2	مشاريع الأنفاق.
3	مشاريع المراسي والموانئ البحرية بغض النظر عن أحجامها.
4	مشاريع تعميق الممرات البحرية والمراسي والموانئ البحرية.
5	مشاريع الجسور البحرية.
6	مشاريع بناء الأحواض الجافة لتصليح السفن وطلائها وصيانتها وملحقاتها.
7	مشاريع بناء القوارب والسفن وملحقاتها.
8	مشاريع بناء المطارات الجوية وملحقاتها بعض النظر عن أحجامها ونوعيتها.

مسلسل	مشاريع لها علاقة بالمخلفات
1	مشاريع التخلص من المخلفات (بغض النظر عن الطريقة المتبعة سواء كانت دفن أو حرق أو أخرى) سواء كانت المخلفات صلبة أو شبه صلبة أو سائلة أو غازية، خطرة أو غير خطرة، بلدية أو صناعية أو طبية بما فيها المواقع والمنشآت والمعدات والنقل المتعلقة بها.
2	مشاريع التعامل مع المخلفات (بغض النظر عن الطريقة المتبعة سواء كانت إعادة تدوير أو استخدام أو أخرى) سواء كانت المخلفات صلبة أو شبه صلبة أو سائلة أو غازية، خطرة أو غير خطرة، بلدية أو صناعية أو طبية بما فيها المواقع والمنشآت والمعدات والنقل المتعلقة بها.

مسلسل	مشاريع لها علاقة بالإسكان والصناعة
1	مشاريع إسكانية أفقية جديدة بغض النظر عن موقعها.
2	مشاريع إسكانية عمودية جديدة بغض النظر عن موقعها.
3	مشاريع المدن السكانية الجديدة بغض النظر عن موقعها.
4	مشاريع بناء مناطق صناعية.

مسلسل	مشاريع ذات طبيعة خاصة
1	المشاريع التي تقع بالقرب أو داخل المحميات الطبيعية أو المناطق الحساسة من الناحية البيئية أو الإيكولوجية.
2	مشاريع إقامة أي نوع من النشاطات والمنشآت والأعمال على جزر وسواحل دولة الإمارات.
3	مشاريع ردم السواحل وأطراف الجزر.
4	المشاريع التي يتوقع أن تؤثر على الطابع التراثي والتاريخي والترفيهي والعلمي والثقافي والخدماتي الموجود حولها.
5	المستشفيات والمرافق الصحية بما فيها محارقها الطبية والمختبرات.

Air Emission Limits for Stationary Sources (Stacks)

Targeted Emissions	Expressed As	Emissions Limit Values	Units
Visible Emissions			
Combustion Sources		250	mg/Nm^3
Other Sources		None	
Total Suspended Particulate	TSP		
Combustion Sources		250	mg/Nm^3
Cement Industry		50	
Other Sources		150	
Sulfur Dioxide			
Combustion Sources		500	
Materials Producing Industries	SO_2	2000	mg/Nm^3
Other Sources		1000	
Sulphur Trioxide (Including Sulphuric Acid Mist)			
Material Producing Industries	SO_3	150	mg/Nm^3
Other Sources		50	
Nitrogen Oxides (Expressed as NO_2)			
Combustion Sources			
1. Fuel Combustion. Units		Gas Fuel = 350 Liquid Fuel = 500	
2. Turbine Units	NO_x	Gas Fuel = 70 Liquid Fuel = 150	mg/Nm^3
Material Producing Industries		1500	
Other Sources		200	
Carbon Monoxide * All Sources	CO	500	mg/Nm^3
Ammonia & Ammonium Compounds (Expressed as Ammonia)			
Material Producing Industries	NH_3	50	mg/Nm^3
Other Sources		10	
Benzene	C_6H_6	5	mg/Nm^3
Iron * Iron & Steel Foundries	Fe	100	mg/Nm^3
Heavy Metals: Lead & Cpds	Pb	5	mg/Nm^3
Antimony & Cpds			
Material Producing	Sb	5	
Other Sources		1	

Targeted Emissions	Expressed As	Emissions Limit Values	Units
Arsenic & Cpds	As	1	
Cadmium & Cpds	Cd	1	
Mercury & Cpds	Hg	0.5	
Nickel & Cpds	Ni	1	
Copper & Cpds	Cu	5	
Hydrogen Sulfide	H_2S	5	mg/Nm^3
Chloride	Cl		mg/Nm^3
Chlorine Works		200	
Other Sources		10	
Hydrogen Chloride	HCl		mg/Nm^3
Chlorine Works		200	
Other Sources		20	
Hydrogen Fluoride	HF	2	mg/Nm^3
Silicon Fluoride	SiF_4	10	mg/Nm^3
Fluorides & its Compounds (including HF & SiF_4, expressed as Fluorides) Aluminum Smelters	F^-	20	mg/Nm^3
Other Sources		50	
Formaldehyde Material Producing Industries	CH_2O	20	mg/Nm^3
Other Sources		2	
Carbon Oedes Production Industries	C	250	mg/Nm^3
Waste Incineration		50	
Total Volatile Hydrocarbon (expressed as TOC)	TOC	20	mg/Nm^3
Dioxins & Furans	D/F	1 (ng TEQ/ m^3)	ng TEQ/ m^3

Air Emission Limits for Stationary Combustion Sources Using Hydrocarbon Fuel

Targeted Emissions	Expressed As	Emissions Limit Values	Units
Visible Emissions (All Sources)		250	mg/Nm^3
Total Suspended Particulate	TSP	250	mg/Nm^3
Sulfur Dioxides	SO_2	500	mg/Nm^3
Nitrogen Oxides (expressed as NO_2)	NO_x		mg/Nm^3
Fuel Combustion Units		Gas Fuel = 350 Liquid Fuel = 500	
Turbine Units		Gas Fuel = 70 Liquid Fuel = 150	
Carbon Monoxide	CO	500	mg/Nm^3

Air Emission Limits for Solid Waste Incinerators

Targeted Emissions	Expressed As	Emissions Limit Values		Units
		Incinerator Capacity less than 3ton/hr	Incinerator Capacity 3ton/hr or More	
Total Suspended Particulate	TSP	100	30	mg/Nm^3
Sulfur Dioxides	SO_2	500	300	mg/Nm^3
Nitrogen Oxides (as NO_2)	NO_x	350	300	mg/Nm^3
Carbon Monoxide	CO	100	100	mg/Nm^3
Hydrogen Chloride	HCl	30	20	mg/Nm^3
Hydrogen Fluoride	HF	4	2	mg/Nm^3
Total Volatile Organic Compounds (VOC) – (expressed as Total Organic Carbon – TOC)	TOC	20	20	mg/Nm^3
Nickel & its Compounds	Ni	1	1	mg/Nm^3
Arsenic & its Compounds	As	1	1	mg/Nm^3
Cadmium & its Compounds	Cd	0.2	0.1	mg/Nm^3
Mercury & its Compounds	Hg	0.2	0.1	mg/Nm^3
Lead & its Compounds	Pb	5	1	mg/Nm^3
Chrome & its Compounds	Cr	5	1	mg/Nm^3
Copper & its Compounds	Cu	5	1	mg/Nm^3
Manganese & its Compounds	Mn	5	1	mg/Nm^3
Dioxins & Furans	D/F	0.1	0.1	ng TEQ/ m^3

Air Emission Limits for Hazardous & Medical Waste Incinerators

Targeted Emissions	Expressed As	Emissions Limit Values		Units
		Daily Average	Half-Hourly Average	
Total Suspended Particulate	TSP	10	30	mg/Nm^3
Sulfur Dioxides	SO_2	50	200	mg/Nm^3
Nitrogen Oxides (as NO_2)	NO_x	200	400	mg/Nm^3
Carbon Monoxide	CO	50	100	mg/Nm^3
Hydrogen Chloride	HCl	10	60	mg/Nm^3
Hydrogen Fluoride	HF	1	4	mg/Nm^3
Total Volatile Organic Compounds (VOC)	TOC	10	20	mg/Nm^3
Cadmium & its Compounds	Cd	0.1 (total)		mg/Nm
Thallium & its Compounds	Ti	0.1 (total)		mg/Nm
Mercury & its Compounds	Hg	0.1		mg/Nm^3
Antimony & its Compounds	Sb	1 (total)		mg/Nm^3
Arsenic & its Compounds	As	1 (total)		mg/Nm^3
Chrome & its Compounds	Cr	1 (total)		mg/Nm^3
Cobalt & its Compounds	Co	1 (total)		mg/Nm^3
Copper & its Compounds	Cu	1 (total)		mg/Nm^3
Lead & its Compounds	Pb	1 (total)		mg/Nm^3
Manganese & its Compounds	Mn	1 (total)		mg/Nm^3
Nickel & its Compounds	Ni	1 (total)		mg/Nm^3
Tin & its Compounds	Sn	1 (total)		mg/Nm^3
Vanadium & its Compounds	V	1 (total)		mg/Nm^3
Dioxins & Furans	D/F	0.1		ng TEQ/ m^3

Maximum allowable Limits for Air Pollutants Inside Working Areas (Dust)

Substance	Maximum Allowable Limits (mg/m^3)
Respirable Dust	
Crystallized Silica (Quartz)	0.1
Un- Crystallized Silica (Graphite)	2.5
Asbestos (Crisotile)	2 (fiber/cm^3)
Total Dust	
Un- Crystallized Silica (Graphite)	10
Stone Wool	10
Silica Gel	10
Portland Cement	10
Dust form Biological Sources	
Hard Wood Vapors	1
Soft Wood Vapors	5
Inorganic Lead	1

Noise Emission Limit Values

Location	Allowable Limits for Noise Levels in dB	
	Day (7:00 a.m. – 8:00 p.m.)	Night (8:00 p.m. – 7:00 a.m.)
Residential Areas with Light Traffic	40 - 50	30 - 40
Residential Areas in the Downtown	45 - 55	35 - 45
Residential Areas which include some Workshops, Commercial Business or Residential Areas near the Highways	50 - 60	40 - 50
Commercial Areas & Downtown	55 - 65	45 - 55
Industrial Areas (Heavy Industries)	60 - 70	50 - 60

Recommended Ambient Air Quality Standards for the Emirate of Abu Dhabi

Air Polluting Parameter	Average Time		Maximum Allowable Concentration in the Ambient Air ($\mu g/m^3$)
Sulfur Dioxide (SO_2)	1	Hour	350
	24	Hour	150
	1	Year	60
Carbon Monoxide (CO)	1	Hour	30,000
	8	Hour	10,000
Nitrogen Dioxide (NO_2)	1	Hour	400
	24	Hour	150
Ozone (O_3)	1	Hour	200
	8	Hour	120
Total Suspended Particulates (TSP)	24	Hour	230
	1	Year	90
Particulate Matter less than ten (10) Microns in Aerodynamic Diameter (PM_{10})	24	Hour	70
Lead (Pb)	1	Year	1

Maximum Allowable Limits for Air Pollutants Inside Working Areas (Chemical Compounds)

NAME	CAS No.	Threshold Limit Value (TLV)		Units
		Time-Weighted Average (TWA)	Short-Term Exposure Limit (STEL)/Ceiling Level Value (CLV)*	
Acetaldehyde	75070	////	25	ppm
		////	45	mg/m^3
Acetic acid	64197	10	15	ppm
		25	37	mg/m^3
Acetic anhydride	108247	5	////	ppm
		21	////	mg/m^3
Acetone	67641	750	1000	ppm
		1780	2380	mg/m^3
Acetonitrile	75058	40	60	ppm
		67	101	mg/m^3
2-Acetylaminofluorene	53963	////	0	ppm
		////	0	mg/m^3
Acetyl tetra bromide	79276	1	////	ppm
		14	////	mg/m^3
Acetyl salicylic acid	50782	////	////	ppm
		5	////	mg/m^3
Acrolein	107028	0.1	0.3	ppm
		0.23	0.69	mg/m^3
Acrylamide	79061	////	////	ppm
		0.03	////	mg/m^3
Acrylic acid	79107	2	////	ppm
		5.9	////	mg/m^3
Acrylonitrile	107131	2	4	ppm
		4.5	9	mg/m^3
Adipic acid	124049	////	////	ppm
		5	////	mg/m^3
Adiponitrile	111693	2	////	ppm
		8.8	////	mg/m^3
Aldrin	309002	////	////	ppm
		0.25	0.75	mg/m^3
Allyl alcohol	107186	2	4	ppm
		4.8	9.5	mg/m^3
Allyl chloride	107051	1	2	ppm
		3	6	mg/m^3
Allyl glycidyl ether	106923	5	10	ppm
		23	47	mg/m^3
Allyl propyl disulfide	2179591	2	3	ppm
		12	18	mg/m^3
Aluminum (fume or dust)	7429905	////	////	ppm
		10	////	mg/m^3
Aluminum oxide (fibrous forms)	1344281	////	////	ppm
		10	////	mg/m^3

NAME	CAS No.	Threshold Limit Value (TLV)		Units
		Time-Weighted Average (TWA)	Short-Term Exposure Limit (STEL)/Ceiling Level Value (CLV)*	
4-Aminobiphenyl	92671	////	////	ppm
		////	////	mg/m^3
2-Aminopyridine	504290	0.5	////	ppm
		1.9	////	mg/m^3
Amitrole	61825	////	////	ppm
		0.2	////	mg/m^3
Ammonia	7664417	25	35	ppm
		17	24	mg/m^3
Ammonium chloride (fumes)	12125029	////	////	ppm
		10	20	mg/m^3
Ammonium perfluorooctanoate	3825261	////	////	ppm
		0.01	////	mg/m^3
Ammonium sulfamate	7773060	////	////	ppm
		10	////	mg/m^3
n-Amyl acetate	628637	100	////	ppm
		532	////	mg/m^3
sec-Amyl acetate	626380	125	////	ppm
		665	////	mg/m^3
Aniline	62533	2	////	ppm
		7.6	////	mg/m^3
p-Anisidine	104949	////	////	ppm
		0.5	1.5	mg/m^3
o-Anisidine hydrochloride	134292	////	////	ppm
		0.5	1.5	mg/m^3
Antimony trioxide	1309644	////	////	ppm
		0.5	////	mg/m^3
Antimony	7440360	////	////	ppm
		0.5	////	mg/m^3
Antimony trioxide during production	1309644	////	////	ppm
		0.5	////	mg/m^3
ANTU	86884	////	////	ppm
		0.3	////	mg/m^3
Arsenic	7440382	////	////	ppm
		0.01	////	mg/m^3
Arsenic acid	7778394	////	////	ppm
		0.1	////	mg/m^3
Arsenic inorganic compounds (except Arsine)	7440382	////	////	ppm
		0.01	////	mg/m^3
Arsenic soluble compounds	7440382	////	////	ppm
		0.05	////	mg/m^3
Arsenic hydride	7784421	0.05	////	ppm
		0.16	////	mg/m^3

NAME	CAS No.	Threshold Limit Value (TLV)		Units
		Time-Weighted Average (TWA)	Short-Term Exposure Limit (STEL)/Ceiling Level Value (CLV)*	
Arsenic pentoxide	1303282	////	////	ppm
		0.1	////	mg/m^3
Arsenic trioxide	1327533	////	////	ppm
		0.1	////	mg/m^3
Asbestos (Amosite)	12172735	0.5		Fiber/cm3
Asbestos (Chrysotile)	12001295	2		Fiber/cm3
Asbestos (Crocidolite)	12001284	0.2		Fiber/cm3
Asbestos (friable)	1332214	2		Fiber/cm3
Asphalt (fumes)	8052424	////	////	ppm
		5	////	mg/m^3
Atrazine	1912249	////	////	ppm
		5	////	mg/m^3
Azinphos-methyl	86500	////	////	ppm
		0.2	////	mg/m^3
Barium soluble compounds (as Ba)	7440393	////	////	ppm
		0.5	////	mg/m^3
Barium sulfate	7727437	////	////	ppm
		10	////	mg/m^3
Benzene	71432	1	5	ppm
		3	16	mg/m^3
Benzidine	92875	////	////	ppm
		////	////	mg/m^3
Benzidine salts	////	////	////	ppm
		////	////	mg/m^3
Benzo[a]pyrene	50328	////	////	ppm
		0.01	////	mg/m^3
Benzoyl chloride	98884	////	0.5*	ppm
		////	2.8*	mg/m^3
Benzoyl peroxide	94360	////	////	ppm
		5	////	mg/m^3
Benzyl acetate	140114	10	////	ppm
		61	////	mg/m^3
Benzyl chloride	100447	1	////	ppm
		5.2	////	mg/m^3
Beryllium (element)	7440417	////	////	ppm
		0.002	////	mg/m^3
Beryllium (compounds)	7440417	////	////	ppm
		0.001	////	mg/m^3

NAME	CAS No.	Threshold Limit Value (TLV)		Units
		Time-Weighted Average (TWA)	Short-Term Exposure Limit (STEL)/Ceiling Level Value (CLV)*	
Bis(2-chloroethyl) ether	111444	////	////	ppm
		10	////	mg/m^3
Bis(2-ethylhexyl)phthalate	117817	////	////	ppm
		5	////	mg/m^3
Boron oxide (respirable Dust)	1303862	////	////	ppm
		10	////	mg/m^3
Boron tribromide	10294334	////	1*	ppm
		////	10*	mg/m^3
Boron trifluoride	7637072	////	1*	ppm
		////	2.8*	mg/m^3
Bromacil	314409	////	////	ppm
		10	////	mg/m^3
Bromine	7726956	0.1	0.2	ppm
		0.66	1.3	mg/m^3
Bromine pentaflouride	7789302	0.1	////	ppm
		0.72	////	mg/m^3
Bromoform	75252	0.5	////	ppm
		5.2	////	mg/m^3
Bromomethane	74839	5	////	ppm
		19	////	mg/m^3
Bromotrifluoromethane	75638	1000	////	ppm
		6090	////	mg/m^3
1,3-Butadiene	106990	50	////	ppm
		73	////	mg/m^3
Butane	106978	800	////	ppm
		1900	////	mg/m^3
Butan-1-ol	71363	////	50*	ppm
		////	152*	mg/m^3
sec-Butan-2-ol	78922	100	////	ppm
		303	////	mg/m^3
tert-Butanol	75650	100	////	ppm
		303	////	mg/m^3
2-Butanone	78933	200	300	ppm
		590	885	mg/m^3
Butanone peroxide	1338234	////	0.2*	ppm
		////	1.5*	mg/m^3
trans-2-Butenal	123739	2	////	ppm
		6	////	mg/m^3
1-Butoxyethanol	111762	25	////	ppm
		121	////	mg/m^3
sec-Butyl acetate	105464	200	////	ppm
		150	////	mg/m^3

NAME	CAS No.	Threshold Limit Value (TLV)		Units
		Time-Weighted Average (TWA)	Short-Term Exposure Limit (STEL)/Ceiling Level Value (CLV)*	
tert-Butyl acetate	540885	200	////	ppm
		150	////	mg/m^3
n-Butyl acrylate	141322	10	////	ppm
		52	////	mg/m^3
Butylamine	109739	////	5*	ppm
		////	15*	mg/m^3
tert-Butylcromate	1189851	////	////	ppm
		////	0.1*	mg/m^3
Butyl-2,3-epoxy propyl ether	2426086	25	////	ppm
		133	////	mg/m^3
Butyl mercaptan	109795	0.5	////	ppm
		1.8	////	mg/m^3
p-tert-Butyl toluene	98511	1	////	ppm
		6.1	////	mg/m^3
Cadmium	7440439	////	////	ppm
		0.02	////	mg/m^3
Cadmium chloride	10108642	////	////	ppm
		0.05	////	mg/m^3
Cadmium inorganic compounds	7440439	////	////	ppm
		0.01	////	mg/m^3
Cadmium inorganic compounds (respirable dust)	7440439	////	////	ppm
		0.02	////	mg/m^3
Cadmium compounds (except cdo fumes and cds)	7440439	////	////	ppm
		0.05	////	mg/m^3
Cadmium oxide	1306190	////	////	ppm
		0.05	////	mg/m^3
Cadmium oxide (fumes)	1306190	////	////	ppm
		0.01	////	mg/m^3
Cadmium sulfide	1306236	////	////	ppm
		0.04	////	mg/m^3
Calcium arsenate	7778441	////	////	ppm
		0.2	////	mg/m^3
Calcium chromate	13765190	////	////	ppm
		0.001	////	mg/m^3
Calcium cyanamide	156627	////	////	ppm
		0.5	////	mg/m^3
Calciumhydroxide	1305620	////	////	ppm
		5	////	mg/m^3
Calcium oxide	1305788	////	////	ppm
		2	////	mg/m^3
Calcium silicate	1344952	////	////	ppm
		10	////	mg/m^3

NAME	CAS No.	Threshold Limit Value (TLV)		Units
		Time-Weighted Average (TWA)	Short-Term Exposure Limit (STEL)/Ceiling Level Value (CLV)*	
Calcium sulfate	7778189	////	////	ppm
		10	////	mg/m^3
Camphor (synthetic)	76222	2	3	ppm
		12	19	mg/m^3
epsilon-Caprolactam (dust)	105602	////	////	ppm
		1	3	mg/m^3
epsilon-Caprolactam (vapor)	105602	5	10	ppm
		23	46	mg/m^3
Captafol	2425061	////	////	ppm
		0.1	////	mg/m^3
Captan	133062	////	////	ppm
		5	////	mg/m^3
Carbaryl	63252	////	////	ppm
		5	////	mg/m^3
Carbofuran	1563662	////	////	ppm
		0.1	////	mg/m^3
Carbon Black	1333864	////	////	ppm
		3.5	////	mg/m^3
Carbon dioxide	124389	5000	30000	ppm
		9000	45000	mg/m^3
Carbon disulfide	75150	10	////	ppm
		31	////	mg/m^3
Carbon monoxide	630080	25	////	ppm
		29	////	mg/m^3
Carbon tetrabromide	558134	0.1	0.3	ppm
		1.4	4.1	mg/m^3
Carbon tetrachloride	56235	5	10	ppm
		31	63	mg/m^3
Carbonyl chloride	75445	0.1	////	ppm
		0.4	////	mg/m^3
Carbonyl fluoride	353504	2	5	ppm
		534	13	mg/m^3
Catechol	120809	5	////	ppm
		23	////	mg/m^3
Cellulose	9004346	////	////	ppm
		10	////	mg/m^3
Cesium hydroxide	21351791	////	////	ppm
		2	////	mg/m^3
Chlordane	57749	////	////	ppm
		0.5	////	mg/m^3
Chlorinated camphene	8001352	////	////	ppm
		0.5	////	mg/m^3

NAME	CAS No.	Threshold Limit Value (TLV)		Units
		Time-Weighted Average (TWA)	Short-Term Exposure Limit (STEL)/Ceiling Level Value (CLV)*	
Chlorinated diphenyl oxide	55720995	////	////	ppm
		0.5	////	mg/m^3
Chlorine	7782505	0.5	1	ppm
		1.5	2.9	mg/m^3
Chlorine dioxide	10049044	0.1	0.3	ppm
		0.28	0.83	mg/m^3
Chlorine trifluoride	7790912	////	0.1*	ppm
		////	0.38*	mg/m^3
Chloroacetaldehyde	107200	////	1*	ppm
		////	3.2*	mg/m^3
Chloro asetone	78955	////	1*	ppm
		////	3.8*	mg/m^3
alpha-Chloroacetophenone	532274	0.05	////	ppm
		0.32	////	mg/m^3
Chloroacetyl chloride	79049	0.05	0.15	ppm
		0.23	0.69	mg/m^3
Chlorobenzene	108907	10	////	ppm
		46	////	mg/m^3
Chlorobenzylidene malononitrile	2698411	////	0.05*	ppm
		////	0.39*	mg/m^3
Chlorodifluoromethane	75456	1000	////	ppm
		3540	////	mg/m^3
Chlorodiphenyl (42% chlorine)	53469219	////	////	ppm
		1	////	mg/m^3
Chlorodiphenyl (54% chlorine)	11097691	////	////	ppm
		0.5	////	mg/m^3
2-Chloroethanol	107073	////	1*	ppm
		////	3.3*	mg/m^3
Chloroform	67663	10	20	ppm
		50	100	mg/m^3
Chloromethane	74873	50	////	ppm
		103	////	mg/m^3
Chloromethyl methyl ether	107302	////	////	ppm
		0.003	0.007	mg/m^3
1-Chloro-4-nitrobenzene	100005	0.1	////	ppm
		0.64	////	mg/m^3
1-Chloro-1-nitropropane	600259	2	////	ppm
		10	////	mg/m^3
Chloropicrin	76062	0.1	////	ppm
		0.67	////	mg/m^3
beta-Chloroprene	126998	10	////	ppm
		36	////	mg/m^3

NAME	CAS No.	Threshold Limit Value (TLV)		Units
		Time-Weighted Average (TWA)	Short-Term Exposure Limit (STEL)/Ceiling Level Value (CLV)*	
2-Chloro propionic acid	598787	0.1	////	ppm
		0.44	////	mg/m^3
3-Chloro propene	107051	1	////	ppm
		3	////	mg/m^3
o-Chloro styrene	2039874	50	75	ppm
		283	425	mg/m^3
o-Chloro toluene	95498	50	////	ppm
		259	////	mg/m^3
alpha-Chloro toluene	100442	1	////	ppm
		5	////	mg/m^3
4-Chloro-o-toluidine	95692	2	////	ppm
		12	////	mg/m^3
2-chloro-6-trichloromethyl-pyridine (respirable dust)	1929824	////	////	ppm
		10	20	mg/m^3
Chromates	13907454	////	////	ppm
		////	0.01	mg/m^3
Chromic acid	7738945	////	////	ppm
		////	0.02*	mg/m^3
Chromite	1308312	////	////	ppm
		0.05	////	mg/m^3
Chromite inorganic compounds (processing chromate)	7400473	////	////	ppm
		0.05	////	mg/m^3
Chromium-lll-chromate	24613896	////	////	ppm
		0.05	////	mg/m^3
Chromium-VI-compounds (soluble)	7440473	////	////	ppm
		0.05	////	mg/m^3
Chromium-VI-compounds (insoluble)	7440473	////	////	ppm
		0.01	////	mg/m^3
Chromium oxy chloride	14977618	0.025	////	ppm
		0.16	////	mg/m^3
Chromium trioxide	1333820	////	////	ppm
		0.05	////	mg/m^3
CI-direct-black-38	1937377	////	////	ppm
		0.01	////	mg/m^3
CI-pigment yellow-36	13530659	////	////	ppm
		0.01	////	mg/m^3
Coal tar pitch volatiles (benzene solubles section)	65996932	////	////	ppm
		0.2	////	mg/m^3
Coal tar pitch volatiles (as benzene soluble fraction)	8007452	////	////	ppm
		0.2	////	mg/m^3
Cobalt (dust and/or fumes) & inorganic compounds	7440484	////	////	ppm
		0.02	////	mg/m^3

NAME	CAS No.	Threshold Limit Value (TLV)		Units
		Time-Weighted Average (TWA)	Short-Term Exposure Limit (STEL)/Ceiling Level Value (CLV)*	
Cobalt carbonyl	10210681	////	////	ppm
		0.1	////	mg/m^3
Cobalt hydrocarbonyl (as Co)	16842038	////	////	ppm
		0.1	////	mg/m^3
Copper (dust)	7440508	////	////	ppm
		1	////	mg/m^3
Copper (fumes)	7440508	////	////	ppm
		0.2	////	mg/m^3
Cotton dust	////	////	////	ppm
		0.2	0.6	mg/m^3
Cresol (all isomers)	1319773	5	////	ppm
		22	////	mg/m^3
Crotonaldehyde	4170303	2	////	ppm
		5.7	////	mg/m^3
Crufomate	299865	////	////	ppm
		5	////	mg/m^3
Cumene	98828	50	////	ppm
		246	////	mg/m^3
Cyanamide	420042	////	////	ppm
		2	////	mg/m^3
2-Cyano acrylic acid methyl ester	137053	2	4	ppm
		9.1	18	mg/m^3
Cyanogen	460195	10	////	ppm
		21	////	mg/m^3
Cyclohexane	110827	300	////	ppm
		1030	////	mg/m^3
Cyclohexanol	108930	50	////	ppm
		206	////	mg/m^3
Cyclohexanone	108941	25	////	ppm
		100	////	mg/m^3
Cyclohexene	110838	300	////	ppm
		1010	////	mg/m^3
Cyclohexylamine	108918	10	////	ppm
		41	////	mg/m^3
Cyclonite	121824	2	////	ppm
		1.5	////	mg/m^3
1,3-Cyclo pentadiene	542927	75	////	ppm
		203	////	mg/m^3
Cyclo pentane	287923	600	////	ppm
		1720	////	mg/m^3
Cyhexaun	13121705	////	////	ppm
		5	////	mg/m^3

NAME	CAS No.	Threshold Limit Value (TLV)		Units
		Time-Weighted Average (TWA)	Short-Term Exposure Limit (STEL)/Ceiling Level Value (CLV)*	
DDT	50293	////	////	ppm
		1	////	mg/m^3
Decaborane	17702419	0.05	0.15	ppm
		0.25	0.75	mg/m^3
Demeton	8065483	0.01	////	ppm
		0.11	////	mg/m^3
Diacetone alcohol	123422	50	////	ppm
		238	////	mg/m^3
4,4-Diacetyl benzidine	613354	////	////	ppm
		////	////	mg/m^3
4,4-Diamini diphenylmethane	101779	0.1	////	ppm
		0.8	////	mg/m^3
Diazinon	333415	////	////	ppm
		0.1	////	mg/m^3
Diazomethane	334883	////	////	ppm
		////	////	mg/m^3
Diborane	19287457	0.1	////	ppm
		0.11	////	mg/m^3
1,2-Dibromo-3-chloropropane	96128	0.001	////	ppm
		0.01	////	mg/m^3
2-n-Dibutyl aminoethanol	102818	0.5	////	ppm
		3.5	////	mg/m^3
Dibutyl phenylphosphate	2528361	0.3	////	ppm
		3.5	////	mg/m^3
Di-n-butyl phosphate	107664	1	2	ppm
		8.6	17	mg/m^3
Dibutyl phthalate	84742	////	////	ppm
		5	////	mg/m^3
Dichloroacetylene	7572294	0.1	////	ppm
		0.4	////	mg/m^3
o-Dichlorobenzene	95501	25	50	ppm
		150	301	mg/m^3
p-Dichlorobenzene	106467	10	////	ppm
		60	////	mg/m^3
3,3-Dichloro biphenyl 4,4-ylenediamino and salts	91941	////	////	ppm
		0.1	////	mg/m^3
1,4-Dichloro-2-butene	764410	0.005	////	ppm
		0.025	////	mg/m^3
Dichlorodifluoromethane	75718	1000	////	ppm
		4950	////	mg/m^3
Dichloro-5,5-dimethylhydantoin	118525	////	////	ppm
		0.2	0.4	mg/m^3

NAME	CAS No.	Threshold Limit Value (TLV)		Units
		Time-Weighted Average (TWA)	Short-Term Exposure Limit (STEL)/Ceiling Level Value (CLV)*	
1,1-Dichloroethane	75343	100	////	ppm
		4.5	////	mg/m^3
1,1-Dichloroethylene	75354	10	20	ppm
		40	80	mg/m^3
1,2-Dichloroethylene	156605	200	////	ppm
		793	////	mg/m^3
Dichlorofluoromethane	75434	10	////	ppm
		42	////	mg/m^3
Dichloromethane	75092	50	////	ppm
		175	////	mg/m^3
2,2-Dichloro-4,4-methylene dianiline and salts	101144	0.01	////	ppm
		0.1	////	mg/m^3
1,1-Dichloro-1-nitroethane	594729	2	////	ppm
		12	////	mg/m^3
1,2-Dichloropropane	78875	75	110	ppm
		347	508	mg/m^3
1,3-Dichloropropene	542756	1	////	ppm
		4.5	////	mg/m^3
ciz-(z)-1,3-Dichloropropene	10061015	1	////	ppm
		5	////	mg/m^3
trans-1,3-Dichloropropene	10061026	1	////	ppm
		5	////	mg/m^3
2,2-Dichloropropionic acid	75990	1	////	ppm
		5.8	////	mg/m^3
Dichlorvos	62737	0.1	////	ppm
		0.9	////	mg/m^3
Dicyclopentadiene	77736	5	////	ppm
		27	////	mg/m^3
Dicyclopentadienyl iron	102545	////	////	ppm
		10	////	mg/m^3
Dieldrin	60571	////	////	ppm
		0.25	0.75	mg/m^3
Diesel exhaust	////	////	////	ppm
		0.15	////	mg/m^3
Diethanolamine	111422	0.46	////	ppm
		2	////	mg/m^3
Diethylamine	109897	5	15	ppm
		15	45	mg/m^3
2-(Diethylamino) ethanol	100378	2	////	ppm
		9.6	////	mg/m^3
Diethylene triamine	111400	1	////	ppm
		4.2	////	mg/m^3

NAME	CAS No.	Threshold Limit Value (TLV)		Units
		Time-Weighted Average (TWA)	Short-Term Exposure Limit (STEL)/Ceiling Level Value (CLV)*	
Diethyl ether	60297	400	500	ppm
		1210	1520	mg/m^3
Diethyl ketone	96220	200	////	ppm
		705	////	mg/m^3
Diethyl phthalate	84662	////	////	ppm
		5	////	mg/m^3
Diethyl sulfate	64675	0.03	////	ppm
		0.2	////	mg/m^3
Difluoro dibromo methane	75616	100	////	ppm
		858	////	mg/m^3
Diglycidyl ether	2238075	0.1	////	ppm
		0.53	////	mg/m^3
1,4-Dihydrobenzene	123319	////	////	ppm
		2	////	mg/m^3
Diisobutylketone	108838	25	////	ppm
		145	////	mg/m^3
Diisocyanato toluene (all isomers)	26471622	0.01	////	ppm
		0.08	////	mg/m^3
2,4-Diisocyanato toluene	584849	0.005	////	ppm
		0.035	////	mg/m^3
2,6-Diisocyanato toluene	91087	0.005	////	ppm
		0.035	////	mg/m^3
Diisopropylamine	108189	5	////	ppm
		21	////	mg/m^3
Dimethoxy methane	109875	1000	////	ppm
		3110	////	mg/m^3
n,n-Dimethyl acetamide	127195	10	////	ppm
		36	////	mg/m^3
Dimethylamine	124403	5	15	ppm
		9.2	27.6	mg/m^3
Dimethylaminoazobenzene	60117	////	////	ppm
		3	////	mg/m^3
Dimethyl-1,2-dibromo-2,2-dichloro ethyl phosphate	300765	10	////	ppm
		30	////	mg/m^3
Dimethylformamide	68122	////	0.1	ppm
		////	0.25	mg/m^3
1,1-Dimethyl hydrazine	57147	////	////	ppm
		////	////	mg/m^3
Dimethylnitrosoamine	62759	////	////	ppm
		////	////	mg/m^3
Dimethyl phthalate	131113	////	////	ppm
		5	////	mg/m^3

NAME	CAS No.	Threshold Limit Value (TLV)		Units
		Time-Weighted Average (TWA)	Short-Term Exposure Limit (STEL)/Ceiling Level Value (CLV)*	
Dimethyl sulfate	77781	////	0.01	ppm
		////	0.05	mg/m^3
Dinitolmide	148016	////	////	ppm
		5	////	mg/m^3
Dinitrobenzene	25154545	0.15	////	ppm
		1	////	mg/m^3
1,2-Dinitrobenzene	528290	0.15	////	ppm
		1	////	mg/m^3
4,6-Dinitro-o-cresol	534521	////	////	ppm
		0.2	////	mg/m^3
Dinitrotoluene	25321146	////	////	ppm
		0.15	////	mg/m^3
1,4-Dioxane	123911	25	40	ppm
		90	135	mg/m^3
Dioxathion	78342	////	////	ppm
		0.2	////	mg/m^3
Diphenylamine	122394	////	////	ppm
		10	////	mg/m^3
Diphenylmethane diisocyanate	101688	0.005	////	ppm
		0.051	////	mg/m^3
Dipropylene glycol methylether	34590948	100	150	ppm
		606	909	mg/m^3
Dipropylketone	123193	50	////	ppm
		233	////	mg/m^3
Diquat	2764729	0.1	////	ppm
		0.5	////	mg/m^3
Di-sec-octylphthalate	117817	////	////	ppm
		5	10	mg/m^3
Disulfiram	97778	////	////	ppm
		2	////	mg/m^3
Disulfoton	298044	////	////	ppm
		0.1	////	mg/m^3
2,6-Di-tert-butyl-p-cresol	128370	////	////	ppm
		10	////	mg/m^3
Diuron	330541	////	////	ppm
		10	////	mg/m^3
Divinyl benzene	1321740	10	////	ppm
		53	////	mg/m^3
Emery	1302745	////	////	ppm
		10	////	mg/m^3
Endosulfan	115297	////	////	ppm
		0.1	////	mg/m^3

NAME	CAS No.	Threshold Limit Value (TLV)		Units
		Time-Weighted Average (TWA)	Short-Term Exposure Limit (STEL)/Ceiling Level Value (CLV)*	
Endrin	72208	////	////	ppm
		0.1	////	mg/m^3
Enflurane	13838169	75	////	ppm
		566	////	mg/m^3
EPN	2104645	////	////	ppm
		0.1	////	mg/m^3
Epi-chlorohydrin	106898	2	////	ppm
		7.6	////	mg/m^3
1,2-Epoxy-4-epoxy ethylcyclohexane	106876	10	20	ppm
		60	120	mg/m^3
Ethanolamine	141435	3	6	ppm
		7.5	15	mg/m^3
Ethion	563122	////	////	ppm
		0.4	////	mg/m^3
2-Ethoxyethanol	110805	5	////	ppm
		18	////	mg/m^3
2-Ethoxy ethyl acetate	111159	5	////	ppm
		27	////	mg/m^3
Ethyl acetate	141786	400	////	ppm
		1440	////	mg/m^3
Ethyl acrylate	140885	5	////	ppm
		20	////	mg/m^3
Ethyl amine	75047	5	15	ppm
		9.2	27.6	mg/m^3
Ethyl amyl ketone	541855	25	////	ppm
		131	////	mg/m^3
Ethylbenzene	100414	100	125	ppm
		434	543	mg/m^3
Ethyl bromide	74964	5	////	ppm
		22	////	mg/m^3
Ethyl chloride	75003	100	////	ppm
		264	////	mg/m^3
1,2-Ethylene diamine	107153	10	////	ppm
		25	////	mg/m^3
Ethylene dibromide	106934	20	30	ppm
		145	220	mg/m^3
Ethylene dichloride	107062	10	////	ppm
		40	////	mg/m^3
Ethylene glycol	107211	////	39.4*	ppm
		////	100*	mg/m^3
Ethylene glycol dinitrate	628966	0.05	////	ppm
		0.31	////	mg/m^3

NAME	CAS No.	Threshold Limit Value (TLV)		Units
		Time-Weighted Average (TWA)	Short-Term Exposure Limit (STEL)/Ceiling Level Value (CLV)*	
Ethylene glycol methylether acetate	110496	5	////	ppm
		24	////	mg/m^3
Ethyleneimine	151564	////	0.5	ppm
		////	1	mg/m^3
Ethyl formate	109944	100	////	ppm
		303	////	mg/m^3
Ethylidene norborene	16219753	////	5*	ppm
		////	25*	mg/m^3
Ethyl mercaptan	75081	0.5	////	ppm
		1.3	////	mg/m^3
n-Ethyl morpholine	100743	5	////	ppm
		24	////	mg/m^3
Ethyl silicate	78104	10	////	ppm
		85	////	mg/m^3
Fenamiphos	22224926	////	////	ppm
		0.1	////	mg/m^3
Fensulfothion	115902	////	////	ppm
		0.1	////	mg/m^3
Fenthion	55389	////	////	ppm
		0.2	////	mg/m^3
Ferbam	14484641	////	////	ppm
		10	////	mg/m^3
Ferro vanadanium dust	12604589	////	////	ppm
		1	3	mg/m^3
Fluorides (as F)	1698488	////	////	ppm
		2.5	4	mg/m^3
Fluorine	7782414	1	2	ppm
		1.6	3.1	mg/m^3
Fonofos	944229	////	////	ppm
		0.1	////	mg/m^3
Formaldehyde	50000	////	0.3	ppm
		////	0.4	mg/m^3
Formamide	75127	10	////	ppm
		18	////	mg/m^3
Formic acid	64186	5	10	ppm
		9.4	19	mg/m^3
Furfural	98011	2	////	ppm
		7.9	////	mg/m^3
Furfuryl alcohol	98000	10	15	ppm
		40	60	mg/m^3
Gasoline	8006619	300	500	ppm
		890	1480	mg/m^3

NAME	CAS No.	Threshold Limit Value (TLV)		Units
		Time-Weighted Average (TWA)	Short-Term Exposure Limit (STEL)/Ceiling Level Value (CLV)*	
Germanium tetrahydride	7782652	0.2	////	ppm
		0.63	////	mg/m^3
Glutar aldehyde	111308	////	0.2*	ppm
		////	0.82*	mg/m^3
Glycidol	556525	2	////	ppm
		6.1	////	mg/m^3
Glycerin mist	56815	////	////	ppm
		10	////	mg/m^3
Grain dust (oat, wheat, barley)	////	////	////	ppm
		4	////	mg/m^3
Graphite (all forms except fibers)	7782425	////	////	ppm
		2	////	mg/m^3
Hafnium	7440586	////	////	ppm
		0.5	////	mg/m^3
Halothane	151677	50	////	ppm
		404	////	mg/m^3
Heptachlor	76448	////	////	ppm
		0.5	////	mg/m^3
Heptachlor epoxide	1024573	////	////	ppm
		0.05	////	mg/m^3
n-Heptane	142825	400	500	ppm
		1640	2050	mg/m^3
2-Heptanone	110430	50	////	ppm
		233	////	mg/m^3
3-Heptanone	106354	50	////	ppm
		234	////	mg/m^3
Hexachlorobenzene	118741	////	////	ppm
		0.025	////	mg/m^3
Hexachlorobutadiene	87683	0.02	////	ppm
		0.21	////	mg/m^3
Hexachlorocyclopentadiene	77474	0.01	////	ppm
		0.11	////	mg/m^3
Hexachlorocyclohexane (all isomers)	608731	////	////	ppm
		0.5	////	mg/m^3
Hexachloroethane	67721	1	////	ppm
		9.7	////	mg/m^3
Hexachloronaphthalene	1335871	////	////	ppm
		0.2	////	mg/m^3
Hexafluoroacetone	684162	0.1	////	ppm
		0.68	////	mg/m^3
Hexamethylene-1,6-diisocyanate	822060	0.005	////	ppm
		0.034	////	mg/m^3

NAME	CAS No.	Threshold Limit Value (TLV)		Units
		Time-Weighted Average (TWA)	Short-Term Exposure Limit (STEL)/Ceiling Level Value (CLV)*	
1,6-Hexane diamine	124094	0.5	////	ppm
		2.3	////	mg/m^3
n-Hexane	110543	50	////	ppm
		176	////	mg/m^3
2-Hexanone	591786	5	////	ppm
		20	////	mg/m^3
Hexone	108101	50	75	ppm
		205	307	mg/m^3
sec-Hexylacetate	108849	50	////	ppm
		295	////	mg/m^3
Hexylene glycol	107415	////	25*	ppm
		////	121*	mg/m^3
Hydrazine and salts	302012	////	////	ppm
		////	////	mg/m^3
Hydrogenated terphenyls	61788322	0.5	////	ppm
		4.9	////	mg/m^3
Hydrogen bromide	10035106	////	3*	ppm
		////	9.9*	mg/m^3
Hydrogen chloride	7647010	////	5*	ppm
		////	7.5*	mg/m^3
Hydrogen cyanide	74908	////	4.7*	ppm
		////	5*	mg/m^3
Hydrogen fluoride	7664393	////	3*	ppm
		////	2.3*	mg/m^3
Isoamyl acetate	123922	100	////	ppm
		532	////	mg/m^3
Isoamyl alcohol	123513	100	125	ppm
		361	452	mg/m^3
Isobutyl acetate	110190	150	////	ppm
		713	////	mg/m^3
Isobutyl alcohol	78831	50	////	ppm
		152	////	mg/m^3
Isooctyl alcohol	26952216	50	////	ppm
		266	////	mg/m^3
Isophorone	78591	////	5*	ppm
		////	28*	mg/m^3
Isophorone diisocyanate	4098719	0.005	////	ppm
		0.045	////	mg/m^3
Isopropoxyethanol	109591	25	////	ppm
		106	////	mg/m^3
Isopropyl acetate	108214	250	310	ppm
		1040	1290	mg/m^3

NAME	CAS No.	Threshold Limit Value (TLV)		Units
		Time-Weighted Average (TWA)	Short-Term Exposure Limit (STEL)/Ceiling Level Value (CLV)*	
Isopropyl alcohol	67630	400	500	ppm
		983	1230	mg/m^3
Isopropylamine	75310	5	10	ppm
		12	24	mg/m^3
n-Isopropylaniline	768525	2	////	ppm
		11	////	mg/m^3
Isopropylether	108203	250	310	ppm
		1040	1300	mg/m^3
Isopropyl glycidylether	4016142	50	75	ppm
		238	356	mg/m^3
Kaolin	1332587	////	////	ppm
		2	////	mg/m^3
Ketene	463514	0.5	1.5	ppm
		0.86	2.6	mg/m^3
Lead (elemental)	7439921	////	////	ppm
		0.05	////	mg/m^3
Lead (inorganic compounds)	7439921	////	////	ppm
		0.05	////	mg/m^3
Lead arsenate	7645252	////	////	ppm
		0.15	////	mg/m^3
Lead chromate (as Pb)	7758976	////	////	ppm
		0.05	////	mg/m^3
Lead chromate (as cr)	7758976	////	////	ppm
		0.012	////	mg/m^3
Lead tetraethyl	78002	////	////	ppm
		0.1	////	mg/m^3
Lead tetramethyl	75741	////	////	ppm
		0.15	////	mg/m^3
Lindane	58899	////	////	ppm
		0.5	////	mg/m^3
Lithium hydride	7580678	////	////	ppm
		0.025	////	mg/m^3
LPG	68476857	1000	////	ppm
		1800	////	mg/m^3
Magnesite	546930	////	////	ppm
		10	////	mg/m^3
Magnesium oxide fume	1309484	////	////	ppm
		10	////	mg/m^3
Malathion	121755	////	////	ppm
		10	////	mg/m^3
Maleic anhydride	108316	0.25	////	ppm
		1	////	mg/m^3

NAME	CAS No.	Threshold Limit Value (TLV)		Units
		Time-Weighted Average (TWA)	Short-Term Exposure Limit (STEL)/Ceiling Level Value (CLV)*	
Manganese and inorganic compounds	7439965	////	////	ppm
		0.2	////	mg/m^3
Manganese cyclopentadienyl tricarbonyl	12079651	////	////	ppm
		0.1	////	mg/m^3
Mercury (fumes)	7439976	////	////	ppm
		0.05	////	mg/m^3
Mercury alkyls	7439976	////	////	ppm
		0.01	0.03	mg/m^3
Mercury aryl compounds	7439976	////	////	ppm
		0.1	////	mg/m^3
Mesityl oxide	141797	15	25	ppm
		60	100	mg/m^3
Methacrylic acid	79414	20	////	ppm
		70	////	mg/m^3
Methanol	67561	200	250	ppm
		262	328	mg/m^3
Methomyl	16752775	////	////	ppm
		2.5	////	mg/m^3
2-Methoxyaniline	90040	0.1	////	ppm
		0.5	////	mg/m^3
Methoxychloride	72435	////	////	ppm
		10	////	mg/m^3
2-Methoxyethanol	109864	5	////	ppm
		16	////	mg/m^3
Methylacetate	79209	200	250	ppm
		606	757	mg/m^3
Methylacetylene	74997	1000	////	ppm
		1640	////	mg/m^3
Methylacetylenepropadiene mixture	////	1000	1250	ppm
		1640	2050	mg/m^3
Methyl acrylate	96333	10	////	ppm
		35	////	mg/m^3
Methylamine	74895	5	15	ppm
		6.4	19	mg/m^3
n-Methylaniline	100618	0.5	////	ppm
		2.2	////	mg/m^3
Methyltetrabutylether	1634044	40	////	ppm
		145	////	mg/m^3
Methyl chloride	74873	50	100	ppm
		103	207	mg/m^3
Methyl chloroform	71556	350	450	ppm
		1910	2460	mg/m^3

NAME	CAS No.	Threshold Limit Value (TLV)		Units
		Time-Weighted Average (TWA)	Short-Term Exposure Limit (STEL)/Ceiling Level Value (CLV)*	
Methylcyclohexane	108872	400	////	ppm
		1610	////	mg/m^3
Methylcyclohexanol	25639423	50	////	ppm
		234	////	mg/m^3
Methylcyclohexanone	583608	50	75	ppm
		299	344	mg/m^3
Methyl demeton	8022002	////	////	ppm
		0.5	////	mg/m^3
Methyl hydrazine	60344	0.01	////	ppm
		0.2	////	mg/m^3
Methyl iodide	74884	2	////	ppm
		12	////	mg/m^3
Methylisoamyl ketone	110123	50	////	ppm
		234	////	mg/m^3
Methyl isobutyl carbinol	108112	25	40	ppm
		104	167	mg/m^3
Methyl isocyanate	624839	0.02	////	ppm
		0.047	////	mg/m^3
Methyl mercaptan	74931	0.5	////	ppm
		0.98	////	mg/m^3
Methyl methacrylate	80626	100	////	ppm
		410	////	mg/m^3
Methyl parathion	298000	////	////	ppm
		0.2	////	mg/m^3
Mica	////	////	////	ppm
		3	////	mg/m^3
Molybdenum (insoluble compounds as Mo)	7439987	////	////	ppm
		10	////	mg/m^3
Molybdenum (soluble compounds as Mo)	7439987	////	////	ppm
		5	////	mg/m^3
Monocrotophos	6923224	////	////	ppm
		0.25	////	mg/m^3
Morpholine	110918	20	////	ppm
		71	////	mg/m^3
Naphthalene	91203	////	////	ppm
		400	////	mg/m^3
1-Naphthylamine	134327	10	15	ppm
		52	79	mg/m^3
2-Naphthylamine	91598	////	////	ppm
		////	////	mg/m^3
Nickel (elemental, soluble and insoluble compounds)	7440020	////	////	ppm
		0.05	////	mg/m^3

NAME	CAS No.	Threshold Limit Value (TLV)		Units
		Time-Weighted Average (TWA)	Short-Term Exposure Limit (STEL)/Ceiling Level Value (CLV)*	
Nickel (during processing)	7440020	////	////	ppm
		0.5	////	mg/m^3
Nickel carbonate	3333673	////	////	ppm
		0.1	////	mg/m^3
Nickel carbonyl	13463393	////	////	ppm
		////	////	mg/m^3
Nickel chromium phosphate	13977714	////	////	ppm
		0.005	////	mg/m^3
Nickel monoxide	1313991	////	////	ppm
		0.1	////	mg/m^3
Nickel-III-oxide	1314063	////	////	ppm
		0.1	////	mg/m^3
Nickel subsulfide	12035722	////	////	ppm
		0.01	////	mg/m^3
Nickel sulfide roasting (dust and/or Fumes)	16812547	////	////	ppm
		0.5	////	mg/m^3
Nicotine	54115	////	////	ppm
		0.5	////	mg/m^3
Nitric acid	7697372	2	4	ppm
		5.2	10	mg/m^3
Nitric oxide	10102439	25	////	ppm
		31	////	mg/m^3
p-Nitroaniline	100016	////	////	ppm
		3	////	mg/m^3
Nitrobenzene	98953	1	////	ppm
		5	////	mg/m^3
Nitroethane	79243	100	////	ppm
		307	////	mg/m^3
Nitrogen dioxide	10102440	3	5	ppm
		5.6	9.4	mg/m^3
Nitrogen trifluoride	7783542	10	////	ppm
		29	////	mg/m^3
Nitroglycerin	55630	0.05	////	ppm
		0.46	////	mg/m^3
1-Nitropropane	108032	25	////	ppm
		91	////	mg/m^3
2-Nitropropane	79469	5	40	ppm
		18	150	mg/m^3
m-Nitrotoluene	99081	2	////	ppm
		11	////	mg/m^3
o-Nitrotoluene	88722	2	////	ppm
		11	////	mg/m^3

NAME	CAS No.	Threshold Limit Value (TLV)		Units
		Time-Weighted Average (TWA)	Short-Term Exposure Limit (STEL)/Ceiling Level Value (CLV)*	
p-Nitrotoluene	99990	2	////	ppm
		11	////	mg/m^3
Nitrous oxide	10024972	50	////	ppm
		90	////	mg/m^3
Nonane	111842	200	////	ppm
		1050	////	mg/m^3
Octachloronaphthalene	2234131	////	////	ppm
		0.1	0.3	mg/m^3
Octane	111659	300	375	ppm
		1400	1750	mg/m^3
Oil mist (mineral) midely modified	////	////	////	ppm
		0.2	////	mg/m^3
Osmium tetroxide	20816120	0.0002	0.0006	ppm
		0.0016	0.0047	mg/m^3
Oxalic acid	144627	////	////	ppm
		1	2	mg/m^3
Oxygen difluoride	7783417	////	0.05*	ppm
		////	0.11*	mg/m^3
Ozone	10028156	////	0.1*	ppm
		////	0.2*	mg/m^3
Paraffine wax (fumes)	8002742	////	////	ppm
		2	////	mg/m^3
Paraquat	4685147	////	////	ppm
		0.1	////	mg/m^3
Parathion	56382	////	////	ppm
		0.1	////	mg/m^3
Pentaborane	19624227	0.005	0.015	ppm
		0.013	0.039	mg/m^3
Pentachloronaphthalene	1321648	////	////	ppm
		0.5	////	mg/m^3
Pentachlorophenol	87865	0.05	////	ppm
		0.5	////	mg/m^3
Pentaerythniol	115775	////	////	ppm
		10	////	mg/m^3
n-Pentane	109660	600	750	ppm
		1770	2210	mg/m^3
2-Pentanone	107879	200	250	ppm
		705	881	mg/m^3
Perchloroethylene	127184	25	100	ppm
		170	685	mg/m^3
Perchloromethyl mercaptan	594423	0.1	////	ppm
		0.76	////	mg/m^3

NAME	CAS No.	Threshold Limit Value (TLV)		Units
		Time-Weighted Average (TWA)	Short-Term Exposure Limit (STEL)/Ceiling Level Value (CLV)*	
Perchlorylfluoride	7616946	3	6	ppm
		13	25	mg/m^3
Perfluoroisobutylene	382218	////	0.01*	ppm
		////	0.082*	mg/m^3
Phenol	108952	5	////	ppm
		19	////	mg/m^3
Phenothiazine	92842	////	////	ppm
		5	////	mg/m^3
m-Phenylenediamine	108452	////	////	ppm
		0.1	////	mg/m^3
o-Phenylenediamine	95545	////	////	ppm
		0.1	////	mg/m^3
p-Phenylenediamine	106503	////	////	ppm
		0.1	////	mg/m^3
Phenylether (vapor)	101848	1	2	ppm
		7	14	mg/m^3
Phenyl glycidyl ether	122601	0.1	////	ppm
		0.6	////	mg/m^3
Phenylhydrazine	100630	0.1	////	ppm
		0.44	////	mg/m^3
Phenylmercaptan	108985	0.5	////	ppm
		2.3	////	mg/m^3
Phenyl phosphine	638211	////	0.05*	ppm
		////	0.23*	mg/m^3
Phorate	298022	////	////	ppm
		0.05	0.2	mg/m^3
Phosphine	7803512	0.3	1	ppm
		0.42	1.4	mg/m^3
Phosphoric acid	7664382	////	////	ppm
		1	3	mg/m^3
Phosphorus (yellow)	7723140	0.02	////	ppm
		0.1	////	mg/m^3
Phosphorus oxychloride	10025873	0.1	////	ppm
		0.63	////	mg/m^3
Phosphorus pentachloride	10026138	0.1	////	ppm
		0.85	////	mg/m^3
Phosphorus pentasulfide	1314803	////	////	ppm
		1	3	mg/m^3
Phosphorous trichloride	7719122	0.2	0.5	ppm
		1.1	2.8	mg/m^3
Phthalic anhydride	85449	1	////	ppm
		6.1	////	mg/m^3

NAME	CAS No.	Threshold Limit Value (TLV)		Units
		Time-Weighted Average (TWA)	Short-Term Exposure Limit (STEL)/Ceiling Level Value (CLV)*	
m-Phthalodinitrite	626175	////	////	ppm
		5	////	mg/m^3
Picloram	1918021	////	////	ppm
		10	////	mg/m^3
Picric acid	88891	////	////	ppm
		0.1	////	mg/m^3
Pindone	83261	////	////	ppm
		0.1	////	mg/m^3
Piperazine dihydrochloride	142643	////	////	ppm
		5	////	mg/m^3
Platinum (soluble salts)	7440064	////	////	ppm
		0.002	////	mg/m^3
Polychlorinated biphenyls	1336363	////	////	ppm
		0.5	////	mg/m^3
Portland Cement	65997151	////	////	ppm
		10	////	mg/m^3
Potassium hydroxide	1310583	////	////	ppm
		////	2*	mg/m^3
Potassium zinc chromate hydroxide	11103869	////	////	ppm
		0.01	////	mg/m^3
Propargyl alcohol	107197	1	////	ppm
		2.3	////	mg/m^3
beta-Propiolactone	57578	////	////	ppm
		1	2	mg/m^3
Propionic acid	79094	10	////	ppm
		30	////	mg/m^3
Propoxur	114261	////	////	ppm
		0.5	////	mg/m^3
n-Propylacetate	109604	200	250	ppm
		835	1040	mg/m^3
n-Propylalcohol	71238	200	250	ppm
		492	614	mg/m^3
Propylene glycoldinitrate	6433434	0.05	////	ppm
		0.34	////	mg/m^3
Propylene glycolmonomethylether	107982	100	150	ppm
		369	553	mg/m^3
Propyleneimine	75558	////	////	ppm
		////	////	mg/m^3
Propylene oxide	75569	5	////	ppm
		12	////	mg/m^3
n-Propylnitrate	627134	25	40	ppm
		107	172	mg/m^3

NAME	CAS No.	Threshold Limit Value (TLV)		Units
		Time-Weighted Average (TWA)	Short-Term Exposure Limit (STEL)/Ceiling Level Value (CLV)*	
Pyrethrum	8003347	////	////	ppm
		5	////	mg/m^3
Pyridine	110861	5	////	ppm
		16	////	mg/m^3
Quartz	148108607	////	////	ppm
		0.1	////	mg/m^3
Quinone	106514	0.1	////	ppm
		0.44	////	mg/m^3
Resorcinol	108463	10	20	ppm
		45	90	mg/m^3
Rhodium (fumes and insoluble compounds)	7440166	////	////	ppm
		1	////	mg/m^3
Rhodium (soluble compounds)	7440166	////	////	ppm
		0.01	////	mg/m^3
Ronnel	299843	////	////	ppm
		10	////	mg/m^3
Rotenone (commercial)	83794	////	////	ppm
		5	////	mg/m^3
Selenium Compounds	7782492	////	////	ppm
		0.2	////	mg/m^3
Selenium hexafluoride	7783791	0.05	////	ppm
		0.16	////	mg/m^3
Sesone	136787	////	////	ppm
		10	////	mg/m^3
Silane	7803625	5	////	ppm
		6.6	////	mg/m^3
Silica (inhalable particulates)	////	////	////	ppm
		10	////	mg/m^3
Silica (respirable particulates)	////	////	////	ppm
		3	////	mg/m^3
Silica fume	69012642	////	////	ppm
		2	////	mg/m^3
Silica fused	6067860	////	////	ppm
		0.1	////	mg/m^3
Silicagel	112926008	////	////	ppm
		10	////	mg/m^3
Silica crystalline cristobalite	14464461	////	////	ppm
		0.05	////	mg/m^3
Silicon Carbide	409212	////	////	ppm
		10	////	mg/m^3
Silver (soluble compounds)	7440224	////	////	ppm
		0.01	////	mg/m^3

NAME	CAS No.	Threshold Limit Value (TLV)		Units
		Time-Weighted Average (TWA)	Short-Term Exposure Limit (STEL)/Ceiling Level Value (CLV)*	
Sodium azide ($Na(N_3)$)	26628228	////	0.11*	ppm
		////	0.29*	mg/m^3
Sodium bisulfite	7631905	////	////	ppm
		5	////	mg/m^3
Sodium fluoroacetate	62748	////	////	ppm
		0.05	////	mg/m^3
Sodium hydroxide	1310732	////	////	ppm
		////	2*	mg/m^3
Sodium metabisulfite	7681574	////	////	ppm
		5	////	mg/m^3
Starch	9005258	////	////	ppm
		10	////	mg/m^3
Stearates	////	////	////	ppm
		10	////	mg/m^3
Stibine	7803523	0.1	////	ppm
		0.51	////	mg/m^3
Stoddard solvent	8052413	100	////	ppm
		525	////	mg/m^3
Strontium chromate	7789062	////	////	ppm
		0.0005	////	mg/m^3
Styrene	100425	20	////	ppm
		85	////	mg/m^3
Styrene monomer	100425	50	100	ppm
		213	426	mg/m^3
Sulfur dioxide	7446095	2	5	ppm
		5.2	13	mg/m^3
Sulfuric acid	7664939	////	////	ppm
		1	3	mg/m^3
Sulfur monochloride	12771083	////	1*	ppm
		////	5.5*	mg/m^3
Sulfur pentafluoride	5714227	////	0.01*	ppm
		////	0.1*	mg/m^3
Sulfur tetrafluoride	7783600	////	0.1*	ppm
		////	0.44*	mg/m^3
Sulfuryl fluoride	2699798	5	10	ppm
		21	42	mg/m^3
Sulprofos	35400432	////	////	ppm
		1	////	mg/m^3
2,4,5-T acid	93765	////	////	ppm
		10	////	mg/m^3
Talc (containing no asbestos fibers)	14807966	////	////	ppm
		2	////	mg/m^3

NAME	CAS No.	Threshold Limit Value (TLV)		Units
		Time-Weighted Average (TWA)	Short-Term Exposure Limit (STEL)/Ceiling Level Value (CLV)*	
Talc (containing asbestos fibers)	////	2		F/cc
Tantalum	7440257	////	////	ppm
		5	////	mg/m^3
Tantalum oxide	1314610	////	////	ppm
		5	////	mg/m^3
TEDP	3689245	////	////	ppm
		0.2	////	mg/m^3
Tellurium and compounds (as Te)	13494809	////	////	ppm
		0.1	////	mg/m^3
Tellurium hexafluoride	7783804	0.02	////	ppm
		0.1	////	mg/m^3
Temephos	3383968	////	////	ppm
		10	////	mg/m^3
TEPP	107493	0.004	////	ppm
		0.047	////	mg/m^3
Terephthalic acid	100210	////	////	ppm
		10	////	mg/m^3
Terphenyls	26140603	////	0.53*	ppm
		////	5*	mg/m^3
1,1,1,2-Tetrachloro-2,2-difluoroethane	76119	500	////	ppm
		4170	////	mg/m^3
1,1,2,2-Tetrachloro-1,2-difluoroethane	76120	500	////	ppm
		4170	////	mg/m^3
1,1,2,2-Tetrachloroethane	79345	1	3	ppm
		7	21	mg/m^3
Tetrachloronaphthalene	1335882	////	////	ppm
		2	////	mg/m^3
Tetrahydrofuran	109999	200	250	ppm
		590	737	mg/m^3
Tetramethylsucinonitrile	3333526	0.5	////	ppm
		2.8	////	mg/m^3
Tetranitromethane	509148	0.005	////	ppm
		0.04	////	mg/m^3
Tetrasodiumpyrophosphate	7722885	////	////	ppm
		5	////	mg/m^3
Tetryl	479458	////	////	ppm
		1.5	////	mg/m^3
Thallium (soluble compounds)	7440280	////	////	ppm
		0.1	////	mg/m^3
4,4-Thiobis (6-tert-butyl-m-cresol)	96695	////	////	ppm
		10	////	mg/m^3

NAME	CAS No.	Threshold Limit Value (TLV)		Units
		Time-Weighted Average (TWA)	Short-Term Exposure Limit (STEL)/Ceiling Level Value (CLV)*	
Thioglycolic acid	68111	1	////	ppm
		3.8	////	mg/m^3
Thionyl chloride	7719097	////	1*	ppm
		////	4.9*	mg/m^3
Thiram	137268	////	////	ppm
		1	////	mg/m^3
Tin (inorganic compounds except SnH4 as Sn)	7440315	////	////	ppm
		2	////	mg/m^3
Tin (organic compounds as Sn)	7440315	////	////	ppm
		0.1	0.2	mg/m^3
Titanium dioxide	13463677	////	////	ppm
		10	////	mg/m^3
Toluene	108883	50	////	ppm
		188	////	mg/m^3
Toluene-2,4-diisocyanate	584849	0.005	0.02	ppm
		0.036	0.14	mg/m^3
m-Toluidine	108441	2	////	ppm
		8.8	////	mg/m^3
o-Toluidine	95534	2	////	ppm
		8.8	////	mg/m^3
p-Toluidine	106490	2	////	ppm
		8.8	////	mg/m^3
Tributylphosphate	126738	0.2	////	ppm
		2.2	////	mg/m^3
Trichloroacetic acid	76039	1	////	ppm
		6.7	////	mg/m^3
1,2,4-Trichlorobenzene	120821	////	5*	ppm
		////	37*	mg/m^3
1,1,2-Trichloroethane	79005	10	////	ppm
		55	////	mg/m^3
Trichloroethylene	79016	50	100	ppm
		269	537	mg/m^3
Trichlorofluoromethane	75694	////	1000*	ppm
		////	5620*	mg/m^3
Trichloronaphtalene	1321659	////	////	ppm
		5	////	mg/m^3
1,2,3-Trichloropropane	96184	10	////	ppm
		60	////	mg/m^3
1,1,2-Trichloro-1,2,2-trifluoroethane	76131	1000	1250	ppm
		7670	9590	mg/m^3
Tridymite	15468323	////	////	ppm
		0.05	////	mg/m^3

NAME	CAS No.	Threshold Limit Value (TLV)		Units
		Time-Weighted Average (TWA)	Short-Term Exposure Limit (STEL)/Ceiling Level Value (CLV)*	
Triethanolamine	102716	////	////	ppm
		5	////	mg/m^3
Triethylamine	121448	1	3	ppm
		4.1	12	mg/m^3
Trimelliticanhydride	522307	////	////	ppm
		////	0.04*	mg/m^3
Trimethylamine	75503	5	15	ppm
		12	36	mg/m^3
Trimethylbenzene	23551137	25	////	ppm
		123	////	mg/m^3
Trimethylphosphate	512561	0.5	10	ppm
		2.6	52	mg/m^3
Trimethylphosphite	121459	2	////	ppm
		10	////	mg/m^3
2,4,6-Trinitrotoluene	118967	////	////	ppm
		0.5	////	mg/m^3
Triortho cresylphosphate	78308	////	////	ppm
		0.1	////	mg/m^3
Triphenylamine	603349	////	////	ppm
		5	////	mg/m^3
Triphenylphosphate	115866	////	////	ppm
		3	////	mg/m^3
Tungsten (insoluble compounds)	7440337	////	////	ppm
		5	10	mg/m^3
Tungsten (soluble compounds)	7440337	////	////	ppm
		1	3	mg/m^3
Turpentine	8006642	100	////	ppm
		556	////	mg/m^3
Uranium (insoluble compounds)	7440611	////	////	ppm
		0.2	0.6	mg/m^3
Uranium (insoluble compounds)	7440611	////	////	ppm
		0.2	0.6	mg/m^3
n-Valer aldehyde	110623	50	////	ppm
		176	////	mg/m^3
Vanadium pentoxide	1314621	////	////	ppm
		0.05	////	mg/m^3
Vinyl acetate	108054	10	15	ppm
		35	53	mg/m^3
Vinyl bromide	593602	5	10	ppm
		20	40	mg/m^3
Vinyl chloride	75014	////	2.5	ppm
		1	5	mg/m^3

NAME	CAS No.	Threshold Limit Value (TLV)		Units
		Time-Weighted Average (TWA)	Short-Term Exposure Limit (STEL)/Ceiling Level Value (CLV)*	
4-Vinylcyclohexene	100403	0.1	////	ppm
		0.4	////	mg/m^3
Vinylcyclohexene dioxide	106876	0.1	////	ppm
		0.57	////	mg/m^3
Vinyltoluene	25013154	50	100	ppm
		242	483	mg/m^3
Warfarin	81812	////	////	ppm
		0.1	////	mg/m^3
Welding fumes	////	////	////	ppm
		5	////	mg/m^3
Wood hard dust (certain hard wood)	////	////	////	ppm
		1	////	mg/m^3
Wood soft dust	////	////	////	ppm
		5	////	mg/m^3
V&P naphtha	8032324	300	////	ppm
		1370	////	mg/m^3
Xylene (all isomers)	1330207	100	150	ppm
		434	651	mg/m^3
Xylidine	1300738	0.5	////	ppm
		2.5	////	mg/m^3
2,4-Xylidine	95681	2	////	ppm
		10	////	mg/m^3
Yturium compounds (as Y)	7440655	////	////	ppm
		1	////	mg/m^3
Zinc chromate	13530659, 11103869, 3730235	////	////	ppm
		0.01	////	mg/m^3
Zinc chloride (fume)	7646857	////	////	ppm
		1	////	mg/m^3
Zinc oxide (fume)	1314132	////	////	ppm
		5	10	mg/m^3
Zirconium compounds (as Zr)	7440677	////	////	ppm
		5	10	mg/m^3

Characteristics of Treated Industrial Wastewater at Point of Discharge into the Sea

Parameter	Symbol	Unit	Suggested Limits
PHYSICAL PROPERTIES			
Total Suspended Solids	TSS	mg/l	50
Total Dissolved Solids	TDS	mg/l	1500
pH		pH Units	6-9
Floating Particles		mg/m^2	None
Temperature (higher than background)	T	^oC	5
Turbidity		NTU	75
INORGANIC CHEMICAL PROPERTIES			
Total Ammonia (as N)	NH_4^+	mg/l	2
Nitrate	NO_3-N	mg/l	40
Chlorine Residual	Cl^-	mg/l	1
Cyanide	CN^-	mg/l	0.05
Dissolved Oxygen	DO	mg/l	>3
Fluoride	F^-	mg/l	20
Sulfide	S^{-2}	mg/l	0.1
Biochemical Oxygen Demand	BOD_{5-20}	mg/l	50
Total Kieldahl Nitrogen (an N)	TKN	mg/l	10
Total Phosphorus (as P)	PO_4^{-3}	mg/l	2
Chemical Oxygen Demand	COD	mg/l	100
TRACE METALS			
Aluminum	Al	mg/l	20
Antimony	Sb	mg/l	0.1
Arsenic	As	mg/l	0.05
Barium	Ba	mg/l	2
Beryllium	Be	mg/l	0.05
Cadmium	Cd	mg/l	0.05
Total Chromium	Cr	mg/l	0.2
Chromium VI	Cr^{+6}	mg/l	0.15
Cobalt	Co	mg/l	0.2
Copper	Cu	mg/l	0.5
Iron	Fe	mg/l	2
Lead	Pb	mg/l	0.1
Manganese	Mn	mg/l	0.2
Mercury	Hg	mg/l	0.001
Nickel	Ni	mg/l	0.1
Selenium	Se	mg/l	0.02
Silver	Ag	mg/l	0.005
Zinc	Zn	mg/l	0.5
ORGANIC CHEMICAL PROPERTIES			
Halogenated Hydrocarbons & Pesticides		mg/l	Nil
Hydrocarbons	HC	mg/l	15
Oil & Grease		mg/l	10
Phenols		mg/l	0.1
Solvents		mg/l	Nil
Total Organic Carbon	TOC	mg/l	75

BIOLOGICAL PROPERTIES			
Total Coliform		**MPN/100ml**	**1000**
Fecal Coliform Bacteria		**Cells/100ml**	**1000**
Colon Group		**No./100 cm^2**	**5000**
Egg Parasites			**None**
Warm Parasites			**None**

Non-Degradable Pollutants / Illegal to Discharge (in the Marine Environment)

Organophosphorus Pesticides
Dimethoate
Matathion

Organochlorine Pesticides
Aldrin
Dieldrino
DDT
Chloridane
Eldrin

Polychlorinated Biphenyls
PCBs
Aroclor
Tetrachlorobiphenyl
Trichlorobiphenyl

Polynuclear Aromatic Hydrocarbons (PAH)
Benzo(a)pyrene
Naphthalene

Recommended Ambient Marine Water Quality Standards for Abu Dhabi Emirate (AWQOs)

I		Physical Indicators	Proposed Maximum Concentration	Unit of Measurements
	1	Floating Particles/Floatable/debris	Nil	mg/m^2
	2	Temperature	+- 3	Delta ^oC of background concentration.
	3	Turbidity	10	NTU
		Transparency/Clarity	>= 10	Meter of Secchi Depth.
	4	Salinity	< 5	% of background concentration.
	5	BOD_5	5	mg/l (5day at 20 ^oC Annual Average)
	6	Odor	Not Objectionable	Not Objectionable
	7	Color	No Change from Back Ground	No Change from Back Ground
II		Chemical Indicators		
	8	Ammonia (Free as N) or Ammonia NH_3-N	0.004	mg/l
	9	Arsenic As	0.005	mg/l
	10	Cadmium Cd	0.001	mg/l
	11	Chlorine Residual Cl_2	0.01	mg/l
	12	Chromium Cr	0.01	mg/l
	13	Copper Cu	0.01	mg/l
	14	Cyanide Cn	0.004	mg/l
	15	Lead Pb	0.01	mg/l
	16	Mercury Hg		
	17	Oil and Grease	Not Visible	mg/l
	18	Petroleum Hydrocarbons	5	ppm or mg/l
	19	Dissolved Oxygen (DO)	> 4	mg/l
	20	Total Suspended Solids (TSS)	< 33	mg/l
	21	Si-SiO_3	890	Microgram/l
	22	PH	6.5 – 8.5	mg/l
	23	Phenols	0.001	mg/l
	24	Phosphorous Total as (P)	0.001	mg/l
		Phosphate PO_4	34	Microgram /l
	25	Sulfides (S)	0.004	mg/l
	26	Total Organic Carbon (TOC)	2.5	mg/l
	27	Zinc Zn	0.01	mg/l
	28	Nickel Ni	20	Microgram/l
	29	Iron Fe	0.3	mg/l
	30	Vanadium V	9.4	Microgram/l
	31	Nitrate NO_3-N	95	Microgram/l
	32	NO_2	34	Microgram/l
III		Biological Indicators (Bacteriological)		
	33	Total Coliform	70	MPN/100ml

Hazardous Liquid Chemicals at Large Quantities

Name	UN Number (1)	Pollution Category for Dumped Material During Operation (2)	Free Residual Concentration (%w) (3) Within Arabian Gulf
Acetone cyanohydrin	1541	A	0.05
Acrolein	1092	A	0.05
Acrylonitrile	1093	B	
Allyl alcohol (mixed Isomers)	1098	B	
Ammonia (28% solution)	1005	B	
(Chloromethyl)benzene (Benzyl chloride)	1738	B	
n-Butyraldehyde	1129	B	
Butyric acid	2820	B	
Camphor oil	1130	B	
Carbon Disulfide	1131	A	0.005
Carbon Tetrachloride	1846	B	
Chloroform	1888	B	
Chlorotoluene (mixed isomers)	2238	B	
Naphthalene	1334	A	0.05
Cresol (mixed isomers)	2076	A	0.05
Cresylic acid	2022	A	0.05
Crotonaldehyde	1143	B	
o-Dichlorobenzene	1591	A	0.05
Methyl acrylate	1919	B	
1,3-Dichloropropene	2047	B	
Epichlorohydrin	2023	B	
Ethylene dichloride	1184	B	
Ethylene dibromide	1605	B	
40% Aqueous Hydrofluoric Acid	1790	B	
Dichloromethane	1593	B	
Chlorobenzene	1134	B	
Pentachloroethane	1669	B	
Perchloroethylene	1897	B	
Phenol	2312	B	
Phosphorous (Amorphous).	1338	A	0.005
Pyridine	1282	B	
Motor fuel anti-knock mixture (Tetraethyl lead and tetramethyl lead)	1649	A	0.05
Trichloroethylene	1710	B	
Turpentine	1299	B	
Vinylidene Chloride	1303	B	

(1),(2),(3) refer to Marine Protection Executive Order

List of Banned Insecticides and Herbicides, etc (Import, Handling and Use)

Common Name of Active Ingredient	Oral LD_{50} (Rats)		Use	Banning Reasons
	Class	mg a.i/kg Body wt		
Aldrin	Class I	38-67	Insecticide	High acute mammalian toxicity, persistence in the environment, possible human carcinogen
BHC, HCH (1,2,3,4,5,6-Hexachlorocyclohexane)	Class II	-	Insecticide	Carcinogenic to animals, persistence and bioaccumulation, adverse environmental effects.
Camphochlor	Class I	69	Insecticide	Risk for human and animal health and the environment, long persistence and bioaccumulation
Carbofuran	Classl, II	8	Soil Insecticide Nematicide	Acute inhalation toxicity, only liquid formulation to be banned
Chlordane	Class II	367-515	Termiticide	Carcinogenic to rodents, persistence and bioaccumulation in the environment
Chlordecone	Class II	114-140	Insecticide	Carcinogenic to rodents, persistence and bioaccumulation in the environment
DDT (dichloro-dipheytrichloroethane)	Class III	113	Insecticide	Accumulation in humans, probably carcinogenic, persistence in the environment
Demetion-O + Demetion-S	Class I	2.5-6	Systemic Insecticide	High acute toxicity for man and animals
Dichlorovos (DDVP)	Class I	50	Insecticide	Not acceptable in public health formulations for use inside houses and other structures because of its probable carcinogenic and mutagenic effect, may only be used in small percentages in tablets or strips for insect pheromone traps
Dieldrin	Class I	37-87	Insecticide	Persistence in environment, bioaccumulation in food, possible human carcinogen
Disulfoton	Class I	4	Systemic Insecticide/ Acaricide	High acute toxicity
Endosulfan	Class I	22.7-160	Insecticide	High acute toxicity, high persistence and possible bioaccumulation
Endrin	Class I	7-15	Insecticide	High acute toxicity, central nervous system depressant and hepatotoxin, no antidote.
Ethyl pyrophosphate (TEPP)	Class I	1.2-2	Insecticide	Very high acute toxicity to man and animal, quickly absorbed through the skin, its vapors are highly toxic.

Common Name of Active Ingredient	Oral LD_{50} (Rats)		Use	Banning Reasons
	Class	mg a.i/kg Body wt		
Flueythrinate	Class I	67	Insecticide	Causes damage to the eye, very toxic by oral route and absorption through the skin, harmful if inhaled, causes carcinogenic effects in humans.
Gamma HCH	Class II	88-125	Insecticide	Persistence in the environment, bioaccumulation in food and human body, probably carcinogenic to man and there are evidence that it encourages the growth of tumors caused by other factors.
Hepthchlor	Class II	147-220	Termiticide	Carcinogenic to rodents, persistence and environment contamination
Kelevan	-	-	Insecticide	Superseded
Leptophos	Class II	52.8	Insecticide	High acute toxicity, delayed neurotoxicity to humans and to laboratory animals.
Methamidophos	Class I	30	Insecticide	Highly toxic to mammals, there could always be health problems in misuse.
Methomyl	Class I	17-24	Insecticide	Highly toxic to man and animals, all formulations to be banned
Methoxychlor	Class IV	6000	Insecticide	Long residual action (long persistence), bioaccumulation.
Mevinphos	Class I	3-12	Systemic Insecticide	Poisonous if swallowed, inhaled or absorbed through skin.
Mirex	Class II	306	Insecticide	Persistence and bioaccumulation in food, superseded.
Monocrotophos	Class I	14	Systemic Insecticide	High acute toxicity by oral, dermal and inhalation routes causing life threatening symptoms.
Oxamyl	Class I	5.4	Soil Insecticide/ Nematicide	Very high oral acute toxicity.
Oxydemeton-methyl	Class I	65-80	Systemic Insecticide	Highly toxic to man and animals.
Oxydeprofos	Class II	100	Systemic Insecticide	Highly toxic to man and animals.
Parathion	Class I	2	Insecticide	High acute toxicity by oral, dermal and inhalation routes causing life threatening symptoms, classified as class C carcinogenic.
Parathion-methyl	Class I	6	Insecticide	Very high acute toxicity.
Phosphamidon	Class I	17-30	Systemic Insecticide	Poisonous if swallowed, inhaled or absorbed through skin.
Schradan	-	-	Systemic Insecticide	Poisonous if swallowed, inhaled or absorbed through skin.

Common Name of Active Ingredient	Oral LD_{50} (Rats)		Use	Banning Reasons
	Class	mg a.i/kg Body wt		
Sodium Fluoride	Class II	180	Insecticide	Very toxic to mammals and highly phytotoxic, used in insect baits and timber preservation.
Strobane	Class II	220	Insecticide	Carcinogenic risk to humans, discontinued by manufacturing company.
Telodrin	-	-	Insecticide	Superseded
Chlordimeform	Class II	340	Acaricide	Probably human carcinogenic
Chlorobenzilate	Class III	2784-3880	Acaricide	Risks of cancer to humans, sterility of human males
Cyhexaine	Class III	540	Acaricide	Tetratogenic effects in mammals
Dicofol	Class II, III	570-595	Acaricide	Potential bioaccumulation combined with persistence in the environment, may contain DDT as contaminant (in the manufacturing process).
Benomyl	Class IV	10000	Systemic Fungicide	Evidence of genetic disturbances and fetal defects, increase of tumor growth formed in laboratory mice by other factors.
Captafol	Class IV	5000-6000	Fungicide	Probably carcinogenic to humans
Chlorothalonil	Class I, II	10000	Fungicide	Chronic administration has been associated with tumor formation in the kidney and forestomach of laboratory rats and mice.
Hexachlorobenzene (HCB)	Class IV	40000	Fungicide (seed dressing)	Carcinogenic to laboratory animals, persistence and bioaccumulation.
Mancozeb	Class IV	5000	Fungicide	At high levels ay cause birth defects in test animals, a trace contaminant and a degradation product (ethylenethiourea) causes thyrodefects, tumors and birth defects in laboratory animals, moreover it has a long withholding periods of about one month.
Maneb	Class IV	7990	Fungicide	At high levels may cause birth defects in test animals, a trace contaminant and degradation product (ethylenethiourea) causes thyrodefects, tumors and birth defects in laboratory animals,
Mercury Compounds (e.g. Phenyl mercury acetate)	Class I	50-100	Fungicide and Herbicide	High acute toxicity, accumulation of residues in aquatic food
Thiram	Class III	1000	Fungicide	Combination of several severe chronic toxicity effects.

Common Name of Active Ingredient	Oral LD_{50} (Rats)		Use	Banning Reasons
	Class	mg a.i/kg Body wt		
Zineb	Class IV	-	Fungicide	At high levels may cause birth defects in animals, a trace contaminant and degradation product (ethylenethiourea) causes thyrodefects, tumors and birth defects in laboratory
Ziram	Class I	1000	Fungicide	Combination of several severe chronic toxicity effects.
Amitrole, Aminotripole	Class III	5000	Herbicide	Risk of carcinogenic effects in humans
Atrazine	Class III	1869-3080	Herbicide	Possible carcinogenic effects to humans.
Cyanazine	Class II	182-380	Herbicide	Possible carcinogenic effects to humans.
Dinoseb	Class I	40-60	Herbicide	High acute toxicity, teratogenic and carcinogenic effects, may cause sterility in human males.
Dinoseb salts (e.g. Dinoseb Acetate)	Class I	40-60	Herbicide	High acute toxicity, teratogenic and carcinogenic effects, may cause sterility in human males.
Nitrofen	Class III	2630	Herbicide	Risk of mutagenic, teratogenic and carcinogenic effects.
Paraquat	Class II	150	Herbicide	High acute toxicity, no antidote.
Simazine	Class IV	5000	Herbicide	Possible carcinogenic effects to humans.
2,4,5-T (2,4,5-trichlorophenoxy acetic acid)	Class III	500	Herbicide	Possible teratogenic and carcinogenic effects to humans, long persistence and bioaccumulation
Arsenic Compounds	-	-	Rodenticide	High acute toxicity, exception are the organic arsenicals, which are of low toxicity, used as selective herbicide
Fluoroacetamide	Class I	15	Redenticide	High acute toxicity to man and other animals
Sodium Fluoroacetate	Class I	0.22	Rodenticide	Odorless, tasteless and fast acting, chiefly in the heart. Discontinued by the manufacturing company.
Thallium Sulfate	Class I	16	Rodenticide	High acute toxicity, slow-acting cumulative poison

Common Name of Active Ingredient	Oral LD_{50} (Rats)		Use	Banning Reasons
	Class	mg a.i/kg Body wt		
Zinc Phosphide	Class I	45.7	Rodenticide	High acute toxicity in all handling operations
Aldicarb	Class I	1	Systemic Insecticide/ Nematacide	High acute toxicity
Chloropicrin	Class I	250	Soil Sterilization/ Insecticide/ Nematicide/ Fungicide/ Herbicide	Highly toxic by inhalation, and toxic by ingestion, can cause injury to the heart.
Dibromochloropropane (DBCP)	Class I	17-300	Soil Sterilization	May cause sterility to human males
Ethylene dibromide (EDB)	Class I	146	Soil Sterilization	Potential carcinogenic to humans, may cause sterility to males, persistence in groundwater
Pentachlorophenol (PCP)	Class I	50-500	Termiticide	Adverse liver and kidney effects, possible carcinogenic to humans.

List of Restricted Insecticides and Herbicides, etc (Import, Handling and Use)

Common Name of Active Ingredient	Oral LD_{50} (Rats)		Use	Danger Causes
	Class	mg a.i/kg Body wt		
Aluminum Phosphide	Class I	-	Insecticide	On exposure to atmospheric moisture, phosphine gas (PH_3) is released, a poisonous gas with adverse effects on the lungs, life threatening at 2.0 ppm.
Methyl Bromide	Class I	214	Soil Sterilization	Poisonous gas with adverse effects on the lungs, on the heart and on the central nervous system.
Stryechine	Class I	-	Acaricide	Intensely poisonous, lethal dose to man is 30-60 mg/kg

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