The GCC Unified Guidelines for Hazardous Chemical Substances Management

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Foreword

Nowadays, chemicals are used in our daily life, especially in the industrial and agricultural sectors. Misuse of these substances can have negative impacts on human health and the environment. Exposure to chemical hazards can have a broad range of physiological consequences.

Perhaps what exacerbates the problem is that such chemicals remain intact for decades before they start to break down. Consequently, hazardous chemical substances have been studied by environmental and health specialists in order to minimize their risks through control measures to safely manage chemicals and dispose of wastes. Currently, GCC countries are aiming to reduce the potential negative impacts of exposure to these chemicals by concerned professionals and the surrounding population, in addition to reducing pollution of various ecosystems in the environment.

Based on **Article (7)** of the Policies and General Principles of Environment Protection issued by the Leaders of the Cooperation Council for the Arab States of the Gulf (GCC) (may God protect them) at the sixth session (Muscat, 1985) which includes developing and standardizing rules, legislation, and standards to protect the environment, the General Secretariat, in cooperation with member states, prepared the "Unified System for Hazardous Chemical Substances Management". Since 2002, the Unified System has been contributing to the sound management of chemicals in GCC countries.

Considering the experiences of member states in the implementation of the Unified System and the need to tailor globally adopted approaches, standards, and best practices to local and regional needs, Their Highnesses, Excellencies, and Ministers responsible for environmental affairs in the GCC countries agreed to launch the Green Gulf Initiative in 2017 which includes four projects, one of them being the "Updating Unified Guidelines for the Sound Management of Chemicals in the GCC Countries" project. An agreement was reached with the United Nations Environment Programme (UNEP) – West Asia Office to cooperate on the Initiative and its projects. As part of this project, the GCC and UNEP conducted a study to gather information on guidelines and current chemicals management practices, specifically on hazardous chemical substances, in order to update and enhance the Unified Guidelines through a consultative process involving authorities concerned with chemicals management in GCC countries.

These guidelines provide a guide for chemicals management in GCC countries and are intended for use by concerned authorities and those working in fields involving chemicals for their benefit in developing and implementing national legislations and regulations.

The Secretariat General of the Gulf Cooperation Council

About the Guidelines

The GCC Unified System for Hazardous Chemical Substances Management was originally published in 2002. Since that date, major international agreements have been finalized, including: the Kiev Protocol on Pollutant Release and Transfer Registers (2003); the first publication of the Globally Harmonized System of Classification and Labelling of Chemicals (2003); the Strategic Approach to International Chemicals Management (2006); the Minamata Convention on Mercury (2013); and the adoption of the Sustainable Development Goals (2015). At the same time, much progress in science, research, knowledge and best practice has been made.

With these advancements in mind, the GCC engaged the UN Environment Programme (Regional Office for West Asia) in 2020-2021 to assist in the update of the Unified System (2002) with the Unified Guidelines (2021). UNITAR also provided technical assistance during this process.
The Unified Guidelines are intended for use by policymakers, customs and enforcement officers, government officials and regulators, as well as private sector partners.

They will raise awareness of what practices should be put into place, help labour groups to understand what conditions they should encounter in their workplaces, and show civil society organizations what should be done to ensure the sound management of chemicals and waste in relation to their stakeholders.

The information in these Guidelines aims to be clear and concise and provide coherent guidance on specific activities. Where the issues require more nuance and discussion among relevant stakeholders, more detailed and dynamic guidance is provided. It is hoped that these Guidelines will make a substantial contribution to the achievement of the 2030 Agenda for Sustainable Development within the GCC and its Member States.

Article 1: Terms, definitions, abbreviations and acronyms

In applying the provisions of these Guidelines and the decisions implementing them, the following terms shall have the meanings attached to them:

Banned chemical substance: Any chemical substance that is prohibited from circulating for all uses for health and / or environmental reasons according to a final decision by the competent regulatory authority. Such substances may be subject to certain exemptions (e.g. related to use) or transitional provisions.

BSI: the British Standards Institute

Carrier: a company or person who transports hazardous chemicals by land, sea or air.

CEN: The European Committee for Standardization (Comité Européen de Normalisation)

CENELEC: the European Committee for Electrotechnical Standardization (Comité Européen de Normalisation Électrotechnique)

Chemical Abstracts Service (CAS) Number: a unique numerical identifier assigned by the Chemical Abstracts Service (CAS) to every chemical substance described in the open scientific literature (currently including all substances described from 1957 to date, plus some substances from the early or mid-1900s). The registry maintained by CAS identifies authoritatively more than 164 million unique organic and inorganic substances and 68 million protein and DNA sequences.

Competent regulatory authority: is the national official authority/authorities designated or otherwise recognized as having the responsibilities in Article (4), including licensing and supervising all administrative and technical affairs of hazardous chemicals in the country, and monitoring compliance with standards and requirements.

Concentration: a general term referring to the quantity of a material or substance contained in unit quantity of a given medium. When the term concentration is used without further qualification, it now means amount of substance concentration (WHO, 1979).

Concerned authorities: the diverse national authorities that are engaged in chemicals management, spanning issues of public health, environmental protection, economics, industry, agriculture, worker protection, international relations, and trade. In addition to ministries concerned with, or who have a role in, the management of chemicals (such as ministries of agriculture, environment, health, and labour), other governmental entities (such as central agencies or councils) could also have an interest, including those responsible for the development and implementation of laws, regulations, policies, and activities related to chemicals management throughout their life cycle, and/or aspects of pollution prevention and control.

Country: a Member State of the Cooperation Council for the Arab States of the Gulf (GCC).

Effect: a biological change in an organism, organ, or tissue (WHO, 1979).

Emission: the giving off of environmental pollutants from various sources (WHO, 1979).

Environment: the aggregate, at a given moment, of all external conditions and influences to which a system is subjected (ISO, 1975). The term "system" covers all living organisms, including human beings.

Environmental hazard: direct and accumulated damage to water, air, and soil that can cause danger to humans, plant and animal life, harm to living resources and ecosystems, and limit other usual uses of environmental resources alone or in combination.

Exposure: the amount of an environmental agent that has reached the individual (external dose) or has been absorbed into the individual (internal dose, absorbed dose) (WHO, 1979).

GHS: the Globally Harmonized System of Classification and Labelling of Chemicals (UN, Eighth revised edition 2019).

Guidelines: the GCC Unified Guidelines for Hazardous Chemical Substances Management.

Handling cards: information required for hazardous chemicals independently of or together with the hazard label. They are in the form of multiple rectangles.

Hazard[1] : any source of potential damage, harm or adverse health effects on something or someone.

Hazard category[2] : the division of criteria within each hazard class, e.g. oral acute toxicity includes five hazard categories and flammable liquids includes four hazard categories. These categories compare hazard severity within a hazard class and should not be taken as a comparison of hazard categories more generally.

Hazard class[3] : the nature of the physical, health or environmental hazard, e.g. flammable solid, carcinogen, oral acute toxicity.

Hazard identification: Verification of the hazard potentials based on the chemical properties of the compounds and the results of experimental and laboratory studies.

Hazard label: information required for most classes and categories of hazardous chemicals. They are in the form of a square label placed at a 45 degree angle.

Hazardous chemicals: substances or mixtures with properties that meet the criteria for classification in one or more of the GHS hazard classes (**Appendix (1)**). Hazardous chemicals can also be identified following scientific evaluation and listed in international or national conventions/ laws/instruments. When listed the chemicals are hazardous in the context of those conventions/ laws/instruments. Examples of such listings include:

- the Dangerous Goods List in the Model Regulations on the Transport of Dangerous Goods[4]

[1] https://www.ccohs.ca/oshanswers/hsprograms/hazard_risk.html (Hazard and risk, Canadian Centre for Occupational Health and Safety (CCOHS), 2020)
[2] https://unece.org/ghs-rev8-2019 (GHS 8th revision)
[3] https://unece.org/ghs-rev8-2019 (GHS 8th revision)
[4] https://unece.org/rev-21-2019 (Transport of Dangerous Goods Volume I, UN, 2019)

- Annexes A, B and C in the Stockholm Convention on Persistent Organic Pollutants (POPs)[5]
- Annex III in the Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade[6]

Hazardous chemicals management: Covers every life-cycle stage of chemicals, including: production, handling, processing, import, export, re-export, customs passage, storing, transportation, consumption, handling and disposal.

Health risk: risk arising from direct or indirect exposure to hazardous chemicals in production units or in places of use or during handling of these substances during transportation and storage operations and disposal of their waste or those resulting from exposure to them in places of human gatherings such as households, work activities, traffic congestion. etc.

IATA Systems : Hazardous goods guidelines issued by the International Air Transport Association.

ICAO Systems: The technical instructions of the International Civil Aviation Organization.

IEC: The International Electrotechnical Commission

IMDG Code: the International Maritime Dangerous Goods (IMDG) Code prepared by the International Maritime Organization.

IMDG Systems: The document issued under the title International Maritime Transport Dangerous Goods Code by the International Maritime Organization.

IMO: International Maritime Organization

ISO: The International Organization for Standardization

License: a written permit issued by the competent regulatory authority allowing the licensee to carry out specific actions and practices as shown in the general requirements and regulations for prevention.

The licensee: the entity represented by a chairperson or manager that holds a license for specific practices and works, and which bears all the responsibilities, obligations and duties specified in the licensing requirements.

NFPA: the National Fire Protection Association

OELs: Occupational exposure limits

Package: the complete product of the packaging process, consisting of packaging and contents.

Packaging[7] : one or more receptacles and any other components or materials necessary for the receptacles to perform their containment and other safety functions.

[5] http://www.pops.int/TheConvention/Overview/TextoftheConvention/tabid/2232/Default.aspx
[6] http://www.pic.int/TheConvention/Overview/TextoftheConvention/tabid/1048/language/en-US/Default.aspx
[7] https://unece.org/rev-21-2019 (Transport of Dangerous Goods Volume I, UN, 2019)

Persistence: When applied to a chemical this has a meaning of ability to remain unchanged in the environment.

Pesticide: Chemical used to kill pests and minimize their impact on agriculture, health and other human interests.

Practice: any human activity intended to deal with hazardous chemicals and that may lead to exposure to those chemicals.

Proper shipping name: refers to the following:

A. The suitable name for a substance shipped according to the United Nations recommendations, the Manual for the Maritime Carriage of Hazardous Goods, the rules of the International Civil Aviation Organization, or the regulations of the International Air Transport Association or the World Customs Organization.

B. For radioactive chemicals, the name given by the authority responsible for managing radioactive substances.

C. For chemicals classified as explosives, the correct name determined by the competent regulatory authorities.

PRTR: Pollutant Release and Transfer Register

Restricted chemical substance: Any chemical substance whose general use is prohibited and its use is restricted to specific activities and in accordance with special conditions and instructions for health, safety, security, and / or environmental reasons according to a decision by the competent regulatory authority. Such substances may be subject to certain exemptions or transitional provisions.

Responsible authorities: The governmental agencies that assist the regulatory authority in charge of managing hazardous chemicals and facing health, safety and environmental problems resulting from them.

Risk[8] : the chance or probability that a person will be harmed or experience an adverse health effect if exposed to a hazard. It may also apply to situations with property or equipment loss, or harmful effects on the environment.

Risk assessment: an integrated study of the health, occupational and environmental effects of a substance or group of hazardous chemicals under environmental, economic and social conditions in a region. It is possible to use the results of similar studies in other regions having similar conditions.

Safety Data Sheet (SDS)[9] : a safety data sheets (SDS) provides comprehensive information about a substance or mixture for use in workplace chemical control. Both employers and workers can use an SDS as a source of information about hazards, including environmental hazards, and to obtain

[8] https://www.ccohs.ca/oshanswers/hsprograms/hazard_risk.html (Hazard and risk, Canadian Centre for Occupational Health and Safety (CCOHS), 2020)
[9] https://unece.org/ghs-rev8-2019 (GHS, eighth revised edition, United Nations, 2019)

advice on safety precautions. The minimum information that should be included in a SDS is described in **Appendix (2)**.

Shipper: means the company or the person who transports hazardous chemicals for export, i.e. the consigner of the first shipment.

Transporting cargos of hazardous chemicals: this refers to the transport of:

A. Class 2[10] chemicals in a package with a capacity exceeding 500 liters or several smaller packages with a total capacity exceeding 1,000 liters

B. Chemicals other than Class (2) chemicals that are liquid or in the form of a paste in a package with a capacity exceeding 250 liters or transported in several smaller packages with a total capacity exceeding 1,000 liters

C. Solid chemicals in a package whose indivisible quantity exceeds 400 kg or whose divisible quantity exceeds 800 kg

United Nations Number (UN Number): the four-figure identification number of the substance or article taken from the UN Model Regulations on the transport of dangerous goods[11].

Wrapping: means the way the substances are wrapped, either by wrapping, packing in packages or any other way to secure them.

[10] The class comprises compressed gases, liquefied gases, dissolved gases, refrigerated liquefiedgases, mixtures of one or more gases with one or more vapours of substances of other classes, articles charged with a gas and aerosols.
[10] https://unece.org/rev-21-2019 (UN Transport of Dangerous Goods, 2019)
[11] https://unece.org/rev-21-2019

Article 2: Field of application

1. These Guidelines apply to all practices that involve the management of hazardous chemicals, including:

    a. Production of hazardous substances and their use in areas including industry, agriculture, consumer settings and veterinary medicine and for educational, training, or research purposes or any other activity which leads to dealing with chemicals.

    b. Any other practices specified by the competent regulatory authority in the country.

2. Medications and narcotics used for medical purposes, radioactive substances, explosives and weapons are excluded.

Article 3: The basic obligation

1. It is prohibited to apply, introduce, perform, amend, suspend or terminate any practices or actions that involve handling of hazardous chemicals or devices containing them unless these practices or actions are subject to the licensing and control of the competent regulatory authority in the GCC State.

2. It is prohibited to manufacture, produce, possess, own, import, export, buy, sell, deliver, receive, lend, borrow, modify, trade, use, transfer, store, terminate the operation or discharge of any hazardous chemical unless this is licensed and under the control of the competent regulatory authority in the GCC State.

3. It is prohibited to choose a site for any practice or work that includes hazardous chemicals or a device that includes hazardous chemicals, or to construct any special buildings for this practice or work, or to make any amendments to such places or buildings unless authorized by the relevant regulatory authority.

4. It is necessary to establish a competent regulatory authority in each of the GCC states with responsibilities as in **Article (4)** and communicate the contact details of the competent regulatory authority to the GCC Secretariat.

5. A national committee composed of the competent regulatory authority, relevant authorities and other stakeholders (such as the private sector, civil society organizations, workers' organizations and academia, as appropriate) should be established within each State, to ensure consultation and coordination within States and at the GCC level.
The members and contact details should be communicated to the GCC Secretariat.

Article 4: Responsibilities of the competent regulatory authority

1. Preparing regulations, instructions and technical guidelines for the prevention of environmental and health risks resulting from mismanagement of hazardous chemicals and setting standards and requirements for prevention, safety and security for these materials. In making regulations, instructions and technical guidelines, and in setting standards and requirements, competent regulatory authorities may refer to international or national standards prepared by, for example, the Organization for Standardization (ISO), the International Electrotechnical Commission (IEC), the European Committee for Standardization (CEN), the European Committee for Electrotechnical Standardization (CENELEC), the National Fire Protection Association (NFPA), or the British Standards Institute (BSI).

2. Evaluating requests for licensing of the works and practices mentioned in **Article (3)**, issuing licenses for them, as well as for substances whose hazardous chemicals, such as consumables, are included in their composition after fulfilling the requirements, and conducting periodic and sudden inspections to determine the extent of compliance with the standards and requirements, and withdrawing or suspending a license when standards are not met.

3. Taking the necessary measures at the national level to prohibit and restrict the import, export re-export or trading of hazardous chemicals and cooperating with international bodies and organizations in this regard. Coordinating within the GCC States to harmonize, to the extent possible, restrictions and bans on chemicals.

4. Inspecting hazardous chemicals, identifying and assessing their hazardousness through specialized laboratories and specialized bodies as needed.

5. Establishing national databases on hazardous chemicals in terms of their chemical and physical properties and their hazards, providing accurate and continuous statistics on hazardous chemicals and issuing them in regular periodic publications, given the fact that they are extremely important in preparing information reports and in executive studies.

6. Reviewing all scientific and executive aspects of activities and practices concerning hazardous substances and monitoring compliance with all aspects of protection and safety for all the works mentioned in **Article (3)**.

7. Coordination with the concerned authorities within the state in analytical studies of pollutants, setting national standards and monitoring compliance with them.

8. Providing the concerned authorities with scientific and technical recommendations and proposals necessary to address the problems of pollution resulting from hazardous chemicals.

9. Contributing to the preparation of development plans and programmes to handle hazardous chemicals and developing contingency plans and preparations for the prevention of, preparedness for and response to accidents, including the effects of such accidents caused by natural disasters. Furthermore, supporting international cooperation concerning mutual assistance, research and development, exchange of information and exchange of technology in the area of prevention of, preparedness for and response to industrial accidents[12].

10. Raising awareness of the potential environmental and health risks from the unsound use of hazardous chemicals.

11. Coordination with other competent regulatory authorities, civil defence agencies and chemicals-related Convention focal points within the GCC to share information including registry and good practice in undertaking the abovementioned points in this article.

[12] https://unece.org/DAM/env/documents/2017/TEIA/Publication/ENG_ECE_CP_TEIA_33_final_Convention_publication_March_2017.pdf (The Convention on the Transboundary Effects of Industrial Accidents, 2017)

Article 5: Licensing

1. Any party (represented by its owner or manager) intending to implement any of the practices or actions mentioned in **Article (3)** related to hazardous chemicals must submit its request to the competent regulatory authority to obtain a license to practise or work. The applicant is not allowed to commence the practice unless it obtains an official licence from the competent regulatory authority.

2. Any applicant for a licence from the competent regulatory authority must attach with the application all the data and information necessary to support the application, including that within **Appendix (2)** (SDS).

3. The licence is issued by the competent regulatory authority in the State for a specific period of time for certain practices and with terms and legal obligations and liabilities. The licence holder may not perform any activities other than those they have been licensed for and must apply for any new licence a set period before expiry of the existing licence.
The period is determined by the competent regulatory authority.

4. The holder of the licence is not entitled to assign it to others, even if the business or institution is sold, without prior notification and approval of the competent regulatory authority and/or other relevant authorities.

5. The competent regulatory authority has the right to suspend the licence or to cancel it permanently if it is proven that violations have occurred or there is non-compliance with the terms and conditions.

6. The entity that is licensed to deal with hazardous chemicals must obtain a numbered or sealed record with the seal of the competent regulatory authority to record the movement of such hazardous chemical substances. The record should be maintained for a period of five years from the date of its last entry.

7. The licensee is fully responsible for protecting workers, the public and the environment, and for all practices and activities in the management of hazardous chemicals, including when there are accidents or incidents. There should be a range of internal controls to prevent and minimize exposure, integrating the hierarchy of controls as listed in **Figure 1.**[13]

[13] https://www.cdc.gov/niosh/topics/hierarchy/default.html (CDC, USA, Hierarchy of Controls)

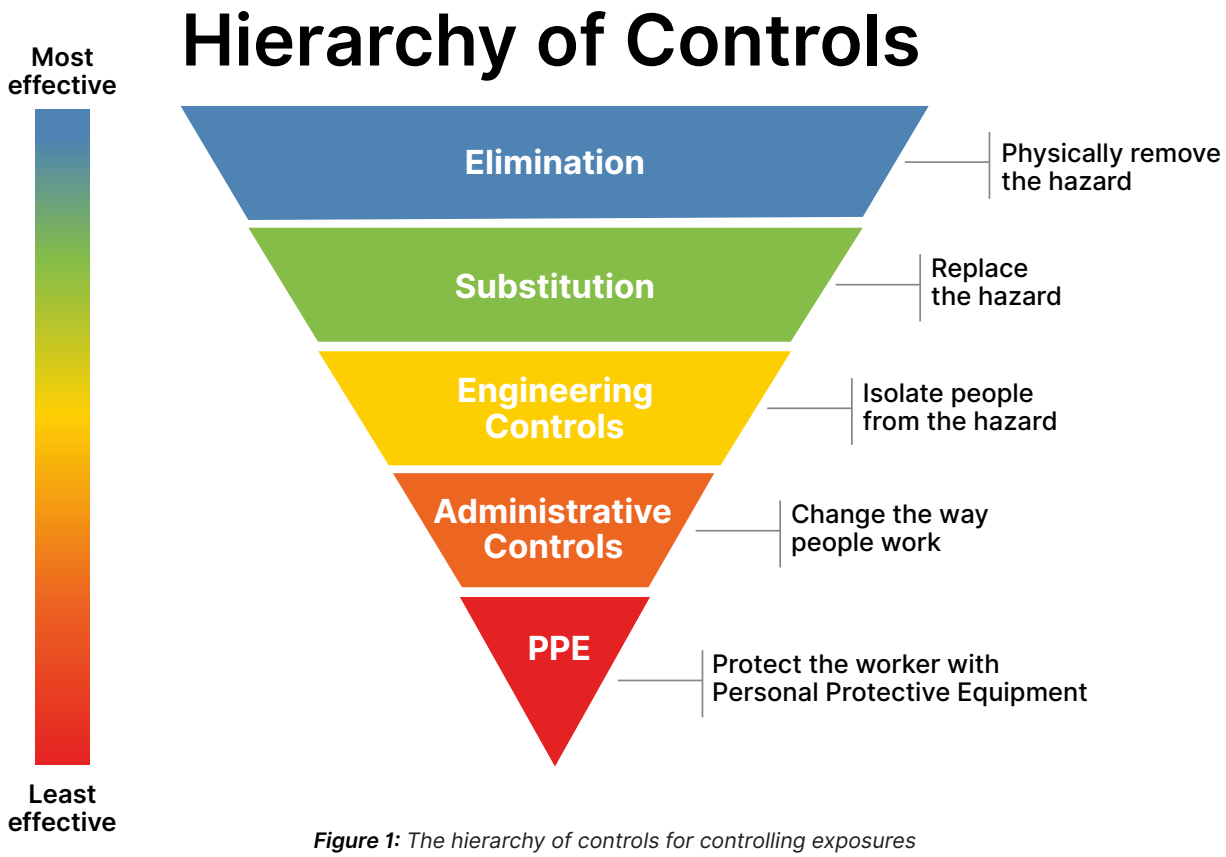


Figure 1: *The hierarchy of controls for controlling exposures to occupational hazards*

8. The activity of the competent regulatory authority should be proportionate with the hazardous nature of the chemicals and the quantities stored and used.

9. The licensee should prepare plans for the prevention of, preparedness for and response to accidents and submit them to the competent regulatory authority in the country for approval.

10. The licensee should meet the requirements set by the competent regulatory authority.

11. The issuance and control of licences is intended to ensure that hazardous chemicals are handled only by those authorized to do so, and that the appropriate safety measures are taken. In addition, the following aspects[14], among others, could be taken into account in deciding whether to grant a licence to anyone wishing to import, sell and/or export chemicals:

(i) The hazardous substances will be stored safely in an approved location and in compliance with all storage requirements;

(ii) The use on site of the hazardous substances concerned has been approved;

(iii) Existing training and/or relevant courses have been successfully completed;

(iv) The licensee has a technical/scientific background.

[14] https://www.nea.gov.sg/our-services/pollution-control/chemical-safety/hazardous-substances/management-of-hazardous-substances (Management of Hazardous Substances, National Environment Agency)

Article 6: Import

1. The licensees are not entitled to import any hazardous chemical substance for the purpose of trade or dual / multiple use without prior approval of the competent regulatory authority.

2. At least 30 days before the start of the import process, the licensee must submit an application to the competent regulatory authority and/or other relevant authorities requesting permission to import. The application should include a special form for the competent regulatory authority with a Safety Data Sheet (SDS) from the manufacturer containing the following:

   a. The scientific and commercial name of the chemical and its chemical composition.

   b. United Nations Number (UN Number) and the CAS (Chemical Abstracts Service) Registry Number.

   c. The full hazard classification and its health and environmental effects.

   d. Weight of the hazardous chemical to be imported.

   e. The expected date and time of the transfer.

   f. The purpose of the import.

   g. The most appropriate ways to store and dispose of the substance.

   h. The actions to be taken when any leakage of hazardous substance occurs.

   i. The full name, addresses, and contact numbers of the shipping agent, the sender, and the recipient.

   j. Certificate of origin and testing in the countries that export the substance.

   k. The expiry date of the packaged chemical (e.g. pesticides).

3. Minimum information that should be included in the SDS is tabulated in **Appendix (2)**. International trade control measures under the Basel, Rotterdam and Stockholm Conventions are provided in **Appendix (6)**.

Article 7: Packaging

7-1: Packages

1. Hazardous chemicals should be packed in good quality packages that can withstand all transport, storage and handling conditions, vibration effects and thermal changes. The packages should be vacuum sealed.

2. It must be ensured that the packaging is fully compatible with the chemicals placed in them.

    a. For liquid substances:

        - Receptacles should be made of substances that are not affected by acids, alkalis and solvents.
        - They should be internally coated with a substance that prevents rust, corrosion and reaction.
        - Chemical substances must not be transported in packages that can be easily broken or cracked.
        - The package should be sealed with two lids, one of which is riveted and the other openable and lockable.

    b. For hazardous dry chemicals, packages should be suitable for their content. They should withstand transport conditions. Chemicals are not to be packed in paper packages.

3. The United Nations Model Regulations on the Transport of Dangerous Goods[15] and / or the national standards for packaging must be used.

7-2: Hazard labels and handling cards

1. The package size should allow sufficient space to affix all labels and handling cards required as per the SDS and under other national regulations.

2. The cards shall be affixed to each package with a solid substance sufficient to withstand the normal conditions of transport and to ensure that the cards remain identifiable and have the required information in both Arabic and English.

3. The handling cards include induction drawings in internationally approved colours and warning signs, according to the applicable regulations.

4. The cards should include the following data:

    a. The name of the producing company, its registration number in the producing country.

    b. The date of production and expiry in all storage conditions for the chemical substance in the package.

[15] https://unece.org/rev-21-2019 (UN Recommendations on the Transport of Dangerous Goods - Model Regulations, UNECE, 2019)

c. The chemical name, the trade name, the active substance (for pesticides), the purity percentage and the type of the impurities present, if any.

d. The precautions to be taken to protect non-target human and other organisms from the hazards of the substance and treatment in case of poisoning.

Also, it is strongly recommended that the immediate (innermost) packaging of chemical substances and mixtures are labelled with the following information, in line with the GHS[16]:

- supplier identity;
- **name** of the substance or mixture and/or identification number;
- nominal **quantity** of the product in the package (for substances or mixtures supplied to the general public);
- hazard **pictograms** (graphic compositions combining symbols and other visual elements in a square set on a point, and with a red frame);
- **signal words** for the level of hazard ('Warning' or 'Danger');
- **hazard statements** (e.g. 'Highly flammable liquid and vapour', 'Fatal if swallowed', 'Causes severe skin burns and eye damage', 'May cause cancer', 'Toxic to aquatic life');
- **precautionary statements** (e.g. 'Keep only in original packaging', 'Protect from moisture', 'Keep out of reach of children', 'Get emergency medical help immediately').

[16] https://unece.org/ghs-rev8-2019 (GHS, 8th revised edition, 2019)

Article 8: Transportation

The transport of dangerous goods should be regulated to prevent or mitigate, as far as possible, incidents that could endanger public safety or harm the environment. At the same time, regulations should be framed so that they do not hamper the movement of dangerous goods, other than those too dangerous to be accepted for transport. The aim of regulations, therefore, is to make transport feasible and safe by reducing risks to a minimum[17]. Stakeholders should work together where responsibilities are shared, between producers, importers, transporters, security agencies and competent regulatory authorities, among others. This may include security escorts and GPS tracking systems, or other forms of new technologies.

8.1: Land transportation

1. Hazardous chemicals to be transported in a safe way within the established speed limits and the lanes designated for those vehicles that transport hazardous chemicals to be used.

2. The tanks in which the chemicals are transported are made of a specific substance suitable for the external environment. The tank should be designed according to internationally approved standards and have a wide opening allowing inspection with a suitable pressure relief device.

3. Installing metal plates on the outside of all sides of the transport units to provide essential information to the emergency services about the dangerous substances or goods being t ransported and on what to do in the event of an incident. An example is shown in **Figure 2**. It should be coated with a reflective paint of the desired colour and have resistance to weather conditions. For example, placards may take the form of rectangular orange plates with a hazard identification number and the UN number of the substance.

Flammable Gas	**Petrol**	
	3 YE	1203
		1203
Emergency	200	
Civil Defence, fire brigade, Tel # Police		
Technical Advice 200		

Figure 2: *An example of plates affixed on vehicles designated for the transport of hazardous substances.*

[17] https://unece.org/DAM/trans/danger/publi/unrec/GuidingPrinciples/Guiding_Principles_Rev19.pdf (Guiding Principles, TDG, UNECE, 2019)

4. All vehicles transporting hazardous chemicals in liquid or bulk form must use a yellow lamp with and intermittent light installed on the driver's trailer.

5. Obtaining the approval of the competent regulatory authorities regarding the means of transportation and drivers carrying hazardous substances, with ready plans for contingencies and accidents.

6. Identification of dangerous substances and other dangerous goods that must not be transported by road because, for example, they are inherently unstable.

7. Identification of dangerous substances and other dangerous goods that can be transported by road, together with the packaging, labelling and placarding to be applied in each case. Typically, this requires[18]:

    a. A hazard classification system with defined hazard classes for properties of con cern for transport (e.g. explosive, gases, flammable liquids and solids, acute toxicity, corrosivity), together with criteria and test methods so individual substances can be classified;

    b. Differentiation within each hazard class, e.g. into packing groups, together with criteria and test methods to determine the relevant group;

    c. A list of dangerous substances and other dangerous goods, including internationally-recognized shipping names, code numbers, and descriptions, together with the transport classification, packing groups and other information identifying the packaging and labelling needed for transport. A widely used list is the Dangerous Goods List set out in the UN Model Regulations. However, where a substance or mixture is not included on the list, the relevant labelling and other communications elements are derived from the classification; and

    d. A system for labelling packages to quickly convey hazard information in a standardized way. The colours, symbols and general format of the labels should be an internationally-recognized system such as that established in the UN Model Regulations.

8. Requirements as appropriate for the design, construction, testing and periodic inspection of, for example, pressurized receptacles, intermediate bulk containers (IBCs), tanks, bulk containers and other packagings, to meet recognized standards for safe transport.

9. Requirements for appropriate documentation to be available on board the transport vehicle, including for example identification of the dangerous substances or dangerous goods concerned using internationally recognized shipping names and codes, the classification code and packing group, the total quantity carried, and names and addresses of consignor and consignee(s). In addition, written information should be available to the vehicle crew on what to do in the event of an accident or emergency.

[18] https://unece.org/about-adr (Agreement concerning the International Carriage of Dangerous Goods by Road (ADR))

10. Arrangements so both those who consign and carry (if different) dangerous substances and other dangerous goods:

a. Appoint qualified advisers (e.g. Dangerous Goods Advisers) to facilitate compliance with all the requirements for the transport of dangerous substances and other dangerous goods; and

b. Are regularly trained in the hazards and risks arising in transport, and when loading and unloading, and what to do in the event of an accident or incident.

11. Arrangements so drivers of vehicles carrying dangerous substances or other dangerous goods hold certificates indicating they have undertaken basic training (and where appropriate specialized training) and passed an examination demonstrating they have the knowledge to protect themselves, the public and the environment in the event of an incident.

12. Arrangements to report to the competent regulatory authority in the country concerned serious accidents or incidents involving the transport by road of dangerous substances and other dangerous goods.

8-2: Air transportation

1. The carrier must be fully aware of the danger of the chemicals it transports.

2. An emergency response plan must be provided to treat a chemical in the event of an accident that lead to its spill, in compliance with the IATA system and the Technical Instructions for the Safe Transport of Dangerous Goods by Air of the International Civil Aviation Organization (ICAO, document 9284)[19].

3. The carrier must ensure that the transported substances are classified, identifiable, packed, and tagged, and that they have valid and well-written information.

4. Hazardous chemicals in transport must be accompanied by the original bill of lading, the original air freight manifesto, and the IATA form.

5. It must be ensured that the transported substances are not prohibited from being transported by air as stated in IATA.

[19] https://store.icao.int/en/technical-instructions-for-the-safe-transport-of-dangerous-goods-by-air-doc-9284 (ICAO Technical Instructions for the Safe Transport of Dangerous Goods by Air 2021-2022 (Doc 9284))

8-3: Maritime transportation

1. Packages must be in good condition and designed so they can withstand the normal risks resulting from handling and transport by sea. The packages should be transported as per the IMDG Code prepared by the International Maritime Organization (IMO).

2. It must be ensured that the package is free from damage or leakage and that at the filling temperature there is sufficient empty space above the stored chemical to accommodate the highest temperature likely to be experienced during normal transportation.

3. Special labels must be placed on the packages that contain hazardous substances with the correct scientific chemical name and the UN number. The labels should include the information that clarifies the risk characteristics of the substances contained in them – as per the IMDG Code, which describes the danger using colors and symbols.

4. Documents must be submitted including the essential information necessary for hazardous chemicals, namely the correct name for shipment, hazard class and category as appropriate, and UN number).

5. Packages for hazardous chemicals must be safely arranged according to the nature of the substances and the IMDG Code in a place with mechanical ventilation or on the deck of the ship, especially for chemicals that release hazardous vapour.

6. Necessary precautions must be taken against fire or explosion on ships carrying flammable liquids or gases.

8-4: Transportation by postal service

1. It is prohibited to transport hazardous chemicals using the postal system.

Article 9: Storage

1. The licensee does not have the right to expand, change, or remove hazardous chemicals in the warehouse unless it is approved by the competent regulatory authority and/or the concerned authorities.

2. The owner of the licensed warehouse shall comply with the following:

   a. Hazardous chemicals must be stored within industrial facilities, and there should be a distance of at least 3 meters from any production facility for non-combustible substances and 10 meters between combustible substances and any combustion source.

   b The warehouse must be designed in a way that reduces the risk of fire, spills, leakage to the ground, and injuries. Incompatible substances (homogeneous) should be separated from each other – see **9-3** and **9-4** below.

   c. Suitable fire precautions must be taken after consulting civil defence agencies, including:

   - *escape routes to emergency exits that are easy to find and open in the dark or in cases of thick smoke;*
   - *firefighting equipment;*
   - *fixed installations such as water or foam sprinklers or other appropriate media;*
   - *a system of giving warning in the event of fire;*
   - *arrangements for calling fire and rescue service and ensuring that access for emergency services is available at all times; and*
   - *management procedures to ensure that all of the above are available and main tained, and that there is adequate training in their use.*

   d. Adequate ventilation must be provided for the warehouse.

   e. Floors must be soft, non-slippery and free from cracks with special channels that have the ability to collect contaminated fire-fighting water.

   f. All electrical equipment inside the store must be grounded and electrical circuits provided with ground leakage circuit breakers and overload protection devices.

   g. It is prohibited to build a dining room or a changing room as an essential part of the store. These buildings must be separated from the storage area by a distance of not less than 10 meters.

   h. Signboards must be placed on all corridors and crossing points.

3. "Segregation [among hazardous chemicals] is one of the most important risk-control measures in storage"[20]. Hazardous chemicals must be separated according to the requirements shown in **Table No. (1)** below[21] .

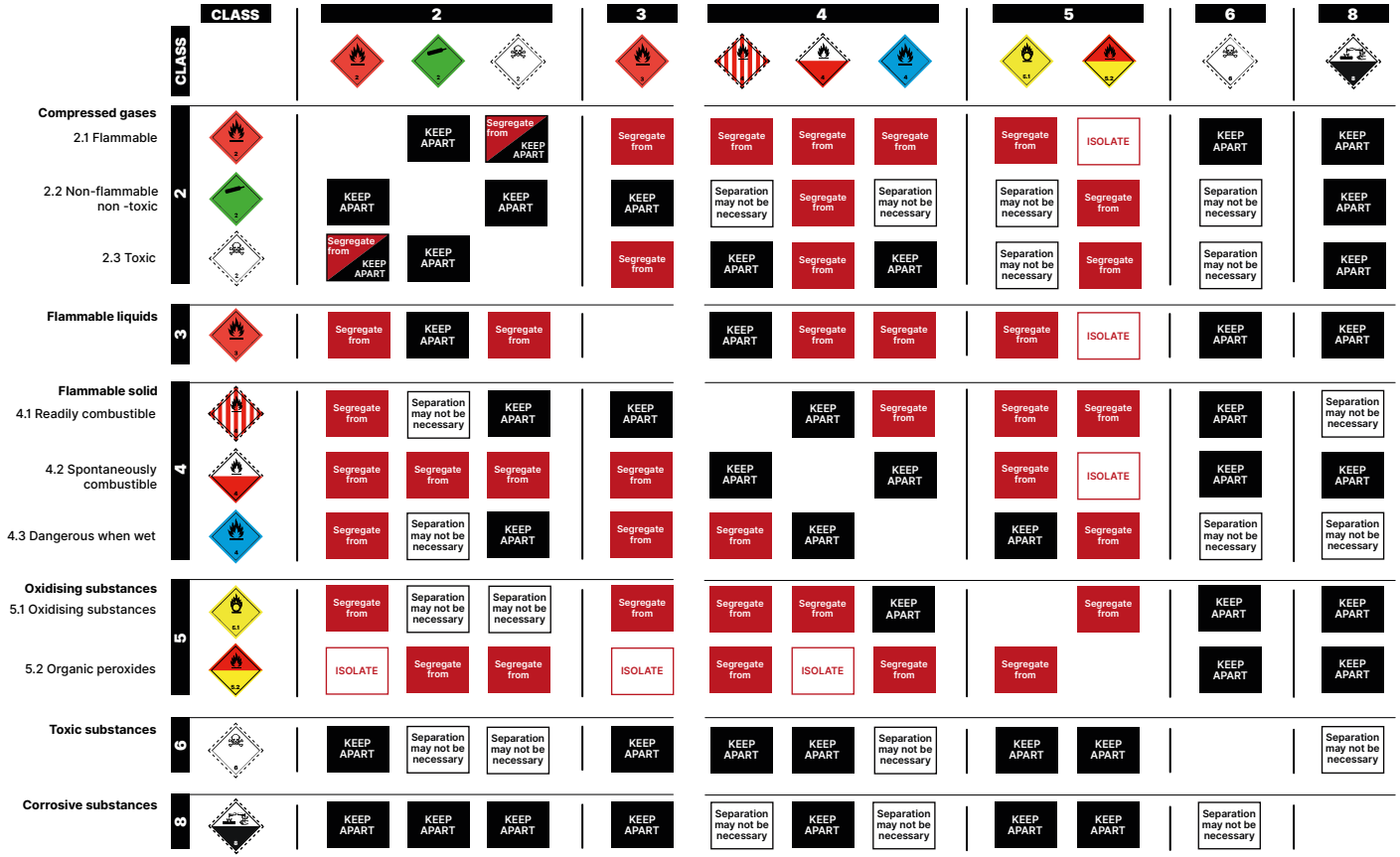


Table 1: *Separation requirements for hazardous chemicals*

[20] Chemical warehousing. The storage of packaged dangerous substances HSG71 (hse.gov.uk) 2009
[21] Chemical warehousing. The storage of packaged dangerous substances HSG71 (hse.gov.uk) 2009. The referenced document contains public sector information published by the UK's Health and Safety Executive and licensed under the Open Government Licence(https://www.nationalarchives.gov.uk/doc/open-government-licence/version/3/).

Segregate from

These combinations should not be kept in the same building compartment or outdoor storage compound. Compartment walls should be imperforate, of at least 30 minutes fire resistance and sufficiently durable to withstand normal wear and tear. Brick or concrete construction is recommended. An alternative is to provide separate outdoor storage compounds with an adequate space between them.

Separation may not be necessary

Separation may not be necessary but consult suppliers about requirements for individual substances. In particular, note that some types of chemicals within the same class, particularly **Class 8** corrosives, may react violently, generate a lot of heat if mixed, or evolve toxic fumes.

ISOLATE

This is used for organic peroxides, for which dedicated buildings are recommended. Alternatively, some peroxides may be stored outside in fire-resisting secure cabinets. In either case, adequate separation from other buildings and boundaries is required.

KEEP APART

Separate packages by at least 3 m in the storeroom or storage area outdoors.
Materials in non-combustible packaging that are not dangerous substances and that present a low fire hazard may be stored in the separation area. This standard of separation should be regarded as a minimum between substances known to react together readily, if that reaction would increase the danger of an escalating incident.

The lower standard refers to the outside storage of gas cylinders. Where non-liquefied flammable gases are concerned, the 3 m separation distance may be reduced to 1 m.

Where a particular material has the properties of more than one class, the classification giving the more onerous segregation should be used.

Note: The segregation advice set out in **Table 1** does not take account of chemical incompatibilities. In some cases, different substances that are shown as compatible in the table may react together. You should also consult the safety data sheets and other available sources for reactivity data to determine whether it is safe to store them together. This particularly applies to many corrosive substances in **Class 8**, which may react together to produce heat or toxic gases.

Examples are:

- acids/hypochlorites – generate chlorine gas;
- acids/cyanides – generate hydrogen cyanide gas;
- acids/alkalis – generate heat;
- acids/sulphides – generate hydrogen sulphide.

4. Hazardous chemicals should be separated according to their classification under the United Nations Model Regulations for the Transport of Dangerous Goods[22] and the requirements in **Table 1**. For this purpose, the relevant hazard classifications are: **Class 2** (Gases), **Class 3** (Flammable liquids), **Class 4** (Flammable solids), **Class 5** (Oxidizing substances and organic peroxides), **Class 6** (Toxic and infectious substances), and **Class 8** Corrosive substances.

In addition, the table does not include:

- **Class 1** (Explosives), which is an extremely diverse class and not considered appropriate for inclusion in such a table

- **Class 9** (Miscellaneous dangerous substances and articles, including environmentally hazardous substances), as this class is so diverse it is not possible to specify general separation rules between **Class 9** goods and goods in other hazard classes.

[22] https://unece.org/transport/dangerous-goods/un-model-regulations-rev-22

5. Stacking of containers

a. Containers should be stacked in a safe manner that does not block ventilation openings, means of escape in case of fire or access to emergency equipment. The stack design should facilitate handling operations using, for example, forklift trucks and other handling equipment. It should allow any leaking container to be quickly seen, removed and appropriately dealt with. Stacks should be at least 0.5 m below electric lights.

b. Where goods are stored in block stacks, stack sizes should be restricted as necessary to limit the severity of any fire. Stacking heights should be limited so that the lowest layer of packages is not overloaded, and the stability of the pile not endangered. The supplier should be able to advise on stacking heights. However, the height of the piles of the compacted substances should not exceed 3 meters unless shelving systems are used.

6. Warehouse plan

a. A plan of the warehouse should be prepared showing the locations and quantities of the stored chemicals with their hazardous properties. The plan should also identify the loca tions of the emergency equipment, fire resistance structures and the available means of escape in case of fire or other emergency. The plan should be updated weekly or, in the case of larger stores, daily, to take account of stock movements. A copy of the plan should be available at a point on the site which is unlikely to be affected by an emergency, and also kept in a place far from the storage site, so it can be used by both management and the emergency services when dealing with an incident.

b. The plan should also show the hazardous zone areas identified on the basis of the likely frequency and duration of the occurrence of an explosive atmosphere (e.g. zones 0, 1 or 2 for gases and vapours). Identified hazardous zone areas should be marked so those entering are aware.

c. Relocate or remove sources of ignition, such as electrical equipment, hot surfaces, etc., outside the hazardous zone areas so far as possible. Sources of ignition that can't be removed or relocated should be upgraded to the appropriate standard to prevent ignition. Vehicles that have to operate within hazardous zone areas should also be protected to an appropriate standard to avoid ignition of explosive atmospheres.

7. Spillage and leakage

a. The store should not be used for dispensing, mixing, processing, etc. Such operations should be carried out in a separate area, and in a way that reduces spills and dangerous releases.

b. Spillage and leakage in the store should be cleaned up promptly and the material disposed of safely, as per the Safety Data Sheets (SDS) for the hazardous substances.

c. Equipment for handling spills should be provided and maintained, together with gloves, protective clothing and goggles to protect against skin and eye contact. Suitable respiratory protection may also be needed during clean-up operations.

8. The discharge of static electricity may produce sparks of enough energy to ignite some explosive atmospheres. The likelihood is increased for plastic containers and suitable precautions must be used to prevent static discharge.

9. It is not permissible to carry out activities such as battery charging, thermal packaging, or welding within the storage area.

10. Proper disposal of all damaged packaging should be carried out while maintaining the cleanliness of the area by continuously removing cardboard, wood and packaging substances and preventing the deposition of dust on the stored packages

11. Maintenance work

a. Maintenance operations that create a source of ignition or could cause damage to the packages should be controlled using, for example, a permit-to-work system. Burning or welding work at high level is particularly hazardous as hot fragments may travel a considerable distance and still be capable of igniting flammable or heat-sensitive materials.

b. Make sure that materials that can burn or be affected by fire are removed from the work area. If it is not reasonably practicable to remove such materials, position suitable screens or partitions to protect the hazardous substances. Once the work has finished, thoroughly inspect the area for about an hour to ensure no smouldering material is present.

12. Emergency arrangements

a. Assess the likelihood and scale of the effects that may result from any foreseeable accident, incident, emergency or other event involving dangerous substances present.

b. On the basis of this assessment, put in place appropriate emergency arrangements to safeguard people on the site, mitigate the effects of any such event and restore the situation to normal.

13. Supervision, training and employee competence

a. All the operations in the warehouse must be closely supervised by a trained and experienced supervisor.

b. Hazardous substances should be received into a chemical warehouse by a competent person who understands the risks that they pose and can decide where to store them and how to segregate them, having regard to their hazard classification, the quantities concerned and the sizes of the packages. If the correct storage conditions cannot be met for particular hazardous substances, they should not be permitted on the site.

c. Ensure all employees are competent, i.e., trained and have practical experience of applying the relevant skills and knowledge gained under supervision. Periodically test and practice the emergency arrangements.

d. Information, instruction and training should be reviewed periodically and revised when, for example, there is any significant change to the dangerous substances stored on site.

Article 10: Production and use

1. The production and use request must be accompanied by the following documents:

   a. Approval of the concerned authorities on manufacturing and production.

   b. Approval of establishing the factory from the concerned authorities.

   c. A copy of the import and release permit from the competent regulatory authority/authorities concerned with the substances and mixtures used.

   d. Owner's undertaking to comply with health, safety and environmental procedures.

2. The license to manufacture, produce or use is issued to the applicant. Therefore, it may not be assigned to third parties except with the approval of the competent regulatory authority or the concerned authorities. The validity period of the license to manufacture will be as determined by the State.

3. Although competent government authorities, in collaboration with enterprises, industries and other stakeholders, are best placed to determine the standards that apply in workplaces, licensees and those operating premises in which chemicals are used remain fully responsible for ensuring their operations meet all relevant standards to protect workers, members of the public and the environment.

Article 11: Limits of occupational exposure

Each GCC country sets limits and levels that are not allowed to be exceeded during occupational and environmental exposure to hazardous substances, guided by the limits and levels of chemicals mentioned in the table shown in **Appendix (3)**.

To help in maintaining and expanding **Appendix (3)** and to assist countries in assessing whether their limits and levels are protective, a compilation of international occupational exposure limits (OELs) for around 2,250 substances is available[23]. This database contains a collection of OELs for hazardous substances gathered from 32 lists from 27 countries: these include various European states, Australia, Canada (Ontario and Québec), Israel, Japan, New Zealand, Singapore, Republic of Korea, The People's Republic of China, Turkey, and the United States.

The database will also help licensees and operators set their own company limits for substances not yet listed in **Appendix (3)** and for which the GCC member states in which they operate has not yet set OELs.

It should be noted that the OELs in the database are defined and set by the various national expert bodies and authorities, and they differ in the criteria for their derivation, the level of protection which they offer, and their legal relevance. Comprehensive explanations can be found in the original lists of limit values, which should be referred to as primary sources.

[23] https://www.dguv.de/ifa/gestis/gestis-internationale-grenzwerte-fuer-chemische-substanzen-limit-values-for-chemical-agents/index-2.jsp *(International limit values for chemical agents, Institute for Occupational Safety and Health of the German Social Accident Insurance)*

Article 12: Monitoring, control and inspection

1. The competent regulatory authority or the concerned authorities have the right to periodically and suddenly inspect all activities that include hazardous chemicals to ensure compliance with the conditions and requirements that must be met for the use and circulation of hazardous chemicals without infringing the limits of the permitted exposure. They also have the right to inspect all places and workers affected by such activities as well as documents and records related to that.

2. When the licensed entity refuses to perform its duty in accordance with paragraph 1 above, it will be considered a violator of this system from that date and will be subject to the penalties shown in **Article (13)**.

3. For monitoring, a Pollutant Release and Transfer Register (PRTR) should be designed and implemented in all GCC countries, in line with **Article (4) Paragraph (5)**. A PRTR is a publicly accessible database or inventory of chemicals or pollutants released to air, water and soil and transferred off-site for treatment. It brings together information about which chemicals are being released, where, how much and by whom.

4. PRTRs typically require facility owners or operators who release chemicals (e.g. in such industries as manufacturing and mining) to quantify their releases and to report them to governments on a regular basis. PRTRs are considered a powerful monitoring tool for chemical releases and transfers.

5. PRTRs can provide a rich source of data for multiple uses and purposes:

    - Government agencies – national, governerates, regional and local – can use PRTR data to measure trends in pollutant releases and waste generation, inform environmental policy decisions, evaluate environmental programmes and, when combined with health-related information, identify potential human health and environmental risks.

    - The public can use PRTRs to identify potential chemical exposures and risks posed by releases from nearby facilities, make informed decisions, and monitor the progress of facilities' efforts to lessen their environmental impact.

    - Companies can use PRTR data to identify opportunities to improve efficiency, reduce waste and as a metric for evaluating their progress towards sustainable development.

    - Other stakeholders, such as non-governmental organizations, the news media and researchers benefit from access to published PRTR information – particularly when combined with Geographic Information Systems (GIS)/mapping and toxicity information – to identify possible hot spots of concern or possible correlations between exposure and observed health or environmental effects.

    - Financial firms also use PRTR data to support socially responsible investments, as well as identify potential liabilities of firms and impacts on real estate prices.

Article 13: Sanctions and penalties

1. The national guidelines and laws of each country must include express provisions for imprisonment or fines, or both, for anyone who violates the provisions of **Article (3)** and **Article (10)** of these Guidelines. Sanctions and penalties should be effective, proportionate and dissuasive, and the penalty is doubled upon recurrence.

2. Upon failure to comply with the provisions of these Guidelines by the licensee, the competent regulatory authority/relevant authorities will request the licensee or operator to take necessary corrective measures during a period to be specified by that authority. If the licensee failed to comply, the regulatory authority shall issue a decision to suspend or revoke the license, or impose another penalty, as it may deem appropriate.

3. Any application for a new license after cancellation will be dealt with as a new license. The application will be considered only after providing the required evidence and an undertaking to comply with these Guidelines.

Appendix (1)

Classification and labelling summary tables

GHS and transport hazard classes and labelling

The tables in this appendix show all the GHS hazard classes and indicate where they apply within the system for the transport of dangerous goods, according to the UN Model Regulations[24]. They also show the applicable hazard pictograms for both transport and the GHS, together with the applicable GHS hazard statements. The tables are based on **Annex 1** of the GHS[25].

The GHS hazard pictograms are in the shape of a square set at a point with a black symbol on a white background with a red frame. The transport pictograms (commonly referred to as labels in the UN Model Regulations) are displayed on a background of contrasting colour or, where appropriate, have either a dotted or solid boundary line in accordance with the UN Model Regulations. For some hazard categories, the symbol, number and border line of the transport pictogram may be shown in white instead of black. The tables include these alternatives where relevant.

The detailed criteria for deciding which hazard category, or where relevant sub-category, applies are set out in the GHS and the Model Regulations as appropriate. The information in the tables is indicative, and the detailed criteria should always be consulted by those responsible for classification and labelling.

Building block approach

The harmonized elements of the GHS may be seen as a collection of building blocks from which competent regulatory authorities can develop their approach. The full range of hazard classes and categories can be used where a country or jurisdiction wants to cover all these hazards. However, competent regulatory authorities can also decide which hazard classes, and within these, which hazard categories, to adopt. However, there are some restrictions (see **section 1.1.3** of the GHS). For example, where a competent regulatory authority adopts a hazard class, it must adopt at least the highest or most severe hazard category (often **category 1**) and, where more than one hazard category is adopted, these hazard categories must form an unbroken sequence.

In addition, where a country adopts a GHS hazard class and category or categories, it must do so in a way that is consistent with the GHS. For example, where a competent regulatory authority adopts the hazard class carcinogenicity it must adopt the harmonized classification scheme and harmonized labels without change.

[24] https://unece.org/rev-21-2019
[25] https://unece.org/transport/documents/2021/09/standards/ghs-rev9
(GHS, ninth revised edition, United Nations, 2021)

PHYSICAL HAZARDS

1. Explosives

This hazard class comprises:

(a) Explosive substances and mixtures;

(b) Explosive articles, except devices containing explosive substances or mixtures in such quantity or of such a character that their inadvertent or accidental ignition or initiation should not cause any effect external to the device either by projection, fire, smoke, heat or loud noise; and

(c) Substances, mixtures and articles not mentioned under **(a)** and **(b)** above which are manufactured with the view to producing a practical, explosive or pyrotechnic effect.

<table>
<tr><th colspan="3">Classification</th><th colspan="4">Labelling</th><th rowspan="2">GHS Hazard statement codes</th></tr>
<tr><th>GHS Hazard class</th><th>GHS Hazard category</th><th>UN Model Regulations class or division</th><th>GHS pictogram</th><th>UN Model Regulations pictogram[a]</th><th>GHS Signal word</th><th>GHS Hazard statement</th></tr>
<tr><td rowspan="9">Explosives</td><td>1</td><td>Not applicable</td><td>  </td><td>Not applicable</td><td>Danger</td><td>Explosives</td><td>H209
H210[b]
H211[b]</td></tr>
<tr><td rowspan="5">2A</td><td>1.1</td><td rowspan="5">  </td><td rowspan="2">  </td><td rowspan="5">Danger</td><td rowspan="5">Explosives</td><td rowspan="5">H209</td></tr>
<tr><td>1.2</td></tr>
<tr><td>1.3</td></tr>
<tr><td>1.5</td><td>  </td></tr>
<tr><td>1.6</td><td>  </td></tr>
<tr><td rowspan="3">1.4</td><td rowspan="3">  </td><td rowspan="3"></td></tr>
<tr><td>2B</td><td>  </td><td>Warning</td><td>Fire or projection hazard</td><td>H204</td></tr>
<tr><td>2C</td><td>  </td><td>Warning</td><td>Fire or projection hazard</td><td>H204</td></tr>
</table>

[a] *Under the UN Model Regulations, (*) indicates the place for compatibility group and (**) indicates the place for division - to be left blank if explosive is the subsidiary hazard.*
[b] *Additional hazard statements for explosives that are sensitive to initiation or for which sufficient information on their sensitivity is not available (see Chapter 2.1, section 2.1.3).*

An explosive substance (or mixture) is a solid or liquid substance (or mixture of substances) which is in itself capable by chemical reaction of producing gas at such a temperature and pressure and at such a speed as to cause damage to the surroundings. Pyrotechnic substances are included even when they do not evolve gases.

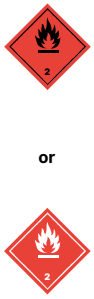
A pyrotechnic substance (or mixture) is a substance or mixture of substances designed to produce an effect by heat, light, sound, gas or smoke or a combination of these as the result of non-detonative self-sustaining exothermic chemical reactions.

2. Flammable gases

A flammable gas is a gas having a flammable range with air at 20°C and a standard pressure of 101.3 kPa.

A pyrophoric gas is a flammable gas that is liable to ignite spontaneously in air at a temperature of 54°C or below.

A chemically unstable gas is a flammable gas that is able to react explosively even in the absence of air or oxygen.

<table>
<tr><th colspan="4">Classification</th><th colspan="4">Labelling</th><th rowspan="2">GHS Hazard statement codes</th></tr>
<tr><th>GHS Hazard class</th><th colspan="2">GHS Hazard category</th><th>UN Model Regulations class or division</th><th>GHS pictogram</th><th>UN Model Regulations pictogram[a]</th><th>GHS Signal word</th><th>GHS Hazard statement</th></tr>
<tr><td rowspan="6">Flammable gases</td><td rowspan="5">1A</td><td>Flammable gas</td><td rowspan="6">2.1</td><td rowspan="5">  </td><td rowspan="5"> 
or</td><td rowspan="5">Danger</td><td>Extremely flammable gas</td><td>H220</td></tr>
<tr><td>Pyrophoric gas</td><td>Extremely flammable gas
May ignite spontaneously if exposed to air</td><td>H220
H232</td></tr>
<tr><td rowspan="2">Chemically unstable gas</td><td>A</td><td>Extremely flammable gas
May react explosively even in the absence of air</td><td>H220
H230</td></tr>
<tr><td>B</td><td rowspan="2">Extremely flammable gas
May react explosively even in the absence of air at elevated pressure and/or temperature</td><td rowspan="2">H220
H231</td></tr>
<tr><td colspan="2">1B</td><td rowspan="2">Flammable gas</td><td rowspan="2">H221</td></tr>
<tr><td colspan="2">2</td><td>Not applicable</td><td>No pictogram</td><td>Not applicable</td><td>Warning</td></tr>
</table>

[a] Under the UN Model Regulations, pyrophoric gases and chemically unstable gases (A and B) are classified based on their flammability in Class 2, Division 2.1.

3. Aerosols and chemicals under pressure

Aerosols, or aerosol dispensers, are any non-refillable receptacles made of metal, glass or plastics and containing a gas compressed, liquefied or dissolved under pressure, with or without a liquid, paste or powder, and fitted with a release device allowing the contents to be ejected as solid or liquid particles in suspension in a gas, as a foam, paste or powder or in a liquid state or in a gaseous state.

Classification			Labelling				
GHS Hazard class	**GHS Hazard category**	**UN Model Regulations class or division**	**GHS pictogram**	**UN Model Regulations pictogram**	**GHS Signal word**	**GHS Hazard statement**	**GHS Hazard statement codes**
Aerosols (section 2.3.1)	**1**	**2.1**		 **or** 	**Danger**	Extremely flammable aerosol Pressurized container: may burst if heated	**H222** **H229**
	2				**Warning**	Flammable aerosol Pressurized container: may burst if heated	**H223** **H229**
	3	**2.2**	*No pictogram*	 **or** 		Pressurized container: may burst if heated	**H229**
Chemicals under pressure (section 2.3.2)	**1**	**2.1**	 **and** 	 **or** 	**Danger**	Extremely flammable chemical under pressure: may explode if heated	**H282**
	2				**Warning**	Flammable chemical under pressure: may explode if heated	**H283**
	3	**2.2**		 **or** 		Chemical under pressure: may explode if heated	**H284**

Chemicals under pressure are liquids or solids (e.g., pastes or powders), pressurized with a gas at a pressure of 200 kPa (gauge) or more at 20˚C in pressure receptacles other than aerosol dispensers, and which are not classified as gases under pressure.

4. Oxidizing gases

An oxidizing gas is any gas which may, generally by providing oxygen, cause or contribute to the combustion of other material more than air does.

An oxidizing gas is classified in a single hazard category:

Classification			Labelling				
GHS Hazard class	**GHS Hazard category**	**UN Model Regulations class or division**	**GHS pictogram**	**UN Model Regulations pictogram[a]**	**GHS Signal word**	**GHS Hazard statement**	**GHS Hazard statement codes**
Oxidizing gases	**1**	**2 [a]**			**Danger**	May cause or intensify fire; oxidizer	**H270**

[a] Under the UN Model Regulations, oxidising gases are classified under the applicable Class 2 division according to their primary gas hazard and will display the applicable Class 2 transport pictogram. In addition, they are assigned a Division 5.1 (flame over circle) transport pictogram due to their oxidizing subsidiary hazard.

5. Gases under pressure

Gases under pressure are gases which are contained in a receptacle at a pressure of 200 kPa (gauge) or more at 20˚C, or which are liquefied or liquefied and refrigerated. They comprise compressed gases, liquefied gases, dissolved gases and refrigerated liquefied gases.

Classification			Labelling				
GHS Hazard class	**GHS Hazard category**	**UN Model Regulations class or division**	**GHS pictogram**	**UN Model Regulations pictogram[a]**	**GHS Signal word**	**GHS Hazard statement**	**GHS Hazard statement codes**
Gases under pressure	**Compressed gas**	**2.2**			**Warning**	Contains gas under pressure; may explode if heated	**H280**
	Liquefied gas					Contains gas under pressure; may explode if heated	**H280**
	Refrigerated liquefied gas					Contains refrigerated gas; may cause cryogenic burns or injury	**H281**
	Dissolved gas					Contains gas under pressure; may explode if heated	**H280**

[a] Under the UN Model Regulations, this pictogram is not required for gases under pressure that are also toxic or flammable gases. In those cases, the applicable toxic or flammable gas hazard class pictogram is used instead.

6. Flammable liquids

A flammable liquid is a liquid having a flash point of not more than 93°C.

Classification			Labelling				GHS Hazard statement codes
GHS Hazard class	GHS Hazard category	UN Model Regulations class or division	GHS pictogram	UN Model Regulations pictogram[a]	GHS Signal word	GHS Hazard statement	
Flammable liquids	1	3		 or 	Danger	Extremely flammable liquid and vapour	H224
	2					Highly flammable liquid and vapour	H225
	3				Warning	Flammable liquid and vapour	H226
	4	*Not applicable*	*No pictogram*	*Not applicable*		Combustible liquid	H227

7. Flammable solids

A flammable solid is a solid which is readily combustible, or may cause or contribute to fire through friction.

Readily combustible solids are powdered, granular, or pasty substances which are dangerous if they can be easily ignited by brief contact with an ignition source, such as a burning match, and if the flame spreads rapidly.

Classification			Labelling				GHS Hazard statement codes
GHS Hazard class	GHS Hazard category	UN Model Regulations class or division	GHS pictogram	UN Model Regulations pictogram	GHS Signal word	GHS Hazard statement	
Flammable solids	1	4.1			Danger	Flammable solid	H228
	2				Warning		

8. Self-reactive substances and mixtures

Self-reactive substances or mixtures are thermally unstable liquid or solid substances or mixtures liable to undergo a strongly exothermic decomposition even without participation of oxygen (air). A self-reactive substance or mixture is regarded as possessing explosive properties when in laboratory testing the formulation is liable to detonate, to deflagrate rapidly or to show a violent effect when heated under confinement.

Any self-reactive substance or mixture should be considered for classification in this class unless:

(a) They are explosives;
(b) They are oxidizing liquids or solids, except that mixtures of oxidizing substances which contain 5% or more of combustible organic substances should be classified as self-reactive substances according to the procedure defined in the note below;
(c) They are organic peroxides;
(d) Their heat of decomposition is less than 300 J/g; or
(e) Their self-accelerating decomposition temperature (SADT) is greater than 75°C for a 50 kg package.

Classification			**Labelling**				
GHS Hazard class	**GHS Hazard category**	**UN Model Regulations class or division**	**GHS pictogram**	**UN Model Regulations pictogram[a]**	**GHS Signal word**	**GHS Hazard statement**	**GHS Hazard statement codes**
Self-reactive substances and mixtures	**Type A**	**4.1 Type A**		(Transport may not be allowed)[b]	**Danger**	Heating may cause an explosion	**H240**
	Type B	**4.1 Type B**	 and 	 and if applicable 	**Danger**	Heating may cause a fire or explosion	**H241**
	Types C and D	**4.1 Types C and D**			**Danger**	Heating may cause a fire	**H242**
	Types E and F	**4.1 Types E and F**			**Warning**		
	Type G	**Type G**	*No pictogram*	*Not applicable*	*No signal word*	No hazard statement	**None**

[a] Under the UN Model Regulations, where a Type B substance or mixture has an explosive subsidiary hazard, then the transport pictogram for Divisions 1.1, 1.2 or 1.3 shall also be used without the indication of the division number or the compatibility group. For a substance or mixture of hazard category Type B, special provision 181 may apply (Exemption of explosive label with competent authority approval. See Chapter 3.3 of the UN Model Regulations for more details).

[b] May not be acceptable for transport in the packaging in which it is tested (See Chapter 2.4, paragraph 2.4.2.3.2.1 of the UN Model Regulations).

9. Pyrophoric liquids

A pyrophoric liquid is a liquid which, even in small quantities, is liable to ignite within five minutes after coming into contact with air.

A pyrophoric liquid is classified in a single hazard category:

Classification			Labelling				GHS Hazard statement codes
GHS Hazard class	GHS Hazard category	UN Model Regulations class or division	GHS pictogram	UN Model Regulations pictogram	GHS Signal word	GHS Hazard statement	
Pyrophoric liquids	1	4.2			Danger	Catches fire spontaneously if exposed to air	H250

10. Pyrophoric solids

A pyrophoric solid is a solid which, even in small quantities, is liable to ignite within five minutes after coming into contact with air.

A pyrophoric solid is classified in a single category:

Classification			Labelling				GHS Hazard statement codes
GHS Hazard class	GHS Hazard category	UN Model Regulations class or division	GHS pictogram	UN Model Regulations pictogram	GHS Signal word	GHS Hazard statement	
Pyrophoric solids	1	4.2			Danger	Catches fire spontaneously if exposed to air	H250

11. Self-heating substances and mixtures

A self-heating substance or mixture is a solid or liquid substance or mixture, other than a pyrophoric liquid or solid, which, by reaction with air and without energy supply, is liable to self-heat; this substance or mixture differs from a pyrophoric liquid or solid in that it will ignite only when in large amounts (kilograms) and after long periods of time (hours or days).

Classification			Labelling				GHS Hazard statement codes
GHS Hazard class	GHS Hazard category	UN Model Regulations class or division	GHS pictogram	UN Model Regulations pictogram	GHS Signal word	GHS Hazard statement	
Self-heating substances and mixtures	1	4.2			Danger	Self-heating; may catch fire	H251
	2				Warning	Self-heating in large quantities; may catch fire	H252

12. Substances and mixtures which, in contact with water, emit flammable gases

Substances or mixtures which, in contact with water, emit flammable gases are solid or liquid substances or mixtures which, by interaction with water, are liable to become spontaneously flammable or to give off flammable gases in dangerous quantities.

Classification			Labelling				GHS Hazard statement codes
GHS Hazard class	GHS Hazard category	UN Model Regulations class or division	GHS pictogram	UN Model Regulations pictogram	GHS Signal word	GHS Hazard statement	
Substances and mixtures, which in contact with water, emit flammable gases	1	4.3			Danger	In contact with water releases flammable gases which may ignite spontaneously	H260
	2				Danger	In contact with water releases flammable gases	H261
	3				Warning		

13. Oxidizing liquids

An oxidizing liquid is a liquid which, while in itself not necessarily combustible, may, generally by yielding oxygen, cause, or contribute to, the combustion of other material.

Classification			Labelling				GHS Hazard statement codes
GHS Hazard class	GHS Hazard category	UN Model Regulations class or division	GHS pictogram	UN Model Regulations pictogram	GHS Signal word	GHS Hazard statement	
Oxidizing liquids	1	5.1			Danger	May cause fire or explosion; strong oxidizer	H271
	2				Danger	May intensify fire; oxidizer	H272
	3				Warning		

14. Oxidizing solids

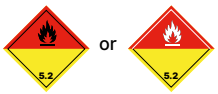
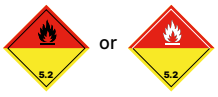
An oxidizing solid is a solid which, while in itself is not necessarily combustible, may, generally by yielding oxygen, cause, or contribute to, the combustion of other material.

Classification			Labelling				GHS Hazard statement codes
GHS Hazard class	GHS Hazard category	UN Model Regulations class or division	GHS pictogram	UN Model Regulations pictogram	GHS Signal word	GHS Hazard statement	
Oxidizing solids	1	5.1			Danger	May cause fire or explosion; strong oxidizer	H271
	2				Danger	May intensify fire; oxidizer	H272
	3				Warning		

15. Organic peroxides

Organic peroxides are liquid or solid organic substances which contain the bivalent -O-O- structure and may be considered derivatives of hydrogen peroxide, where one or both of the hydrogen atoms have been replaced by organic radicals. The term also includes organic peroxide formulations (mixtures). Organic peroxides are thermally unstable substances or mixtures, which may undergo exothermic self-accelerating decomposition. In addition, they may have one or more of the following properties:

(a) be liable to explosive decomposition;
(b) burn rapidly;
(c) be sensitive to impact or friction;
(d) react dangerously with other substances.

Classification			**Labelling**				**GHS Hazard statement codes**
GHS Hazard class	**GHS Hazard category**	**UN Model Regulations class or division**	**GHS pictogram**	**UN Model Regulations pictogram[a]**	**GHS Signal word**	**GHS Hazard statement**	
Organic peroxides	**Type A**	**5.2 Type A**		(Transport may not be allowed)[b]	**Danger**	Heating may cause an explosion	**H240**
	Type B	**5.2 Type B**	 and 	 and if applicable[a]: 	**Danger**	Heating may cause a fire or explosion	**H241**
	Types C and D	**5.2 Types C and D**			**Danger**	Heating may cause a fire	**H242**
	Types E and F	**5.2 Types E and F**			**Warning**	Heating may cause a fire	**H242**
	Type G	**Type G**	*No pictogram*	*Not applicable*	*No signal word*	*No hazard statement*	**None**

[a] Under the UN Model Regulations, where a Type B substance or mixture has an explosive subsidiary hazard, then the transport pictogram for Divisions 1.1, 1.2 or 1.3 shall also be used without the indication of the division number or the compatibility group. For a substance or mixture of hazard category Type B, special provision 181 may apply (Exemption of explosive label with competent authority approval. See Chapter 3.3 of the UN Model Regulations for more details).

[b] May not be acceptable for transport in the packaging in which it is tested (See Chapter 2.5, par. 2.5.3.2.2 of the UN Model Regulations).

16. Corrosive to metals

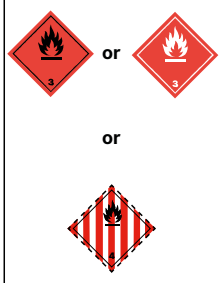
A substance or a mixture which is corrosive to metals is a substance or a mixture which by chemical action will materially damage, or even destroy, metals.

A substance or a mixture which is corrosive to metals is classified in a single category.

Classification			Labelling				GHS Hazard statement codes
GHS Hazard class	GHS Hazard category	UN Model Regulations class or division	GHS pictogram	UN Model Regulations pictogram	GHS Signal word	GHS Hazard statement	
Corrosive to metals	**1**	**8**			**Warning**	May be corrosive to metals	**H290**

17. Desensitized explosives

Desensitized explosives are solid or liquid explosive substances or mixtures which are phlegmatized to suppress their explosive properties in such a manner that they do not mass explode and do not burn too rapidly and therefore may be exempted from the hazard class "Explosives".

Classification			Labelling				GHS Hazard statement codes
GHS Hazard class	GHS Hazard category	UN Model Regulations class or division [a]	GHS pictogram	UN Model Regulations pictogram [a]	GHS Signal word	GHS Hazard statement	
Desensitized explosives	**1**	**3 or 4.1**			**Danger**	Fire, blast or projection hazard; increased risk of explosion if desensitizing agent is reduced	**H206**
	2				**Danger**	Fire or projection hazard; increased risk of explosion if desensitizing agent is reduced	**H207**
	3				**Warning**		
	4				**Warning**	Fire hazard; increased risk of explosion if desensitizing agent is reduced	**H208**

[a] *Under the UN Model Regulations, liquid desensitized explosives are classified in Class 3 and solid desensitized explosives are classified in Division 4.1.*

Examples of some desensitized explosives listed in the Dangerous Goods List in the UN Model Regulations are given in **Appendix (4)**.

HEALTH HAZARDS

18. Acute toxicity

Acute toxicity refers to serious adverse health effects (i.e., lethality) occurring after a single or short-term oral, dermal or inhalation exposure to a substance or a mixture.

Substances are allocated to one of five hazard categories based on acute toxicity by the oral, dermal or inhalation route.

Classification				Labelling				
GHS Hazard class	**GHS Hazard category**		**UN Model Regulations class or division[a]**	**GHS pictogram**	**UN Model Regulations pictogram[a]**	**GHS Signal word**	**GHS Hazard statement**	**GHS Hazard statement codes**
Acute toxicity	**1, 2**	**Oral**	**2.3 or 6.1**		 or 	**Danger**	Fatal if swallowed	**H300**
		Dermal					Fatal in contact with skin	**H310**
		Inhalation					Fatal if inhaled	**H330**
	3	**Oral**				**Danger**	Toxic if swallowed	**H301**
		Dermal					Toxic in contact with skin	**H311**
		Inhalation					Toxic if inhaled	**H331**
	4	**Oral**	*Not applicable*		*Not applicable*	**Warning**	Harmful if swallowed	**H302**
		Dermal					Harmful in contact with skin	**H312**
		Inhalation					Harmful if inhaled	**H332**
	5	**Oral**		*No pictogram*		**Warning**	May be harmful if swallowed	**H303**
		Dermal					May be harmful in contact with skin	**H313**
		Inhalation					May be harmful if inhaled	**H333**

[a] *Under the UN Model Regulations, toxic gases are classified in Division 2.3 and toxic substances (as defined in the UN Model Regulations) are classified in Division 6.1.*

19. Skin corrosion/irritation

Skin corrosion refers to the production of irreversible damage to the skin; namely, visible necrosis through the epidermis and into the dermis occurring after exposure to a substance or mixture.

Skin irritation refers to the production of reversible damage to the skin occurring after exposure to a substance or mixture.

Classification			Labelling				GHS Hazard statement codes
GHS Hazard class	GHS Hazard category	UN Model Regulations class or division	GHS pictogram	UN Model Regulations pictogram	GHS Signal word	GHS Hazard statement	
Skin corrosion/irritation	**1, 1A, 1B, 1C**	**8**			**Danger**	Causes severe skin burns and eye damage	**H314**
	2	*Not applicable*		*Not applicable*	**Warning**	Causes skin irritation	**H315**
	3		*No pictogram*		**Warning**	Causes mild skin irritation	**H316**

20. Serious eye damage/eye irritation

Serious eye damage refers to the production of tissue damage in the eye, or serious physical decay of vision, which is not fully reversible, occurring after exposure of the eye to a substance or mixture.

Eye irritation refers to the production of changes in the eye, which are fully reversible, occurring after the exposure of the eye to a substance or mixture.

Classification			Labelling				GHS Hazard statement codes
GHS Hazard class	GHS Hazard category	UN Model Regulations class or division	GHS pictogram	UN Model Regulations pictogram	GHS Signal word	GHS Hazard statement	
Serious eye damage/eye irritation	**1**	*Not applicable*		*Not applicable*	**Danger**	Causes serious eye damage	**H318**
	2/2A				**Warning**	Causes serious eye irritation	**H319**
	2B		*No pictogram*		**Warning**	Causes eye irritation	**H320**

21. Respiratory sensitization

Respiratory sensitization refers to hypersensitivity of the airways occurring after inhalation of a substance or a mixture.

Classification			Labelling				GHS Hazard statement codes
GHS Hazard class	GHS Hazard category	UN Model Regulations class or division	GHS pictogram	UN Model Regulations pictogram	GHS Signal word	GHS Hazard statement	
Respiratory sensitization	**1, 1A, 1B**	*Not applicable*		*Not applicable*	**Danger**	May cause allergy or asthma symptoms or breathing difficulties if inhaled	**H334**

22. Skin sensitization

Skin sensitization refers to an allergic response occurring after skin contact with a substance or a mixture.

Classification			Labelling				GHS Hazard statement codes
GHS Hazard class	GHS Hazard category	UN Model Regulations class or division	GHS pictogram	UN Model Regulations pictogram	GHS Signal word	GHS Hazard statement	
Skin sensitization	**1, 1A, 1B**	*Not applicable*		*Not applicable*	**Warning**	May cause an allergic skin reaction	**H317**

23. Germ cell mutagenicity

Germ cell mutagenicity refers to heritable gene mutations, including heritable structural and numerical chromosome aberrations in germ cells occurring after exposure to a substance or mixture.

Classification			Labelling				GHS Hazard statement codes
GHS Hazard class	GHS Hazard category	UN Model Regulations class or division	GHS pictogram	UN Model Regulations pictogram	GHS Signal word	GHS Hazard statement	
Germ cell mutagenicity	**1, 1A, 1B**	*Not applicable*		*Not applicable*	**Danger**	May cause genetic defects (state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard)	**H340**
	2				**Warning**	Suspected of causing genetic defects (state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard)	**H341**

24. Carcinogenicity

The term carcinogen denotes a substance or a mixture which induces cancer or increases its incidence.

Classification			Labelling				GHS Hazard statement codes
GHS Hazard class	GHS Hazard category	UN Model Regulations class or division	GHS pictogram	UN Model Regulations pictogram	GHS Signal word	GHS Hazard statement	
Carcinogenicity	**1, 1A, 1B**	*Not applicable*		*Not applicable*	**Danger**	May cause cancer (state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard)	**H350**
	2				**Warning**	Suspected of causing cancer (state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard)	**H351**

25. Reproductive toxicity

Reproductive toxicity includes adverse effects on sexual function and fertility in adult males and females, as well as developmental toxicity in the offspring.

Classification			Labelling				
GHS Hazard class	**GHS Hazard category**	**UN Model Regulations class or division**	**GHS pictogram**	**UN Model Regulations pictogram**	**GHS Signal word**	**GHS Hazard statement**	**GHS Hazard statement codes**
Reproductive toxicity	**1, 1A, 1B**	*Not applicable*		*Not applicable*	**Danger**	May damage fertility or the unborn child (state specific effect if known) (state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard)	**H360**
	2				**Warning**	Suspected of damaging fertility or the unborn child (state specific effect if known) (state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard)	**H361**
	Additional category for effects on or via lactation		*No pictogram*		*No signal word*	May cause harm to breast-fed children	**H362**

26. Specific target organ toxicity – single exposure

Specific target organ toxicity – single exposure refers to specific, non-lethal toxic effects on target organs occurring after a single exposure to a substance or mixture. All significant health effects that can impair function, both reversible and irreversible, immediate and/or delayed and not specifically addressed in other health hazard classes are included.

Classification			Labelling				GHS Hazard statement codes
GHS Hazard class	**GHS Hazard category**	**UN Model Regulations class or division**	**GHS pictogram**	**UN Model Regulations pictogram**	**GHS Signal word**	**GHS Hazard statement**	
Specific target organ toxicity – single exposure	**1**	*Not applicable*		*Not applicable*	**Danger**	Causes damage to organs (or state all organs affected, if known) (state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard)	**H370**
	2				**Warning**	May cause damage to organs (or state all organs affected, if known) (state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard)	**H371**
	3				**Warning**	May cause respiratory irritation or May cause drowsiness or dizziness	**H335** **H336**

27. Specific target organ toxicity – repeated exposure

Specific target organ toxicity – repeated exposure refers to specific toxic effects on target organs occurring after repeated exposure to a substance or mixture. All significant health effects that can impair function, both reversible and irreversible, immediate and/or delayed and not specifically addressed in other health hazard classes are included.

Classification			Labelling				GHS Hazard statement codes
GHS Hazard class	GHS Hazard category	UN Model Regulations class or division	GHS pictogram	UN Model Regulations pictogram	GHS Signal word	GHS Hazard statement	
Specific target organ toxicity – repeated exposure	**1**	*Not applicable*		*Not applicable*	**Danger**	Causes damage to organs (state all organs affected, if known) through prolonged or repeated exposure (state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard)	**H372**
	2				**Warning**	May cause damage to organs (state all organs affected, if known) through prolonged or repeated exposure (state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard)	**H373**

28. Aspiration hazard

Aspiration means the entry of a liquid or solid chemical directly through the oral or nasal cavity, or indirectly from vomiting, into the trachea and lower respiratory system.

Aspiration hazard refers to severe acute effects such as chemical pneumonia, pulmonary injury or death occurring after aspiration of a substance or mixture.

Classification			Labelling				GHS Hazard statement codes
GHS Hazard class	GHS Hazard category	UN Model Regulations class or division	GHS pictogram	UN Model Regulations pictogram	GHS Signal word	GHS Hazard statement	
Aspiration hazard	**1**	*Not applicable*		*Not applicable*	**Danger**	May be fatal if swallowed and enters airways	**H304**
	2				**Warning**	May be harmful if swallowed and enters airways	**H305**

ENVIRONMENTAL HAZARDS

29 (a). Hazardous to the aquatic environment, short-term (acute)

Acute aquatic toxicity means the intrinsic property of a substance or mixture to be injurious to an organism in a short-term aquatic exposure to that substance or mixture.

Classification			Labelling				
GHS Hazard class	**GHS Hazard category**	**UN Model Regulations class or division[a]**	**GHS pictogram**	**UN Model Regulations pictogram[a]**	**GHS Signal word**	**GHS Hazard statement**	**GHS Hazard statement codes**
Hazardous to the aquatic environment, short-term (Acute)	**Acute 1**	**9**		 **and** 	**Warning**	Very toxic to aquatic life	**H400**
	Acute 2	*Not applicable*	*No pictogram*	*Not applicable*	*No signal word*	Toxic to aquatic life	**H401**
	Acute 3					Harmful to aquatic life	**H402**

[a] Under the UN Model Regulations, for category Acute 1, environmentally hazardous substances are classified under Class 9 and shall bear both the Class 9 transport pictogram and the environmentally hazardous substance transport mark (see Chapter 5.2, section 5.2.1.6 and Chapter 5.3, section 5.3.2.3, of the UN Model Regulations).
However, if the environmentally hazardous substance presents any other hazards covered by UN Model Regulations, the Class 9 transport pictogram shall be replaced by the transport pictogram(s) applicable to the hazard(s) present and the environmentally hazardous substance pictogram is not required.

29 (b). Hazardous to the aquatic environment, long-term (chronic)

Chronic aquatic toxicity means the intrinsic properties of a substance or mixture to cause adverse effects to aquatic organisms during aquatic exposures which are determined in relation to the life-cycle of the organism.

Classification			Labelling				
GHS Hazard class	**GHS Hazard category**	**UN Model Regulations class or division[a]**	**GHS pictogram**	**UN Model Regulations pictogram[a]**	**GHS Signal word**	**GHS Hazard statement**	**GHS Hazard statement codes**
Hazardous to the aquatic environment, long-term (Chronic)	**Chronic 1**	**9**			**Warning**	Very toxic to aquatic life with long lasting effects	**H410**
	Chronic 2				*No signal word*	Toxic to aquatic life with long lasting effects	**H411**
	Chronic 3	*Not applicable*	*No pictogram*	*Not applicable*	*No signal word*	Harmful to aquatic life with long lasting effects	**H412**
	Chronic 4					May cause long lasting harmful effects to aquatic life	**H413**

[a] Under the UN Model Regulations, for categories Chronic 1 and 2, environmentally hazardous substances are classified under Class 9 and shall bear both the Class 9 transport pictogram and the environmentally hazardous substance transport mark (see Chapter 5.2, section 5.2.1.6 and Chapter 5.3, section 5.3.2.3, of the UN Model Regulations). However, if the environmentally hazardous substance presents any other hazards covered by UN Model Regulations, the Class 9 transport pictogram shall be replaced by the transport pictogram(s) applicable to the hazard(s) present and the environmentally hazardous substance pictogram is not required.

30. Hazardous to the ozone layer

Substances are considered hazardous to the ozone layer if they contain any of the controlled substances listed in the Montreal Protocol. Mixtures are considered hazardous to the ozone layer if they contain at least one ingredient so listed at a concentration ≥ 0.1%.

Classification			Labelling				GHS Hazard statement codes
GHS Hazard class	**GHS Hazard category**	**UN Model Regulations class or division**	**GHS pictogram**	**UN Model Regulations pictogram**	**GHS Signal word**	**GHS Hazard statement**	
Hazardous to the ozone layer	**1**	*Not applicable*		*Not applicable*	**Warning**	Harms public health and the environment by destroying ozone in the upper atmosphere	**H420**

Appendix (2)

Information to be included in Safety Data Sheets (SDSs)

The table below[26] sets out the 16 headings under which information in safety data sheets (SDSs) should be presented, together with the minimum information to include under each heading, where applicable and available.

If specific information is not applicable or not available under a particular heading, the SDS should clearly state this. A competent regulatory authority may require further information to be provided.

Minimum information for an SDS

1	**Identification of the substance or mixture and of the supplier**	(a) GHS product identifier; (b) Other means of identification; (c) Recommended use of the chemical and restrictions on use; (d) Supplier's details (including name, address, phone number, etc.) (e) Emergency phone number.
2	**Hazards identification**	(a) GHS classification of the substance/mixture and any national or regional information; (b) GHS label elements, including precautionary statements. (Hazard symbols may be provided as a graphic reproduction of the symbols in black and white or the name of the symbol, e.g. 'flame', 'skull and crossbones'); (c) Other hazards which do not result in classification (e.g. 'dust explosion hazard') or are not covered by the GHS.
3	**Composition / information on ingredients**	**Substance** (a) Chemical identity; (b) Common name, synonyms, etc.; (c) CAS number and other unique identifiers; (d) Impurities and stabilizing additives which are themselves classified and which contribute to the classification of the substance. **Mixture** The chemical identity and concentration or concentration ranges of all ingredients which are hazardous within the meaning of the GHS and are present above their cut-off levels. ***NOTE**: For information on ingredients, the competent authority rules for confidential business information (CBI) take priority over the rules for product identification. However, the GHS makes clear that provisions for CBI should not compromise the health and safety of workers or consumers, or the protection of the environment* [27]. *For mixtures, manufacturers and suppliers may choose to list all ingredients, including non-hazardous ingredients, and must do so where the competent regulatory authority requires or requests this information. The competent regulatory authority should protect the confidentiality of such information in accordance with applicable law and practice* [28].

[26] GHS, eighth revised edition, United Nations, 2019 (https://unece.org/ghs-rev8-2019), table 1.5.2. Annex 4 of the GHS provides guidance on the preparation of safety data sheets, including on what should be included under each heading.
[27] https://unece.org/ghs-rev8-2019 (GHS, eighth revised edition, United Nations, 2019),
[28] https://unece.org/ghs-rev8-2019 (GHS, eighth revised edition, United Nations, 2019, section 1.4.8 and Annex 4 section 3)

4	**First-aid measures**	(a) Description of necessary measures, subdivided according to the different routes of exposure, i.e. inhalation, skin and eye contact and ingestion; (b) Most important symptoms/effects, acute and delayed; (c) Indication of immediate medical attention and special treatment needed, if necessary.
5	**Fire-fighting measures**	(a) Suitable (and unsuitable) extinguishing media. (b) Specific hazards arising from the chemical (e.g. nature of any hazardous combustion products). (c) Special protective equipment and precautions for fire-fighters.
6	**Accidental release measures**	(a) Personal precautions, protective equipment and emergency procedures. (b) Environmental precautions (c) Methods and materials for containment and cleaning up.
7	**Handling and storage**	(a) Precautions for safe handling. (b) Conditions for safe storage, including any incompatibilities.
8	**Exposure controls / personal protection**	(a) Control parameters, e.g. occupational exposure limit values or biological limit values. (b) Appropriate engineering controls. (c) Individual protection measures, such as personal protective equipment.
9	**Physical and chemical properties**	Physical state; Colour; Odour; Melting point/freezing point; Boling point or initial boiling point and boiling range; Flammability; Lower and upper explosion limit/flammability limit; Flash point; Auto-ignition temperature; Decomposition temperature; pH; Kinematic viscosity; Solubility; Partition coefficient; n-octanol/water (log value); Vapour pressure; Density and/or relative density; Relative vapour density; Particle characteristics

10	**Stability and reactivity**	(a) Reactivity; (b) Chemical stability; (c) Possibility of hazardous reactions; (d) Conditions to avoid (e.g. static discharge, shock or vibration); (e) Incompatible materials; (f) Hazardous decomposition products.
11	**Toxicological information**	Concise but complete and comprehensible description of the various toxicological (health) effects and the available data used to identify those effects, including: (a) Information on the likely routes of exposure (inhalation, ingestion, skin and eye contact); (b) Symptoms related to the physical, chemical and toxicological characteristics; (c) Delayed and immediate effects and also chronic effects from short and long term exposure; (d) Numerical measures of toxicity (such as acute toxicity estimates).
12	**Ecological information**	(a) Ecotoxicity (aquatic and terrestrial, where available); (b) Persistence and degradability; (c) Bioaccumulative potential; (d) Mobility in soil; (e) Other adverse effects.
13	**Disposal considerations**	Description of waste residues and information on their safe handling and methods of disposal, including the disposal of any contaminated packaging.
14	**Transport information**	(a) UN number; (b) UN proper shipping name; (c) Transport hazard class(es); (d) Packing group, if applicable (e) Environmental hazards (e.g.: Marine pollutant (Yes/No)); (f) Transport in bulk according to IMO instruments; (g) Special precautions which a user needs to be aware of, or needs to comply with, in connection with transport or conveyance either within or outside their premises.
15	**Regulatory information**	Safety, health and environmental regulations specific for the product in question.
16	**Other information including information on preparation and revision of the SDS**	

NOTE: The order of the physical and chemical properties presented in **Section 9** may be followed on the SDS as shown in this table, but is not mandatory. The competent authority may decide to prescribe an order for **Section 9** of the SDS, or they may leave it to the preparer of the SDS to re-order the properties, if deemed appropriate.

Appendix (3)

Exposure Limits to Hazardous and Poisonous Chemical Substances and Compounds

مسلسل No.	SUBSTANCES CAS NO	قيم حدود العتبة T.L.V TWA	STEL CLV*	وحدة القياس	الفعالية المميزة	المواد الكيماوية
1	Acet aldehyde 75-07-0	- -	25 45	PPM mg/m^3	C_3	أسيت ألدهيد
2	Acetic acid 64-19-7	10 25	15 37	PPM mg/m^3		حمض الخل
3	Acetic anhydride 108-24-7	5 21	- -	PPM mg/m^3		أنهدريد الخل
4	Acetone 67-64-1	750 1780	1000 2380	PPM mg/m^3		أسيتون
5	Acetonitrile 75-08-8	40 67	60 101	PPM mg/m^3		أسيتونتريل
6	2-(Acetylamino)fluorene 53-96-3	- -	0 0	PPM mg/m^3	C_1	2-(أسيتيل أمينو) فلورين
7	Acetylene tetra bromide 79-27-6	1 14	- -	PPM mg/m^3		رابع بروميد الأستيلين
8	Acetyl salicylic acid 50-78-2	- 5	- -	PPM mg/m^3		أستيل حمض السلسيليك
9	Acrolein 107-02-8	0.1 0.23	0.3 0.69	PPM mg/m^3		أكرولين
10	Acylamide 79-06-1	- 0.03	- -	PPM mg/m^3	C_2 sk	أكريلاميد
11	Acylic acid 79-10-7	2 5.9	- -	PPM mg/m^3	sk	حمض الأكريليك
12	Acylo nitrile 107-13-1	2 4.5	4 9	PPM mg/m^3	C_2 sk	أكريلو نتريل
13	Adipic acid 124-04-9	- 5	- -	PPM mg/m^3		حمض الأديبيك
14	Adipo nitrile 111-69-3	2 8.8	- -	PPM mg/m^3	sk	أديبو نتريل
15	Aldrin 309-00-2	- 0.25	- 0.75	PPM mg/m^3	C_3 sk	ألدرين
16	Ally alcohol 107-18-6	2 4.8	4 9.5	PPM mg/m^3	sk	الكحول الأليلي
17	Allyl chloride 107-05-1	1 3	2 6	PPM mg/m^3		أليل آلوريد

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18	Allyl glycidyl ether 106-92-3	5 23	10 47	PPM mg/m^3		أليل جليسيديل إيتر
19	Allyl propyl disulfide 2179-59-1	2 12	3 18	PPM mg/m^3		أليل بروبيل دي سولفيد
20	Aluminum 7429-90-5	- 10	- -	PPM mg/m^3		الألمنيوم
21	Aluminum oxide 1344-28-1	- 10	- -	PPM mg/m^3		أكسيد الألمنيوم
22	4-Amino diphenyl 92-67-1	- -	0 0	PPM mg/m^3	C_1 sk	4- أمينو ديل فينيل
23	2-Amino pyridine 504-29-0	0.5 1.9	- -	PPM mg/m^3		2- أمينو بريدين
24	Amitrol 61-82-5	- 0.2	- -	PPM mg/m^3	C_3	أميترول
25	Ammonia 7664-41-7	25 17	35 24	PPM mg/m^3		الأمونيا (النشادر)
26	Ammonium chloride (fumes) 1215-02-8	- 10	- 20	PPM mg/m^3		كلور الأمونيوم (أدخنة)
27	Ammonium per fluoro octanoate 3825-26-1	- 0.01	- -	PPM mg/m^3	C_3 sk	بيرفلورو أوكتانوات الأمونيوم
28	Ammoniun sulfamate 7773-06-0	- 10	- -	PPM mg/m^3		سلفامات الأمونيوم
29	n-Amyl acetate 628-63-7	100 532	- -	PPM mg/m^3	C_3	ن- خلات الأميل
30	sec-Amyl accetate 626-38-0	125 665	- -	PPM mg/m^3		سيك - خلات الأميل
31	Aniline 62-53-3	2 7.6	- -	PPM mg/m^3	C_3 sk	الأنيلين
32	P-Anisidine 104-94-9	- 0.5	- 1.5	PPM mg/m^3	sk	بارا - أنيزيدين
33	o-Anisidine and (Its salts) 90-04-0	- 0.5	- 1.5	PPM mg/m^3	C_3 sk	أورتو- أنيزيدين(وأملاحه)
34	Antimony trioxide 1327-33-9	- 0.5	- -	PPM mg/m^3		الأنتموان
35	Antimony (elemental) 7440-36-0	- 0.5	- -	PPM mg/m^3	C_2	تري أوآسيد الانتموان

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36	Antimony trioxide production 1309-64-4	- 0.5	- -	PPM mg/m³	C₂	تري أوكسيد الأنتموان خلال مراحل إنتاجه .
37	ANTU 86-88-4	- 0.3	- -	PPM mg/m³	C₃	أ.ن.ت.يو
38	Arsenic (elemental) 7440-38-2	- 0.01	- -	PPM mg/m³	C₁ sk	الزرنيخ
39	Arsenic acid and (its salts) 7778-39-4	- 0.1	- -	PPM mg/m³	C₁ sk	حمض الزرنيخ وأملاحه
40	Arsenic compounds inorganic (except Arsine) as As 7440-38-2	- 0.1	- -	PPM mg/m³	C₃	مركبات الزرنيخ غير العضوية (ماعدا الأرسين)
41	Arsenic compounds (soluble) 7440-38-2	- 0.05	- -	PPM mg/m³	C₁ sk	مركبات الزرنيخ المنحلة
42	Arsenic hydride 7784-42-1	0.05 0.16	- -	PPM mg/m³		هيريد الزرنيخ
43	Arsenic penta oxide 1303-38-2	- 0.1	- -	PPM mg/m³	C₁	بنتا أوكسيد الزرنيخ
44	Arsenic tri oxide 1327-53-3	- 0.1	- -	PPM mg/m³	C₁	تري أوكسيد الزرنيخ
45	ASBESTOS: Amosite 12172-73-5	0.5		F/CC	C₁	أسبستوز (أمينت): أموزيت
46	Cyrysotile 12001-29-5	2		F/CC	C₁	كريزوتيل
47	Corocidolite 12001-28-4	0.2		F/CC	C₁	كروسيدوليت
48	Other forms	2		F/CC	C₁	أشكال أخرى
49	Asphalt (fumes) 8052-42--4	- 5	- -	PPM mg/m³	C₃	أدخنة الأسفلت
50	Atrazine 1912-24-99	- 5	- -	PPM mg/m³	sk	أترازين
	Azinphos methyl	-	-	PPM		ميتيل أزينفوس

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51	86-50-0	0.2	-	mg/m^3	sk	
52	Barium compounds (soluble as Ba) 7440-39-3	- 0.5	- -	PPM mg/m^3	sk	مركبات الباريوم المنحلة
53	Barium sulfate 7727-43-7	- 10	- -	PPM mg/m^3		سلفات الباريوم
54	Benzene 71-43-2	1 3	5 16	PPM mg/m^3	C_1	البنزن
55	Benzidine 92-87-5	- -	0 0	PPM mg/m^3	C_1 sk	البنزيدين
56	Benzidine salts	- -	0 0	PPM mg/m^3	C_1 sk	أملاح البنزيدين
57	Benzo(a) pyene 50-32-8	- 0.01	- -	PPM mg/m^3	C_2	بنزو-آ-بيرين
58	Benzoyl chloride 98-88-4	- -	0.5* 2.8*	PPM mg/m^3		بنزوئيل كلوريد
59	Benzoyl peroxide 94-36-0	- 5	- -	PPM mg/m^3		بنزوئيل بيروكسيد
60	Benzyl acetate 140-11-4	10 61	- -	PPM mg/m^3		بنزيل أسيتات
61	Benzyl chloride 100-44-7	1 5.2		PPM mg/m^3		بنزيل كلوريد
62	Beryllium -element 7440-41-7	- 0.002	- -	PPM mg/m^3	C_2	البيريليوم
63	Beryllium-compounds as Be 7440-41-7	- 0.001	- -	PPM mg/m^3	C_2	مركبات البيريليوم
64	Bis(2-chloroethyl)ether 111-49-4	- 10	- -	PPM mg/m^3	C_1 sk	بير(2كلورو ايتيل)ايتر
65	Bis(2-chloro ethy hexel) phthalate 117-81-7	- 5	- -	PPM mg/m^3	C_3	بيز(2-كلورروايتيل هكزيل) فتالات
66	Boron oxide (respirable dusts) 1303-86-2	- 10	- -	PPM mg/m^3		أوكسيد البورون (أغبة اغبرةستنشقة)
67	Boron tribromide 10294-33-4	- -	1* 10*	PPM mg/m^3		تري بروميد البورون

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68	Boron trifuoride 7637-07-2	- -	1* 2.8*	PPM mg/m^3		تري فلوريد البورون
69	Bromacil 314-40-9	- 10	- -	PPM mg/m^3		بروماسيل
70	Bromine 7726-95-6	0.1 0.66	0.2 1.3	PPM mg/m^3		برومين
71	Bromine penta flouride 7789-30-2	0.1 0.72	- -	PPM mg/m^3		برومين بنتا فلوريد
72	Bromoform 75-25-2	0.5 5.2	- -	PPM mg/m^3	 sk	بروموفورم
73	Bromo methane 74-83-9	5 19	- -	PPM mg/m^3	C_3 sk	بروموميتان
74	Bromotri fluoro methane 75-63-8	1000 6090	- -	PPM mg/m^3		برمو تري فلوروميتان
75	1.3-Butadiene 106-99-0	50 73	- -	PPM mg/m^3	C_2	3,1- بوتاديين
76	Butane 106-97-8	800 1900	- -	PPM mg/m^3		بوتان
77	Butan-1-01 71-36-3	- -	50* 152*	PPM mg/m^3	 sk	بوتان-1- أول
78	sec-Butan-2-01 78-98-2	100 303	- -	PPM mg/m^3		سيك - بوتان -2- أول
79	tert0Butanol 75-65-0	100 303	- -	PPM mg/m^3		تيرت-باتانول
80	2-Butanone 78-93-3	200 590	300 885	PPM mg/m^3		بوتانون
81	Butanone peroxide 1338-23-4	- -	0.2* 1.5*	PPM mg/m^3		بوتانون بيروكسيد
82	trans-2-Butenal 123-73-9	2 6	- -	PPM mg/m^3	C_3 sk	ترانس-2- بوتينال
83	1- Butoxy ehanol 111-76-2	25 121	- -	PPM mg/m^3	 sk	1- بوتوكسي إيتانول
84	sec-Butyl acetate 105-64-4	200 950	- -	PPM mg/m^3		سيك-بوتيل أسيتات
85	tert-Buntyl acetate 540-88-5	200 950	- -	PPM mg/m^3		ثيرت- بوتيل أسيتات
	n-Bulyl acylate	10	-	PPM		ن-بوتيل أكريلات

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86	141-32-2	52	-	mg/m^3		
	Butyl amine	-	5*	PPM		بوتيل أمين
87	109-73-9	-	15*	mg/m^3	sk	
	tert-Butyl cromate	-	-	PPM		تيرت-بوتيل كرومات
88	1189-85-1	-	0.1*	mg/m^3	sk	
	Butyl-2-30epoxy propyl ether	25	-	PPM	C_3	بوتيل-3,2- إيبوكسي
89	2426-08-6	133	-	mg/m^3		بروبيل إيثر
	Butyl mercapian	0.5	-	PPM		بوتيل ميركابتان
90	109-79-5	1.8	-	mg/m^3		
	p-tert-Butyl toluene	1	-	PPM		بارا-تيرت-بوتيل تولوين
91	98-51-1	6.1	-	mg/m^3		
	Cadmium(elemental)	-	-	PPM	C_2	الكادميوم
92	7440-43-9	0.02	-	mg/m^3		
	Cadmium chloride	-	-	PPM	C_2	كلوريد الكادميوم
93	10108-64-2	0.05	-	mg/m^3		
	Cadmium compound (inorganic)	-	-	PPM	C_3	مركبات الكادميون
94	7440-43-9	0.01	-	mg/m^3		(غير العضوية)
	Cadmium compounds (inorganic respirable dust)	- 0.02	-	PPM	C_3	مركبات الكادميوم غير العضوية- أغبرة مستنشقة
95	7440-43-9		-	mg/m^3		
	Cadmium compounds (except cdo, fumes and cds)	- 0.05	-	PPM	C_3	مركبات الكادميوم(باستثناء cdo والأدخنة وcds)
96	7440-43-9		-	mg/m^3		
	Cadmium oxide	-	-	PPM	C_2	أوكسيد الكادميوم
97	1306-19-0	0.05	-	mg/m^3		
	Cadmium oxide (fumes)	-	-	PPM	C_2	أوكسيد الكادميوم
98	1306-19-0	0.01	-	mg/m^3		(أدخنة)
	Cadmium sulfide	-	-	PPM	C_2	سولفيد الكادميوم
99	1306-23-6	0.04	-	mg/m^3		
	Calcium arsenate	-	-	PPM	C_1	زرنيخات الكالسيوم
100	7778-44-1	0.2	-	mg/m^3		
	Calcium chromate	-	-	PPM	C_2	كرومات الكالسيوم
101	13765-19-0	1.001	-	mg/m^3		
	Calcium cyanamide	-	-	PPM		سيانامید الكالسيوم
102	156-62-7	0.5	-	mg/m^3		
	Calcium hydroxide	-	-	PPM		هيدروكسيد الكالسيوم
103	1305-62-0	5	-	mg/m^3		

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104	Calcium oxide 1305-78-8	- 2	- -	PPM mg/m^3		أوكسيد الكالسيوم
105	Calcium silicate 1344-95-2	- 10	- -	PPM mg/m^3		سيليكات الكالسيوم
106	Calcium sulfate 7778-18-9	- 10	- -	PPM mg/m^3		سلفات الكالسيوم
107	Camphor (synthetic) 76-22-2	2 12	3 19	PPM mg/m^3		الكافور (صناعي)
108	epsilon-Caprolactam (dust) 105-60-2	- 1	- 3	PPM mg/m^3		إبسيلون-كابرولاكتام(أغبرة)
109	epsilon-Caprolactam(vapour) 105-60-2	5 23	10 46	PPM mg/m^3		إبسيلون-كابرولاكتام(أبخرة)
110	Captafol 2425-06-1	- 0.1	- -	PPM mg/m^3	C_3 sk	كابتافول
111	Captan 133-06-2	- 5	- -	PPM mg/m^3		كابتان
112	Carbaryl 63-25-2	- 5	- -	PPM mg/m^3		كاربارِيل
113	Carbofuran 1563-66-2	- 0.1	- -	PPM mg/m^3		كاربو فوران
114	Carbon black 1333-86-4	- 3.5	- -	PPM mg/m^3		الكربون (هباب الفحم)
115	Carbon dioxide 124-38-9	5000 9000	30.000 45.000	PPM mg/m^3		ثاني أوكسيد الكربون
116	Carbon disulfide 75-15-0	10 31	- -	PPM mg/m^3	sk	ثاني كبريت الكربون
117	Carbon monoxide 630-08-0	25 29	- -	PPM mg/m^3		أول أوكسيد الكربون
118	Carbon tetra bromide 558-13-4	0.1 1.4	0.3 4.1	PPM mg/m^3	C_2	رابع بروميد الكربون
119	Carbon tetra chloride 56-23-5	5 31	10 63	PPM mg/m^3	C_2 sk	رابع كوليد الكربون
120	Carbonyl chloride 75-44-5	0.1 0.4	- -	PPM mg/m^3		كلوريد الكاربونيل
121	Cabonyl fluoride 353-50-4	2 5.4	5 13	PPM mg/m^3		فلوريد الكاربونيل
	Catechol	5	-	PPM		الكاتيكول

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122	120-80-9	23	-	mg/m^3	sk	
123	Cellulose 9004-34-6	- 10	- -	PPM mg/m^3		السللوز
124	Cesium hydroxide 21351-79-1	- 2	- -	PPM mg/m^3		هيدر وكسيد السيزيوم
125	Chlordane 57-74-9	- 0.5	- -	PPM mg/m^3	C_3 sk	كلوردان
126	Chlorinated camphene 8001-35-2	- 0.5	- 1	PPM mg/m^3	sk	كامفين مكلور
127	Chlorinated diphenyl oxide 57321-63-8	- 0.5	- -	PPM mg/m^3		دي فينيل أوكسيد مكلور
128	Chlorine 7782-50-2	0.5 1.5	1 2.9	PPM mg/m^3		الكلور
129	Chlorine di oxide 10049-04-4	0.1 0.28	0.3 0.83	PPM mg/m^3		ثاني أوكسيد الكلور
130	Chlorine tir fluoride 7790-91-2	- -	0.1* 0.38*	PPM mg/m^3		ثلاثي فلوريد الكلور
131	Chloro acet aldehyde 107-20-2	- -	1* 3.2*	PPM mg/m^3	sk	كلورو أسيت ألدهيد
132	Chloro acetone 78-95-5	- -	1* 3.8*	PPM mg/m^3	sk	كلورو أسيتون
133	alpha-Chloro aceto phenone 532-27-4	0.05 0.32	- -	PPM mg/m^3		الفا-كلورروأسيتوفينون
134	Chloro acetyl chlonde 79-07-9	0.05 0.23	0.15 0.69	PPM mg/m^3	sk	كلورو أسيتيل كلوريد
135	Chloro benzene 108-90-7	10 46	- -	PPM mg/m^3		كلوروبنزن
136	O-Chloro benzylidene malono nitrile 2698-41-1	- -	0.05* 0.39*	PPM mg/m^3	sk	أورتو-كلورو بنزيليدين مالونو نتريل
137	Chloro difluoro methane 75-75-66	1000 3540	- -	PPM mg/m^3		كلورو دي فلورو ميتان
138	Chloro diphenyl (42% chlorine) 53469-21-9	- 1	- -	PPM mg/m^3	C_2 sk	كلورو دي فينيل (42% كلورين)
139	Chloro diphenyl (54% chlorine)	- 0.5	- -	PPM mg/m^3	C_2 sk	كلورو دي‌فينيل (54% كلورين)

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	11097-69-1					
	2-Chloro ethanol	-	1*	PPM		2- كلورو إيثانول
140	107-07-3	-	3.3*	mg/m^3		
	Chloroform	10	20	PPM	C2	كلوروفورم
141	67-66-3	50	100	mg/m^3	sk	
	Chloro methane	50	-	PPM	C_3	كلورو ميتان
142	74-87-3	103	-	mg/m^3		
	Chloromethyl methyl ether	-	-	PPM	C_1	كلورو ميثيل - ميثيل ايتر
143	107-30-2	0.003	0.007	mg/m^3		
	1- Chloro-4-nitro benzene	0.1	-	PPM		1- كلورو-4- نتروبنزن
144	100-00-5	0.64	-	mg/m^3		
	1- chloro-1-nitro-propane	2	-	PPM		1-كلورو-1- نترو بروبان
145	600-25-9	10	-	mg/m^3		
	Chloro picrin	0.1	-	PPM		كلوروبيكرين
146	76-06-2	0.67	-	mg/m^3		
	β-Chloroprene	10	-	PPM		بيتا -كلوروبرين
147	126-99-8	36	-	mg/m^3	sk	
	2-Chloro propionic acid	0.1	-	PPM		2-كلوروبروبينيك أسيد
148	598-78-7	0.44	-	mg/m^3	sk	
	3-Chloro Propene	1	-	PPM	C_3	3- كلوروبروبن
149	107-05-1	3	-	mg/m^3		
	o-Chloro styrene	50	75	PPM		أورتو-كلوروستيرين
150	2039-87-4	283	425	mg/m^3		
	o-Chloro toluene	50	-	PPM		أورتو- كلوروتولوين
151	95-49-8	259	-	mg/m^3		
	α-Chloro toluene	1	-	PPM	C_3	ألفا - كلورو تولوين
152	100-44-7	5	-	mg/m^3		
	4-Chloro-o-toluidine	2	-	PPM	C_1	4- كلورو-أورتو-تولويدين
153	95-69-2	12	-	mg/m^3		
	2-Choro-6-(trichloro methyl)-pyridine(respirable-dusts)	- 10	- 20	PPM		2-كلورو-6-(تري كلورو ميثيل)- بيريدين (أبخرة مستنشقة)
154	1929-82-4			mg/m^3		
	Chromates	-	-	PPM	C_1	كرومات
155	13907-45-4	-	0.01	mg/m^3		

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156	Chromic acid 7738-94-5	- -	- 0.02*	PPM mg/m³	C1	كروميك أسيد
157	Chromite 1308-31-2	- 0.05	- -	PPM mg/m³	C1	كروميت
158	Chromite(prcessing chromate)as Cr and (inorganic compounds) 7400-47-3	- 0.05	- -	PPM mg/m³	C1	الكروميت ومركباته غير العضوية
159	Chromium-III-chromate 24613-89-6	- 0.05	- -	PPM mg/m³	C2	كروميوم III كرومات
160	Chromium-VI-compounds (soluble-forms) 7440-47-3	- 0.05	- -	PPM mg/m³	C2	مركبات الكروميوم السداسية (المنحلة)
161	Chromium-VI-compounds (insoluble) 7440-47-3	- 0.01	- -	PPM mg/m³	C1	مركبات الكروميوم السداسية (غير المنحلة)
162	Chromium oxy chloride 14977-61-8	0.025 0.16	- -	PPM mg/m³	C2	كروميوم أوكسي كلوريد
163	Chroumium trioxide 1333-82-0	- 0.05	- -	PPM mg/m³	C2	كروميوم تريك أوكسيد
164	CI-direct-black-38 1937-37-7	- 0.01	- -	PPM mg/m³	C1	C1- الأصبغة السوداء (مباشرة) -38
165	CI-pigment yellow-36 13530-65-9	- 0.01	- -	PPM mg/m³	C1	CI- الأصبغة الصفراء-36
166	Coal tar pitch-volatiles (benzene-solubles-section) 65996-93-2	- 0.2	- -	PPM mg/m³	C1	قطران الفحم
167	Coal tar pith volatiles- as (benzene soluble-fraction) 8007-45-2	- 0.2	- -	PPM mg/m³	C1	قطران الفحم
168	Cobalt (dust and/or fumes) and inorganic	- 0.02	- -	PPM mg/m³	C2	الكوبالت (غبار و/أو أدخنة) والمركبات غير

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	compounds 7440-48-4					العضوية .
169	Chobalt carbonyl 10210-68-1	- 0.1	- -	PPM mg/m^3		كوبالت كاربونيل
170	Chobalt hydro cabonyl (as Co) 16842-03-8	- 0.1	- -	PPM mg/m^3		هيدرو كاربونيل الكوبالت
171	Copper (dust) 7440-50-8	- 1	- -	PPM mg/m^3		النحاس (أغبرة)
172	Copper (fumes) 7440-50-8	- 0.2	- -	PPM mg/m^3		النحاس (أدخنة)
173	Cotton dust	- 0.2	- 0.6	PPM mg/m^3		أغبرة القطن
174	Cresol (all isomers) 1317-77-3	5 22	- -	PPM mg/m^3	sk	الكريزول (جميع الإيزوميرات)
175	Cretton aldehyde 4170-30-3	2 5.7	- -	PPM mg/m^3	sk	كروتون ألدهيد
176	Crufomate 299-86-5	- 5	- -	PPM mg/m^3		كروفومات
177	Cumene 98-82-8	50 246	- -	PPM mg/m^3	sk	كومين
178	Cyanamide 420-04-2	- 2	- -	PPM mg/m^3		سيانااميد
179	2-Cyanamide methyl ester 137-05-3	2 9.1	4 18	PPM mg/m^3		2- سيانو حمض الأكريليك ميثيل إستر
180	Cyanogen 460-19-5	10 21	- -	PPM mg/m^3		سيانوجين
181	Cylo hexane 110-82-7	300 1030	- -	PPM mg/m^3		سيكلو هكزان
182	Cyclo hexanol 108-93-0	50 206	- -	PPM mg/m^3	sk	سيكلو هكزانول
183	Cyclo hexanone 108-94-1	25 100	- -	PPM mg/m^3	sk	سيكلو هكزانون
184	Cyclo Hexene 110-83-3	300 1010	- -	PPM mg/m^3		سيكلو هكزين
	Cyclo hexyl amine	10	-	PPM		سيكلو هكزيل أمين

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185	108-91-8	41	-	mg/m^3		
	Cyclonite	-	-	PPM		سيكلونيت
186	121-82-4	1.5	-	mg/m^3	sk	
	1.3-Cyclo pentadiene	75	-	PPM		3,1- سيكلوبنتاديين
187	542-92-7	203	-	mg/m^3		
	Cyclo pentane	600	-	PPM		سيكلوبنتان
188	287-92-3	1720	-	mg/m^3		
	Cyhexatin	-	-	PPM		سايهكزاتين
189	13121-70-5	5	-	mg/m^3		
	D.D.T	-	-	PPM	C_3	د.د.ت
190	50-29-3	1	-	mg/m^3		
	Decaborane	0.05	0.15	PPM		ديكابوران
191	17702-41-9	0.25	0.75	mg/m^3	sk	
	Demeton	0.01	-	PPM		ديميتون
192	8065-48-3	0.11	-	mg/m^3	sk	
	Diacetone alcohol	50	-	PPM		كحول دي أسيتون
193	123-42-2	238	-	mg/m^3		
	4,4- Diacetyl benzidine	0	-	PPM	C_1	4,4- دي أسيتيل بنزيدين
194	613-35-4	0	-	mg/m^3		
	4,4-Diamino diphenyl methane	0.1	-	PPM	C_2	4,4-دي أمينو دي فينيل
195	101-77-9	0.8	-	mg/m^3		
	Diazinon	-	-	PPM		ديازينون
196	333-41-5	0.1	-	mg/m^3	sk	
	Diazomethane	-	0	PPM	C_1	دي آزوميتان
197	334-88-3	-	0	mg/m^3		
	Diborane	0.1	-	PPM		دي بوران
198	19287-45-7	0.11	-	mg/m^3		
	1,2-Dibromo-3- chioro propane	0.001	-	PPM	C_1	2,1- دي بروموـ3- كلوروبروبان
199	96-12-8	0.01	-	mg/m^3		
	2-n-Dibutyl amino ethanol	0.5	-	PPM		2-ن- دي بوتيل أمينو إيثانول
200	102-81-8	3.5	-	mg/m^3	sk	
	Dibutyl phenyl phosphate	0.3	-	PPM		دي‌بوتيل فينيل فوسفات
201	2528-36-1	3.5	-	mg/m^3	sk	
	Di-N-butyl phosphate	1	2	PPM		دي-ن- بوتيل فوسفات
202	107-66-4	8.6	17	mg/m^3		
	Dibutyl phthalate	-	-	PPM		دي بوتيل فتلات

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203	48-74-2	5	-	mg/m³		
204	Dichloro acetylene 7572-29-4	0.1 0.4	- -	PPM mg/m³	C_2	دي كلورو أستيلين
205	o-Dichloro benzene 95-50-1	25 150	50 301	PPM mg/m³		أورتو -دي كلوروبنزن
206	p-Dichloro benzene 106-46-7	10 60	- -	PPM mg/m³	C_3	بارا-دي كلوروبنزن
207	3,3Dichloro biphenyl4,4-ylenediamion (salts) 91-94-1	- 0.1	- -	PPM mg/m³	C_2 sk	3,3-دي كلوروبيفينيل -4,4- يلين دين أمين وأملاحه
208	1,4-Dichloro-2- butene 764-41-0	0.005 0.025	- -	PPM mg/m³	C3 sk	4,1- دي كلورو-2- بوتين
209	Dichloro difluoro methane 75-71-8	1000 4950	- -	PPM mg/m³		دي كلورو دي فلورو ميتان
210	Dichloro-5,5- dimethyl hydantoin 118-52-5	- 0.2	- 0.4	PPM mg/m³		دي كلورو 5,5-دي ميثيل
211	1,1-dichloro ethane 75-34-3	100 4.5	- -	PPM mg/m³		1,1- دي كلورو إيتان
212	1,1-Dichloro ethylene 75-35-4	10 40	20 80	PPM mg/m³	C_2	1,1- دي كلورو إيثيلين
213	1,2-Dichloro ethylene 540-59-0	200 793	- -	PPM mg/m³		2,1- دي كلورو إيثيلين
214	Dichloro fluoro methane 75-43-4	10 42	- -	PPM mg/m³		دي كلورو فلورو ميتان
215	Dichloro fluoru methane 75-09-2	50 175	- -	PPM mg/m³	C_2 sk	دي كلورو ميتان
216	2,2-Dichloro-4,4-methylene dianiline and satle 101-14-4	0.01 0.1	- -	PPM mg/m³	C_2	2,2- دي كلورو -4,4- ميثيلين دي أنيلين وأملاحه
217	1,1-Dichloro-1-nitro ethane 594-72-9	2 12	- -	PPM mg/m³		1,1- دي كلورو -1- نترو إيثان
218	1,2- Dichloro propane 78-87-5	75 347	110 508	PPM mg/m³		2,1-دي كلوروبروبان
	1,3-Dichloro propene	1	-	PPM	C_2	3,1- دي كلوروبروبن

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219	542-75-6	4.5	-	mg/m^3	sk	
220	ciz-(z)-1,3-Dichloro propene 10061-01-5	1 5	- -	PPM mg/m^3	C_2	يسيز-(z) 3,1- دي كلورو بروبين
221	trans-1,3-Dichloro propene 10061-02-6	1 5	- -	PPM mg/m^3	C_2	ترانس-3,1- دي كلورو بروبين
222	2,2-Dichloro propionic acid 75-99-0	1 5.8	- -	PPM mg/m^3		2,2- دي كلورو بروبيونيك أسيد
223	Dichlorvos 62-73-7	0.1 0.90	- -	PPM mg/m^3	sk	دي كلورفوس
224	Dicyclo pentadiene 77-73-6	5 27	- -	PPM mg/m^3		دي سيكلو بنتاديين
225	Dicyclo pentadienyl iron 102-54-5	- 10	- -	PPM mg/m^3		دي سيكلو بنتاديينيل الحديد
226	Dieldrin 60-57-1	- 025	- 0.75	PPM mg/m^3	C_3 sk	دي إلدرين
227	Diesel exhaust	- 0.15	- -	PPM mg/m^3	C_2	عوادم الديزل
228	Diethanol amine 111-42-2	0.46 2	- -	PPM mg/m^3	sk	دي إيثانول أمين
229	Diethyl amine 109-89-7	5 15	15 45	PPM mg/m^3	sk	دي إيثيل أمين
230	2-(Diethyl amino) ethanol 100-37-8	2 9.6	- -	PPM mg/m^3	sk	2-(دي إيثيل أمينو) إيثانول
231	Diethylene triamine 111-40-0	1 4.2	- -	PPM mg/m^3	sk	دي إثيلين تري أمين
232	Diethyl ether 60-29-7	400 1210	500 1520	PPM mg/m^3		دي إيثيل إيتر
233	Diethyl ketone 96-22-0	200 705	- -	PPM mg/m^3		دي إيتيل كيتون
234	Dithyl pthhalate 84-66-2	- 5	- -	PPM mg/m^3		دي إيتيل فتلات
235	Diethyl sulfate 64-67-5	0.03 0.2	- -	PPM mg/m^3	C_2	دي إيتيل سلفات

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236	Difluoro dibromo methane 75-61-6	100 858	- -	PPM mg/m³		دي فلورو دي برومو ميتان
237	Diglycidyl ether 2238-07-5	0.1 0.53	- -	PPM mg/m³	C₃	دي جليسيديل إيتر
238	1,4- Dihydrobenzene 123-31-9	- 2	- -	PPM mg/m³		4,1- دي هيدروبنزن
239	Diiso butyl ketone 108-83-8	25 145	- -	PPM mg/m³		دي إيزوبوتيل كيتون
240	Diiso cyanato toluene (all isomers) 26471-62-2	0.01 0.08	- -	PPM mg/m³	C₃	دي إيزو سياناتوتوليون (كل الايزوميرات)
241	2,4-Diiso cyanato toluene 584-84-9	0.005 0.035	- -	PPM mg/m³	C₃	4,2- دي إيزو سياناتو تولوين
242	2,6- Diiso cyanato toluene 91-08-7	0.005 0.035	- -	PPM mg/m³	C₃	6,2- دي إيزو سياناتو تولين
243	Diiso proply amine 108-18-9	5 21	- -	PPM mg/m³		دي إيزو بروبيل أمين
244	Dimethoxy methane 109-87-5	1000 3110	- -	PPM mg/m³		دي ميتكوكسي ميتان
245	n,n-Dimethyl acetamide 127-19-5	10 36	- -	PPM mg/m³	sk	ن،ن-دي ميثيل أسيتاميد
246	Dimethyl amine 124-40-3	5 9.2	15 27.6	PPM mg/m³		دي ميثيل أمين
247	Dimethyl amino azo benzene 60-11-7	- -	0 0	PPM mg/m³	C₁	دي‌ميتيل أمينو أزوبنزن
248	Dimethyl-1,2-dibromo-2,2 di chloro ethyl phosphate 300-76-5	- 3	- -	PPM mg/m³	sk	دي ميثيل-2,1- دي برومو- 2,2 دي كلورو ايثيل فوسفات
249	Dimethyl formamide 68-12-2	10 30	- -	PPM mg/m³	sk	دي ميثيل فورماميد
250	1,1-Dimethyl hydrazine 57-14-7	- -	0.1 0.25	PPM mg/m³	C₂ sk	1,1- دي ميثيل هيدرازين
251	Dimethyl nitroso amine 62-75-9	0 0	- -	PPM mg/m³	C₂	دي‌ميثيل نتروزو أمين

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252	Dimethyl phthalate 131-11-3	- 5	- -	PPM mg/m^3		دي ميثيل فتلات
253	Dimethyl sulfate 77-78-1	- -	0.01 0.05	PPM mg/m^3	C_2 sk	دي ميثيل سلفات
254	Dinitolmide 148-01-6	- 5	- -	PPM mg/m^3		دي نيتولميد
255	Dinitro benzene 25154-54-5	0.15 1.0	- -	PPM mg/m^3	C_3 sk	دي نتروبنزن
256	1,2-Dinitro benzene 528-29-0	0.15 1	- -	PPM mg/m^3	sk	2,1- دي نترو بنزن
257	4,6-Dinitro-o-cresol 534-52-1	- 02	- -	PPM mg/m^3	sk	6,4- دي نترو - أورتو-كريزول
258	Dinitro toluene 25321-14-6	- 015	- -	PPM mg/m^3	C_2 sk	دي نترو تولوين
259	1,4-Dioxane 123-91-1	25 90	40 135	PPM mg/m^3	C_3 sk	4,1- ديوكسان
260	Dioxation 78-34-2	- 0.2	- -	PPM mg/m^3	sk	ديوكساثيون
261	Diphenyl amine 122-39-4	- 10	- -	PPM mg/m^3		دي فينيل أمين
262	Diphenyl methane di isocyanate 101-68-8	0.005 0.051	- -	PPM mg/m^3		دي فينيل ميثان دي إيزوسيانات
263	Diporpylene glycol methyl ether 34590-94-8	100 606	150 909	PPM mg/m^3	sk	دي‌بروبيلين غليكول مثيل إيثر
264	Dipropyl ketone 123-19-3	50 233	- -	PPM mg/m^3		دي بروبيل كيتون
265	Diquat 2764-72-9	0.1 0.5	- -	PPM mg/m^3	sk	دي كوات
266	Di-sec-octyl phthalate 117-81-7	- 5	- 10	PPM mg/m^3		دي -سيك-أوكتيل فتلات
267	Disulfram 97-77-8	- 2	- -	PPM mg/m^3		دي سولفيرام
268	Disulfoton 298-04-4	- 0.1	- -	PPM mg/m^3	sk	دي سولفوتون
269	2,6-Di-tert-butyle-pcresol 128-37-0	- 10	- -	PPM mg/m^3		6,2- دي-تيرت بوتيل-بارا-كريزول

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270	Diuron 330-54-1	- 10	- -	PPM mg/m^3		ديورون
271	Divinyl benzene 1321-74-0	10 53	- -	PPM mg/m^3		دي فينيل بنزين
272	Emery 1302-74-5	- 10	- -	PPM mg/m^3		إميري
273	Endosulfan 115-29-7	- 0.1	- -	PPM mg/m^3	sk	إندوسولفان
274	Endrin 72-20-8	- 0.1	- -	PPM mg/m^3	sk	إندرين
275	Enflurane 13838-16-9	75 566	- -	PPM mg/m^3		إنفلوران
276	EPN 2104-64-5	- 0.1	- -	PPM mg/m^3	sk	إي - ب - ن
277	Epi- chloro hydrin 106-89-8	2 7.6	- -	PPM mg/m^3	C_2 sk	إيبي كلورو هيدرين
278	1,2-Epoxy-4-epoxy ethyl cycloheane 106-87-6	10 60	20 120	PPM mg/m^3	C_2	2,1-إيبوكسي -4-إيبوكسي إيثيل سيكلو هكزان
279	Ethanol amine 141-43-5	3 7.5	6 15	PPM mg/m^3		إيثانول أمين
280	Ethion 563-12-2	- 0.4	- -	PPM mg/m^3	sk	إيثيون
281	2-Ethoxy ethanol 110-80-5	5 18	- -	PPM mg/m^3	sk	2- إيتوكسي إيثانول
282	2-Ethoxy ethyl acetate 111-15-9	5 27	- -	PPM mg/m^3	sk	2- إتوكسي إيثيل أسيتات
283	Ethyl acetate 141-78-6	400 1440	- -	PPM mg/m^3		إيثيل أسيتات
284	Ethyl ecrylate 140-88-5	5 20	- -	PPM mg/m^3	C_2	إيثيل أكريلات
285	Ethyl amine 75-04-7	5 9.2	15 27.6	PPM mg/m^3	sk	إيثيل أمين
286	Ethyl amyl ketone 541-85-5	25 131	- -	PPM mg/m^3		إيثيل أميل كيتون
287	Ethyl benzene 100-41-4	100 434	125 543	PPM mg/m^3		إيثيل بنزن
288	Ethyl bromide 74-96-4	5 22	- -	PPM mg/m^3	C_2 sk	إيثيل بروميد

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289	Ethyl chloride 75-00-3	100 264	- -	PPM mg/m³	C_3 sk	إيثيل كلوريد
290	1,2- Ethylene diamine 107-15-3	10 25	- -	PPM mg/m³	sk	2,1- إيثيلين دين أمين
291	Ethylen dibromide 106-93-4	20 145	30 220	PPM mg/m³	C_2 sk	إيثيلين دي بروميد
292	Ethylene dichloride 107-06-2	10 40	- -	PPM mg/m³	C_2 sk	إيثلين دي كلوريد
293	Ethylene glycol 107-21-1	- -	25 45	PPM mg/m³		إيثيلين جليكول
294	Ethylene glycol dinitrate 628-96-6	0.05 0.31	- -	PPM mg/m³	sk	إيثيلين جليكول دي نترات
295	Ethylene glycol methyl ether acelate 110-49-6	5 24	- -	PPM mg/m³	sk	إيثيلين جليكول ميثيل إيتر أسيتات
296	Ethylene imine 151-56-4	- -	0.5 1	PPM mg/m³	C_2 sk	إيثيلين إيمين
297	Ethyl formate 109-94-4	100 303	- -	PPM mg/m³		إيثيل فورمات
298	Ethylidene norbomene 16216-75-3	- -	5* 25*	PPM mg/m³		إتيليدين نوروبورنين
299	Ethyl mercapian 75-08-1	0.5 1.3	- -	PPM mg/m³		إيثيل ميركابتان
300	n-Ethyl morpholine 100-74-3	5 24	- -	PPM mg/m³	sk	n- إيثيل مورفولين
301	Ethyl silicate 78-10-4	10 85	- -	PPM mg/m³		إيثيل سيليكات
302	Fenamiphos 22224-92-6	- 0.1	- -	PPM mg/m³	sk	فينا ميفوس
303	Fensulfothion 115-90-2	- 0.1	- -	PPM mg/m³		فينسولفوثيون
304	Fenthion 55-38-9	- 0.2	- -	PPM mg/m³	sk	فينثيون
305	Ferbam 14484-64-1	- 10	- -	PPM mg/m³		فيربام

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306	Ferro vandium dust 12604-58-9	- 1	- 3	PPM mg/m^3		أغبرة فيرو فاناديوم
307	Fluorides (asF) 16984-48-8	- 2.5	- -	PPM mg/m^3		الفلوريدات
308	Fluorine 7782-41-4	1 1.6	2 3.1	PPM mg/m^3		الفلور
309	Fonofos 944-22-9	- 0.1	- -	PPM mg/m^3	sk	فونفوس
310	Formaldehyde 50-00-0	- -	0.3 0.4	PPM mg/m^3	C_2 sk	فورم ألدهيد
311	Formamide 75-12-7	10 18	- -	PPM mg/m^3	sk	فورماميد
312	Formic acid 64-18-6	5 9.4	10 19	PPM mg/m^3		حمض الفورميك
313	Furfural 98-01-1	2 7.9	- -	PPM mg/m^3	sk	فورفورال
314	Furfuryl alcohol 98-00-0	10 40	15 60	PPM mg/m^3	sk	الكحول الفورفوريلي
315	Gasoline 8006-61-9	300 890	500 1480	PPM mg/m^3		جازولين
316	Germanium tetra hydride 7782-65-2	0.2 0.63	- -	PPM mg/m^3		رباعي هيدريد الجرمانيوم
317	Glutar aldehyde 111-30-8	- -	0.2* 0.82*	PPM mg/m^3		جلوتار ألدهيد
318	Glycidol 556-52-5	2 6.1	- -	PPM mg/m^3	C_3	غليسيدول
319	Glycerin mist 65-81-5	- 10	- -	PPM mg/m^3		أبخرة الغليسرين
320	Grain dust (oat, wheat, barley)	- 4	- -	PPM mg/m^3		أغبرة الحبوب
321	Graphite (all forms except graphite fibers) 7782-42-5	- 2	- -	PPM mg/m^3		الغرافيت (جميع الأشكال باستثناء ألياف الغرافيت)
322	Hafnium 7440-58-6	- 0.5	- -	PPM mg/m^3		هافيوم
323	Halothane 151-67-7	50 404	- -	PPM mg/m^3		هالوثان
	Heptachlor	-	-	PPM	C_3	هبتاكلور

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324	76-44-8	0.5	-	mg/m^3	sk	
325	Heptachlor epoxide 1024-57-3	- 0.05	- -	PPM mg/m^3	C_3 sk	هبتا كلور إيبوكسيد
326	n-Heptane 142-82-5	400 1640	500 3060	PPM mg/m^3		ن-هبتان
327	2-Heptanone 110-43-0	50 233	- -	PPM mg/m^3		2- هيبتانون
328	3-Heptanone 106-35-4	50 234	- -	PPM mg/m^3		3- هبتانون
329	Hexa chloro benzene 118-47-1	- 0.025	- -	PPM mg/m^3	C_3 sk	هكزا كلورو بنزن
330	Hexa chloro butadiene 87-68-3	0.02 0.21	- -	PPM mg/m^3	C_2 sk	هكزا كلورو بوتاديين
331	Hexa chloro cyclo pentadiene 77-47-4	0.01 0.11	- -	PPM mg/m^3		هكزا كلورو سيكلو بنتاديين
332	1,2,3,4,5-Hexa chloro cyclohexane (mixed isomers) 608-73-1	- 0.5	- -	PPM mg/m^3	C_3 sk	6,5,4,3,2,1 - هكزا كلور سيكلو هكزان (إيزوميرات مختلطة)
333	Hexa chloro ethane 67-72-1	1 9.7	- -	PPM mg/m^3	C_2 sk	هكزا كلورو إيثان
334	Hexa chloro naphthalene 1335-87-1	- 0.2	- -	PPM mg/m^3	sk	هكزا كلورو نفتالين
335	Hexa fluoro acetone 684-16-2	0.1 0.68	- -	PPM mg/m^3	sk	هكزا فلورو أسيتون
336	Hexa methylene diiso cyanate 822-06-0	0.005 0.035	- -	PPM mg/m^3		هكزا ميثيلين دي إيزو سيانات
337	1,6-Hexane diamine 124-09-4	0.5 2.3	- -	PPM mg/m^3		6,1- هكزان دي أمين
338	n-Hexane 10-54-3	50 176	- -	PPM mg/m^3		ن- هكزان
339	2-Hexanone 591-78-6	5 20	- -	PPM mg/m^3	sk	2- هكزانون
340	Hexanoe 108-10-1	50 205	75 307	PPM mg/m^3		هكزون
341	sec-Hexyl acetate 108-84-9	50 295	- -	PPM mg/m^3		سيك - هكزيل أسيتات

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342	Hexylene glycol 107-41-5	- -	25* 121*	PPM mg/m^3		هكزيلين جليكول
343	Hydrazine and salts 302-01-2	- -	0 0	PPM mg/m^3	C_2 sk	الهيدرازين وأملاحه
344	Hydrogenated terphynyls 61788-32-7	0.5 4.9	- -	PPM mg/m^3		تيرفينيلات مهدرجة
345	Hydrogen bromide 10035-10-6	- -	3* 9.9*	PPM mg/m^3		بروميد الهيدروجين
346	Hydrogen chloride 7647-01-0	- -	5* 7.5*	PPM mg/m^3		كلوريد الهيدروجين
347	Hydrogen cyanide 74-90-8	- -	4.7* 5*	PPM mg/m^3	sk	سيانيد الهيدروجين
348	Hydrogen fluoride 7664-39-3	- -	3* 2.3*	PPM mg/m^3		فلوريد الهيدروجين
349	Hydrogen peroxide 77722-84-1	1 1.4	- -	PPM mg/m^3		بيروكسيد الهيدروجين
350	Hydrogen selenide 7783-07-5	0.05 0.16	- -	PPM mg/m^3		سيلينيد الهيدروجين
351	Hydrogen sulifide 7783-06-4	10 14	15 21	PPM mg/m^3		سولفيد الهيدروجين
352	Hydro quinone 123-31-9	- 2	- -	PPM mg/m^3		هيدروكينون
353	2-Hydroxy proply acylate 999-61-1	0.5 2.8	- -	PPM mg/m^3	sk	2- هيدر وكسي بروبيل أكريلات
354	2-lmidazolidine thione 96-45-7	- 0.2	- -	PPM mg/m^3	C_2	2- إيميدازوليدين ثيون
355	Indene 95-13-6	10 48	- -	PPM mg/m^3		إندين
356	Indium 7440-74-6	- 0.1-	- -	PPM mg/m^3		إنديوم
357	Iodine 7553-5-2	- -	0.1* 1.0*	PPM mg/m^3		يودين
358	Iodoform 75-47-8	0.6 10	- -	PPM mg/m^3		يودوفورم
359	Iron oxide 1309-37-1	- 5	- -	PPM mg/m^3		أوكسيد الحديد
	Iron penta carbonyl	0.1	0.2	PPM		بنتا كاربونيل الحديد

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360	13463-40-6	0.23	0.45	mg/m^3		
361	Iso amyl acetate 123-92-2	100 532	- -	PPM mg/m^3		إيزو أميل أسيتات
362	Iso amyl alcohol 123-51-3	100 361	125 452	PPM mg/m^3		الكحول الإيزو أميلي
363	Iso butyl acetate 110-19-0	150 713	- -	PPM mg/m^3		إيزوبوتيل أسيتات
364	Iso butyl aclcohol 78-83-1	50 152	- -	PPM mg/m^3		الكحول الإيزو بوتيلي
365	Iso oclyl alcohol 26952-21-6	50 266	- -	PPM mg/m^3	sk	كحول الإيزو أوكتيل
366	Iso phorone 78-59-1	- -	5* 28*	PPM mg/m^3	C_3	إيزو فورون
367	Iso phorone diso cyanate 4098-71-9	0.005 0.045	- -	PPM mg/m^3		إيزو فورون دي إيزو سيانات
368	Iso propxy ethanol 109-59-1	25 106	- -	PPM mg/m^3	sk	إيزو بروبوكسي إيثانول
369	Iso propyl acetate 108-21-4	250 1040	310 1290	PPM mg/m^3		إيزو بروبيل أسيتات
370	Iso-propyl alcohol 67-63-0	400 983	500 1230	PPM mg/m^3		الكحول الإيزو بروبيلي
371	Iso propyl amine 75-31-0	5 12	10 24	PPM mg/m^3		إيزو بروبيل أمين
372	n-Iso propyl aniline 768-52-5	2 11	- -	PPM mg/m^3	sk	ن-إيزو بروبيل أنيلين
373	Iso propyl ether 108-20-3	250 1040	310 1300	PPM mg/m^3		إيزو بروبيل إيتر
374	Iso propyl glycidyl ether 4016-14-2	50 238	75 356	PPM mg/m^3		إيزو بروبيل جليسيديل ايتر
375	Kaolin 1332-58-7	- 2	- -	PPM mg/m^3		كاؤلين
376	Ketone 463-51-4	0.5 0.86	1.5 2.6	PPM mg/m^3		كيتين
377	Lead (elemental) 7439-92-1	- 0.05	- -	PPM mg/m^3	C_3	الرصاص
378	Lead (compunds-intrganic) as pb 7439-92-1	- 0.05	- -	PPM mg/m^3	C_3	الرصاص (مركبات غير عضوية)

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379	Lead arsenate 3687-31-8	- 0.15	- -	PPM mg/m^3	C_3	زرنيخات الرصاص
380	Lead chromate (as pb) 7758-97-6	- 0.05	- -	PPM mg/m^3	C_2	كرومات الرصاص
381	Lead chromate (as cr) 7758-97-6	- 0.012	- -	PPM mg/m^3	C_2	كرومات الرصاص
382	Lead tetra ethyl 78-00-2	- 0.1	- -	PPM mg/m^3	sk	تترا إيثيل الرصاص
383	Lead tetra methyl 75-74-1	- 0.15	- -	PPM mg/m^3	sk	تترا ميثيل الرصاص
384	Lindane 58-89-9	- 0.5	- -	PPM mg/m^3	C_3 sk	ليندان
385	Lithium hydride 7580-67-8	- 0.025	- -	PPM mg/m^3		هيدريد الليثيوم
386	L.P.G 68476-85-7	1000 1800	- -	PPM mg/m^3		ل . ب . ج
387	Magnesite 546-93-0	- 10	- -	PPM mg/m^3		ماغنيزيت
388	Magnesium oxide fume 1309-48-4	- 10	- -	PPM mg/m^3		أدخنة أوكسيد المغنزيوم
389	Malathion 121-75-5	- 10	- -	PPM mg/m^3	sk	مالاثيون
390	Maleic anhydride 108-31-6	0.25 1.0	- -	PPM mg/m^3		ماليك أنهيدريد
391	Manganese and compounds (inorganic) 7439-96-5	- 0.2	- -	PPM mg/m^3		المنغنيز ومركباته غير العضوية
392	Manganese cyclo pentadienyl tri carbonyl 12079-65-1	- 0.1	- -	PPM mg/m^3	sk	منغنيز سيكلو بنتاديينيل تري كاربونيل
393	Mercury (fumes) 7439-97-6	- 0.05	- -	PPM mg/m^3	sk	الرئبق (أدخنة)
394	Mercury alkyls 7439-97-6	- 0.01	- 0.3	PPM mg/m^3		ألكيلات الزئبق
395	Mercury aryl compounds 7439-97-6	- 0.1	- -	PPM mg/m^3		مركبات أريل الزئبق

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396	Mexityl oxide 141-79-7	15 60	25 100	PPM mg/m³		أوكسيد الميزيتيل
397	Metharcylic acid 79-41-4	20 70	- -	PPM mg/m³		حمض الميتاكريليك
398	Methanol 67-56-1	200 262	250 328	PPM mg/m³	sk	ميثانول
399	Methomyl 16752-77-5	- 2.5	- -	PPM mg/m³		ميتوميل
400	2-Methoxy aniline 90-04-0	0.1 0.5	- -	PPM mg/m³	C3	2- ميتوكسي أنيلين
401	2-Methoxy chloride 72-43-5	- 10	- -	PPM mg/m³		2- ميتوكسي كلوريد
402	2-Methoxy ethanol 109-86-4	5 16	- -	PPM mg/m³	sk	2- متوكسي إيثانول
403	Methyl acetate 79-20-9	200 606	250 757	PPM mg/m³		خلات الميثيل
404	Methyl acetylene 74-99-7	1000 1640	- -	PPM mg/m³		ميثيل أستيلين
405	Methyl acetylene-propadiene mixture	1000 1640	1250 2050	PPM mg/m³		مزيج ميثيل الأستيلين والبروباديين
406	Methyl acrylate 96-33-3	10 35	- -	PPM mg/m³	sk	ميثيل أكريلات
407	Methyl amine 74-89-5	5 6.4	15 19	PPM mg/m³		ميثيل أمين
408	n-methyl amethyl aniline 100-61-8	0.5 2.2	- -	PPM mg/m³	sk	ن-ميثيل أنيلين
409	Methyl-tert-butyl ether 1634-04-4	40 145	- -	PPM mg/m³	C3	ميثيل - تريت - بوتيل إيتر
410	Methyl chloride 74-87-3	50 103	100 207	PPM mg/m³	sk	ميثيل كلوريد
411	Methyl chloroform 71-55-6	350 1910	450 2460	PPM mg/m³		ميثيل كروروفورم
412	Methyl cyclo hexane 108-87-2	400 1610	- -	PPM mg/m³		ميثيل سيكلوهكزان
413	Methyl cyclo hexanol 25639-42-3	50 234	- -	PPM mg/m³		ميثيل سيكلوهكزانول
414	Methyl cyclo hexanone	50 229	75 344	PPM mg/m³	sk	ميثيل سيكلور هكزانون

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	583-60-8					
	Methyl demeton	-	-	PPM		ميثيل ديميتون
415	8022-00-2	0.5	-	mg/m³	sk	
	Methyl hydrazine	0.01	-	PPM	C_2	ميثيل هيدرازين
416	60-34-4	0.2	-	mg/m³		
	Methyl iodide	2	-	PPM	C_2	يود الميثيل
417	74-88-4	12	-	mg/m³		
	Methyl iso amyl ketone	50	-	PPM		ميثيل إيزو أميل كيتون
418	110-12-3	234	-	mg/m³		
	Methyl iso butyl carbinol	25	40	PPM		ميثيل إيزو بوتيل كاربينول
419	108-11-2	104	167	mg/m³		
	Methyl iso syanate	0.02	-	PPM		ميثيل إيزو سيانات
420	624-83-9	0.047	-	mg/m³	sk	
	Methyl mercapian	0.5	-	PPM		ميثيل مير كابتان
421	74-93-1	0.98	-	mg/m³		
	Methyl methacrylate	100	-	PPM		ميثيل ميتا كريلات
422	80-62-6	410	-	mg/m³		
	Methyl parathion	-	-	PPM		ميثيل باراثيون
423	298-00-00	0.2	-	mg/m³	sk	
	Mica	-	-	PPM		ميكا
424	12001-26-2	3	-	mg/m³		
	Molybdenum (insoluble compounds as Mo)	- 10	-	PPM		مولبيدن (مركبات غير منحلة)
425	7439-98-7		-	mg/m³		
	Molybedenum (soluble compounds as Mo)	-	-	PPM		موليبدن (مركبات منحلة)
426	7439-98-7	5	-	mg/m³		
	Mono crotophos	-	-	PPM		مونو كروتوفوس
427	6923-22-4	0.25	-	mg/m³	sk	
	Morpholine	20	-	PPM		مورفولين
428	110-91-8	71	-	mg/m³	sk	
	Naptha (coal tar)	-	-	PPM		نافتا
429	8030-30-6	44	-	mg/m³		
	Naphthalene	10	15	PPM		نافتالين
430	91-20-3	52	79	mg/m³		
	1-Naphthyl amine	-	0	PPM	C_1	1- نافتيل أمين
431	134-32-7	-	0	mg/m³		
	2-Naphthyl amine	-	0	PPM	C_1	2- نافتيل أمين

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432	91-59-8	-	0	mg/m^3		
433	Nickel-elemental (insoluble and soluble compounds) as Ni 7440-02-0	- 0.05	- -	PPM mg/m^3	C_1	النيكل (مركبات منحلة وغير منحلة)
434	Nickel (formed in nickel) orerosting process 7440-02-0	- 0.5	- -	PPM mg/m^3	C_1	النيكـل
435	Nickel carbonate 3333-67-3	- 01	- -	PPM mg/m^3	C_1	كربونات النيكل
436	Nickel carbonyl 13463-39-3	- -	0 0	PPM mg/m^3	C_1	كاربونيل النيكل
437	Nickel chromium phosphate 13977-71-4	- 0.005	- -	PPM mg/m^3	C_3	نيكل كروميوم فوسفات
438	Nickel mono oxide 1313-99-1	- 0.1	- -	PPM mg/m^3	C_1	مونو أوكسيد النيكل
439	Nickel-III- oxide 1314-06-3	- 0.1	- -	PPM mg/m^3	C_3	نيكل -III- أوكسيد
440	Nickel subsulfide 12035-72-2	- 0.01	- -	PPM mg/m^3	C_3	تحت سولفيد النيكل
441	Nickel sulphide roasting (dust and/or fume) 16812-54-7	- 0.5	- -	PPM mg/m^3	C_1	سولفيد النيكل أغبرة و/ أو أدخنة
442	Nicotine 54-11-5	- 0.5	- -	PPM mg/m^3	sk	نيكوتين
443	Nitric acid 7697-37-2	2 5.2	4 10	PPM mg/m^3		حمض النيتريك
444	Nitric oxide 10102-43-9	25 31	- -	PPM mg/m^3		أوكسيد النتريك
445	P-Nitro aniline 100-01-6	- 3	- -	PPM mg/m^3	sk	بارا-نترو أنيلين
446	Nitro benzene 98-95-3	1 5	- -	PPM mg/m^3	sk	نترو بنزن
447	Nitro ethane 79-24-3	100 307	- -	PPM mg/m^3		نترو إيثان
448	Nitrogen dioxide 10102-44-0	3 5.6	5 9.4	PPM mg/m^3		دي أوكسيد الآزوت
449	Nitrogen trifuoride 7783-54-2	10 29	- -	PPM mg/m^3		تري فلوريد الآزوت

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450	Nitro glycerin 55-63-00	0.05 0.46	- -	PPM mg/m³	sk	نترو غليسرين
451	1- Nitro propane 108-03-2	25 91	- -	PPM mg/m³		1- نترو بروبان
452	2- Nitro propane 79-46-9	5 18	40 150	PPM mg/m³	C_2	2- نترو بروبان
453	m-Nitro toluene 99-08-1	2 11	- -	PPM mg/m³	sk	ميتا-نتروتولوين
454	O-Nitro toluene 88-72-2	2 11	- -	PPM mg/m³	sk	أورتو- نترولوين
455	P-Nitro toluene 99-99-0	2 11	- -	PPM mg/m³	sk	بارا -نترو تولوين
456	Nitrous oxide 10024-97-2	50 90	- -	PPM mg/m³		أوكسيد النتروز
457	Nonane 111-84-2	200 1050	- -	PPM mg/m³		نونان
458	Octa chloro naphthalene 2234-13-1	- 0.1	- 0.3	PPM mg/m³	sk	أوكتا كلور نفثالين
459	Octane 111-65-9	300 1400	375 1750	PPM mg/m³		أوكتان
460	Oil mist (mineral) mildly refined	- 0.2	- -	PPM mg/m³	C_1	أبخرة زيت النفط الخام
461	Osmium tetroxide (as OS) 20816-12-0	0.0002 0.0016	0.0006 0.0047	PPM mg/m³		تترا أوكسيد الأوزميوم
462	Oxalic acid 144-62-7	- 1	- 2	PPM mg/m³		حمض الأوكزاليك
463	Oxygen difluoride 7783-41-7	- -	0.05* 0.11*	PPM mg/m³		دي فلوريد الأوكسجين
464	Ozone 10028-15-6	- -	0.1* 0.20*	PPM mg/m³		الأوزون
465	Paraffine wax (fumes) 8002-74-2	- 2	- -	PPM mg/m³		شمع البارافين (أدخنة)
466	Paraquat 4685-14-7	- 0.1	- -	PPM mg/m³		باراكوات
467	Parathion 56-38-2	- 0.1	- -	PPM mg/m³	sk	باراثيون

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468	Penta borane 19624-22-7	0.005 0.013	0.015 0.039	PPM mg/m^3		بنتابوران
469	Penta chloro napthalene 1321-64-8	- 0.5	- -	PPM mg/m^3	sk	بنتا كلورو نفتالين
470	Penta chloro phenol 87-86-5	0.05 0.5	- -	PPM mg/m^3	sk	بنتا كلورو فينول
471	Penta erythriol 115-77-5	- 10	- -	PPM mg/m^3		بنتا اريتريتول
472	n-Pentane 109-66-0	600 1770	750 2210	PPM mg/m^3		ن-بنتان
473	2-Pentanone 107-87-9	200 705	250 881	PPM mg/m^3		2- بنتانون
474	Per chloro ethylene 127-18-4	25 170	100 685	PPM mg/m^3	C_3	بيرآلورو إثيلين
475	Per chloro methyl mercaptan 594-42-3	0.1 0.76	- -	PPM mg/m^3		بير كلورو ميثيل مير كابتان
476	Per chloryl fluoride 7616-94-6	3 13	6 2.5	PPM mg/m^3		بير كلوريل فلوريد
477	Perfluoro iso bytylene 382-21-8	- -	0.01* 0.082*	PPM mg/m^3		بير فلورو إيزوبوتيلين
478	Phenol 108-95-2	5 19	- -	PPM mg/m^3	sk	فينول
479	Pehnothiazine 92-84-2	- 5	- -	PPM mg/m^3	sk	فينولثيازين
480	m- Phenylene diamine 108-45-2	- 0.1	- -	PPM mg/m^3		ميتا - فينيلين دي أمين
481	o-Phenylene diamine 95-54-5	- 0.1	- -	PPM mg/m^3	C_3	أورتو-فينيلين دين أمين
482	p-Phenlene diamine 106-50-3	- 0.1	- -	PPM mg/m^3		بارا-فينيلين دي أمين
483	Phenyl ether (vapor) 101-84-8	1 7	2 14	PPM mg/m^3		فينيل إيثر (بخار)
484	Phenyl glycidyl ether 122-60-1	0.1 0.6	- -	PPM mg/m^3	C_3 sk	فينيل جليسيديل ايتر
485	Phenyl hydrazine 100-63-0	0.1 0.44	- -	PPM mg/m^3	C_2 sk	فينيل هيدرازين
	Phenyl mercaptan	0.5	-	PPM		فينيل ميركابتان

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486	108-98-5	2.3	-	mg/m^3		
	Phenyl phosphine	-	0.05*	PPM		فينيل فوسفين
487	638-21-1	-	0.23*	mg/m^3		
	Phorate	-	-	PPM		فورات
488	298-02-2	0.05	0.2	mg/m^3	sk	
	Phosphine	0.3	1	PPM		الفوسفين
489	7803-51-2	0.42	1.4	mg/m^3		
	Phsphoric acid	-	-	PPM		حمض الفوسفور
490	7664-38-2	1	3	mg/m^3		
	Phosphorus (yellow)	0.02	-	PPM		الفوسفور (الأصفر)
491	7723-14-0	0.1	-	mg/m^3		
	Phosphorus oxy chloride	0.1	-	PPM		أوكسي كلوريد الفوسفور
492	10025-87-3	0.63	-	mg/m^3		
	Phosphorus penta chloride	0.1	-	PPM		بنتا كلوريد الفوسفور
493	10026-13-8	0.85	-	mg/m^3		
	Phosphorus penta sulfide	-	-	PPM		بنتا سولفيد الفوسفور
494	1314-80-3	1	3	mg/m^3		
	Phosphorus trichloride	0.2	0.5	PPM		تري كلوريد الفوسفور
495	7719-12-2	1.1	2.8	mg/m^3		
	Phthalic anhydride	1	-	PPM		أنهيدريد الفتاليك
496	85-44-9	6.1	-	mg/m^3		
	m-Phthalo dinitrile	-	-	PPM		ميتا-فتالو دي نتريل
497	626-17-5	5	-	mg/m^3		
	Picloram	-	-	PPM		بيكلورام
498	1918-02-1	10	-	mg/m^3		
	Picric acid	-	-	PPM		حمض البيكريك
499	88-39-1	0.1	-	mg/m^3		
	Pindone	-	-	PPM		بيندون
500	83-26-1	0.1	-	mg/m^3		
	Piperazine dihydro chloride	-	-	PPM		بيرازين دي هيدروكلوريد
501	142-64-3	5	-	mg/m^3		
	Platinum (soluble salts as pt)	-	-	PPM		بلاتينيوم (أملاح منحلة)
502	7440-06-4	0.002	-	mg/m^3		
	Poly chlorinated biphenyl	-	-	PPM	C_3	عديد البيفينيل المكلور
503	1336-36-3	0.5	-	mg/m^3		

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504	Portland cement 65997-15-1	- 10	- -	PPM mg/m³		اسمنت بورتلاند
505	Postassium hydroxide 1310-58-3	- -	- 2*	PPM mg/m³		هيدر وكسيد البوتاسيوم
506	Potassium zinc chromate hydroxide 11103-86-9	- 0.01	- -	PPM mg/m³	C_1	بوتاسيوم زنك كرومات هيدر وكسيد
507	Propargyl alcohol 107-19-7	1 2.3	- -	PPM mg/m³	sk	كحول البروبارجيل
508	beta-Propiolactone 57-57-8	- 1	- 2	PPM mg/m³	C_1	بتا-بروبيولاكتون
509	Propionic acid 79-09-4	10 30	- -	PPM mg/m³		بروبيونيك أسيد
510	Propoxur 114-26-1	- 05	- -	PPM mg/m³		بروبوكسور
511	n-Propyl acetate 109-60-4	200 835	250 1040	PPM mg/m³		ن-خلات البروبيل
512	n-Propyl alcohol 71-23-8	200 592	250 614	PPM mg/m³	sk	ن-الكحول البروبيلي
513	Propylene gylcol dinitrate 6423-43-4	0.05 0.34	- -	PPM mg/m³	sk	بروبيلين جليكول دي نترات
514	Propylene glycol mono methyl ether 107-98-2	100 369	150 553	PPM mg/m³		بروبيلين جليكول مونو ميتيل إيتر
515	Propylene imine 75-55-8	- -	0 0	PPM mg/m³	C_2 sk	بروبيلين إيمين
516	Propylene oxide 75-56-9	5 12	- -	PPM mg/m³	C_2	أوكسيد البروبيلين
517	n-Propyl nitrate 627-13-4	25 107	40 172	PPM mg/m³		ن-نترات البروبيل
518	Pyrethum 8003-34-7	- 5	- -	PPM mg/m³		بيريثرام
519	Pyridine 110-86-1	5 16	- -	PPM mg/m³		بيريدين
520	Quartz 14808-60-7	- 0.1	- -	PPM mg/m³		كوارتز
521	Quinone 106-51-4	0.1 0.44	- -	PPM mg/m³		كينون

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522	Resorcinol 108-64-3	10 4.5	20 90	PPM mg/m³		ريزورسينول
523	Rhodium (fumes and insoluble-compounds, as Rh) 7440-16-6	- 1	- -	PPM mg/m³		روديوم(أبخرة ومركبات غير منحلة)
524	Rhodium (soluble compounds- as Rh) 7440-16-6	- 0.01	- -	PPM mg/m³		روديوم (مركبات منحلة)
525	Ronnel 299-84-3	- 10	- -	PPM mg/m³		رونيل
526	Rotenone (commercial) 83-79-4	- 5	- -	PPM mg/m³		روتينون (تجاري)
527	Selenium compounds (as Se) 7782-49-2	- 0.2	- -	PPM mg/m³		مركبات السيلنيوم
528	Selenium hexa fluoride 7783-79-1	0.05 0.16	- -	PPM mg/m³		هكزا فلوريد السيلنيوم
529	Sesone 136-78-7	- 10	- -	PPM mg/m³		سيزون
530	Silane 7803-62-5	5 6.6	- -	PPM mg/m³		سيلان
531	Silica (inhalable particulate)	- 10	- -	PPM mg/m³		سيليكا(جزيئات مستنشقة)
532	Silica (respirabel particulate)	- 3	- -	PPM mg/m³		سيليكا (جزئيات متنفسة)
533	Silica fume 69012-64-2	- 2	- -	PPM mg/m³		أدخنة السيليكا
534	Silica fused 60676-86-0	- 0.1	- -	PPM mg/m³		سيليكا ملتحمة
535	Silicagel 112926-00-8	- 10	- -	PPM mg/m³		سيليكا جيل
536	Silica crystalline cristobailite 14464-46-1	- 0.05	- -	PPM mg/m³		كريستو باليت (سيليكا متبلورة)
537	Silicon carbide 409-21-2	- 10	- -	PPM mg/m³		كاربيد السيليكون
538	Silver (soluble compounds) 7440-22-4	- 0.01	- -	PPM mg/m³		فضة(مركبات منحلة)

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539	Sodium azide 26628-22-8	- -	0.11* 0.29*	PPM mg/m³		آزيد الصوديوم
540	Sodium bisulfite 7631-90-5	- 5	- -	PPM mg/m³		بيسولفيت الصوديوم
541	Sodium fluoro acetate 62-74-8	- 0.05	- -	PPM mg/m³	sk	فلورو أسيتات الصوديوم
542	Sodium hydroxide 1310-73-2	- -	- 2*	PPM mg/m³		هيدروكسي الصوديوم
543	Sodium metabisulfite 7681-57-4	- 5	- -	PPM mg/m³		ميتا بيسولوفيت الصوديوم
544	Starch 9005-25-8	- 10	- -	PPM mg/m³		ستارش
545	Stearates	- 10	- -	PPM mg/m³		ستيرات
546	Stibine 7803-53-3	0.1 0.51	- -	PPM mg/m³		ستيبين
547	Stoddard solvent 8052-41-3	100 525	- -	PPM mg/m³		مذيب-ستودارد
548	Strntium chromate (as Cr) 7789-06-2	- 0.0005	- -	PPM mg/m³	C_2	كرومات التسرونتيوم
549	Styrene 100-42-5	20 85	- -	PPM mg/m³	C_3 sk	ستيرين
550	Styrene monomer 100-42-5	50 213	100 426	PPM mg/m³	sk	ستيرين مونومير
551	Sulfure dioxide 7446-09-5	2 5.2	5 13	PPM mg/m³		دي أوكسيد الكبريت
552	Sulfuric acid 7664-93-9	- 1	- 3	PPM mg/m³		حمض الكبريت
553	Sulfur mono chloride 10025-67-9	- -	1* 5.5*	PPM mg/m³		مونو كلوريد الكبريت
554	Sulfur penta fluoride 5714-22-7	- -	0.01* 0.1*	PPM mg/m³		بنتا فلوريد الكبريت
555	Sulfur tetra fluoride 7783-60-0	- -	0.1* 0.44*	PPM mg/m³		تترا فلوريد الكبريت
556	Sulfuryl fluoride 2699-79-8	5 21	10 42	PPM mg/m³		سلفاريل فلوريد
	Sulprofos	-	-	PPM		سالبروفوس

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557	35400-43-2	1	-	mg/m³		
558	2,4,5-T 93-76-5	- 10	- -	PPM mg/m³		5,4,2 ت
559	Talc (containing no asbestors fibers) 14807-96-6	- 2	- -	PPM mg/m³		تالك (غير حاو على ألياف الأسبستوس)
560	Talc (containing asbestos fibers) use asbestos TLV-TWA	2		F/CC		تالك (يحوي ألياف الأسبستوس)
561	Tantalum 7440-25-7	- 5	- -	PPM mg/m³		التانتاليوم
562	Tantalum oxide 1314-61-0	- 5	- -	PPM mg/m³		أوكسيد التانتاليوم
563	TEDP 3689-24-5	- 0.2	- -	PPM mg/m³	sk	ت.إي.د.ب
564	Tellurium and compounds (as Te) 13494-80-9	- 0.1	- -	PPM mg/m³		التللوريوم ومركباته
565	Tellurium hexa fluoride 7783-80-4	0.02 0.10	- -	PPM mg/m³		هكزا فلوريد التللوريوم
566	Temephos 3383-96-8	- 10	- -	PPM mg/m³		تيميفوس
567	TEPP 107-49-3	0.004 0.047	- -	PPM mg/m³	sk	ت.إي.ب.ب
568	Terephthalic acid 100-21-0	- 10	- -	PPM mg/m³		تيري فتاليك أسيد
569	Terphenyls 26140-60-3	- -	0.53* 5*	PPM mg/m³		تري فينيلات
570	1,1,1,2-Tetra chloro 2,2-difluoro ethane 76-11-9	500 4170	- -	PPM mg/m³		2,1,1,1-تتراآلورو - - 2,2 دي فلورو إيثان
571	1,1,2,2-Tetra chloro-1,2- difluoro ethane 76-12-0	500 4170	- -	PPM mg/m³		2,2,1.1-تتراكلورو- 2,1 دي فلورو إيثان
572	1,1,2,2-Tetra chloro ethane 79-34-5	1 7	3 21	PPM mg/m³	C_3 sk	2,2,1,1-تترا كلورو إيثان
573	Tetra chloro naphthalene 1335-88-2	- 2	- -	PPM mg/m³		تتراكلورو النفتالين

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574	Tetra hydrofuran 109-99-9	200 590	250 737	PPM mg/m^3		تترا هيدروفوران
575	Tetra methyl succinonitrile 3333-52-6	0.5 2.8	- -	PPM mg/m^3	sk	تترا ميثيل سكسينو نتريل
576	Tetra nitro methane 509-14-8	0.005 0.04	- -	PPM mg/m^3	C_2	تترانتروميثان
577	Tetra sodium pyro phosphate 7700-88-5	- 5	- -	PPM mg/m^3		تترا بيرو فوسفات الصوديوم
578	Tetyl 479-45-8	- 1.5	- -	PPM mg/m^3	sk	تيتريل
579	Thallium (soluble compounds) 7440-28-0	- 0.1	- -	PPM mg/m^3	sk	الثاليوم (مركبات منحلة)
580	4,4-Thiobis (6-tertbutyl-m-cresol) 96-69-5	- 10	- -	PPM mg/m^3		4,4-ثيوبيز (6-تيرت-بوتيل- ميتا - كزيزول)
581	Thioglycolic acid 68-11-1	1 3.8	- -	PPM mg/m^3	sk	حمض الثيوغليكوليك
582	Thionyl chloride 7719-09-7	- -	1* 4.9*	PPM mg/m^3		كلوريد الثيونيل
583	Tiram 137-26-8	- 1	- -	PPM mg/m^3		ثيرام
584	Tin (inorganic compounds except SnH4 as Sn) 7440-31-5	- 2	- -	PPM mg/m^3		القصدير (مركبات غير عضوية ما عدا (SnH_4)
585	Tin (organic compounds as Sn) 7440-31-5	- 0.1	- 0.2	PPM mg/m^3	sk	القصدير (مركبات عضوية)
586	Titanium dioxide 13463-67-7	- 10	- -	PPM mg/m^3		دي أوكسيد التيتانيوم
587	Toluene 108-88-3	50 188	- -	PPM mg/m^3	sk	تولوين
588	Toluene2,4-diiso cyanate 584-84-9	0.005 0.036	0.02 0.14	PPM mg/m^3		تولوين -4,2-دي إيزو سيانات
589	m-Toluidine 108-44-1	2 808	- -	PPM mg/m^3	sk	ميتا-تولويدين

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590	o-Toluidine 95-53-4	2 8.8	- -	PPM mg/m³	C₂ sk	أورتو-تولويدين
591	p-Toluidine 106-49-0	2 8.8	- -	PPM mg/m³	C₂ sk	بارا-تولويدين
592	Tributyl phosphate 126-73-8	0.2 2.2	- -	PPM mg/m³		تري بوتيل الفوسفات
593	Trichloro acetic acid 76-03-9	1 6.7	- -	PPM mg/m³		تري كلورو حمض الخل
594	1,2,4-Trichloro benzene 120-82-1	- -	5* 37*	PPM mg/m³		تري كلورو-4,2,1 بنزن
595	1,1,2-Trichloro ethane 79-00-5	10 55	- -	PPM mg/m³	C₃ sk	تري كلورو-2,1,1 إيثان
596	Trichloro ethylene 79-01-6	50 269	100 537	PPM mg/m³		تري آلورو الإثيلين
597	Trichloro fluoro methane 75-69-4	- -	1000* 5620*	PPM mg/m³		تري كلورو فلورو ميثان
598	Trichloro naphthalene 1321-65-9	- 5	- -	PPM mg/m³	sk	تري كلورو نفتالين
599	1,2,3- Trichloro propane 96-18-4	10 60	- -	PPM mg/m³	sk	تري كلورو-3,2,1 بروبان
600	1,1,2-Trichloro 1,2,2-trifluoror ethane 76-13-1	1000 7670	1250 9590	PPM mg/m³		تري كلورو-2,1,1 - تري فلور وإيثان-2,2,1
601	Tridymite 15468-32-3	- 0.05	- -	PPM mg/m³		تري ديميت
602	Triethanol amine 102-71-6	- 5	- -	PPM mg/m³		تري إيثانول أمين
603	Triethyl amine 121-44-8	1 4.1	3 12	PPM mg/m³	sk	تري إيثيل أمين
604	Trimellitie anhydride 552-30-7	- -	- 0.04*	PPM mg/m³		تري أنهدريك الميلليتيك
605	Trimethyl amine 75-50-3	5 12	15 36	PPM mg/m³		تري ميثيل أمين
606	Trimethyl benzene 25551-13-7	25 123	- -	PPM mg/m³		تري ميثيل بنزن
607	Trimethyl phosphate 512-56-1	0.5 2.6	10 52	PPM mg/m³		تري ميثيل فوسفات

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608	Trimethyl phosphite 121-45-9	2 10	- -	PPM mg/m³		تري ميثيل فوسفيت
609	2,4,6-Trinitro toluene 118-96-7	- 0.5	- -	PPM mg/m³	C_3 sk	تري ننترو 6,4,2- التولوين
610	Triorth cresyl phosphate 78-30-8	- 0.1	- -	PPM mg/m³	sk	تري أورتو كريزيل فوسفات
611	Triphenyl amine 603-34-9	- 5	- -	PPM mg/m³		تري فينيل أمين
612	Triphenyl phosphate 115-86-6	- 3	- -	PPM mg/m³		تري فينيل فوسفات
613	Tungsten (insoluble compounds) 7440-33-7	- 5	- 10	PPM mg/m³		التنغستين (مركبات غير منحلة)
614	Tungsten (soluble compounds)	- 1	- 3	PPM mg/m³		التنغستين (مركبات منحلة)
615	Turpentine 8006-64-2	100 556	- -	PPM mg/m³		الثربنتين
616	Uranium (insoluble compounds) 7440-61-1	- 0.2	- 0.6	PPM mg/m³		اليورانيوم (مركبات غير منحلة)
617	Uranium (soluble compounds - as U) 74401-61-1	- 0.2	- 0.6	PPM mg/m³		يورانيوم (مركباتت منحلة)
618	n-Valer aldehyde 110-62-3	50 176	- -	PPM mg/m³		ن- فالير ألدهيد
619	Vanadium pentaoxide 1314-62-1	- 0.05	- -	PPM mg/m³		بنتا أوكسيد الفاناديوم
620	Vinyl acetate 108-05-4	10 35	15 53	PPM mg/m³	C_3	خلات الفينيل
621	Vinyl romide 593-60-2	5 20	10 40	PPM mg/m³	C_2	بروميد الفينيل
622	Vinyl chloride 75-01-4	- 1	2.5 5	PPM mg/m³	C_1 sk	كلوريد الفينيل
623	4-Vinyl cyclohexene 100-40-3	0.1 0.4	- -	PPM mg/m³	C_2 sk	4- فينيل سيكلو هكزن
624	Vinyl cyclohexene dixoide 106-87-6	0.1 0.57	- -	PPM mg/m³	C_3 sk	فينيل سيكلو هكزن دي اوكسيد

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625	Vinyl toluene 25013-15-4	50 242	100 483	PPM mg/m^3		فينيل تولوين
628	Warfarin 81-81-2	- 0.1	- -	PPM mg/m^3		وارفارين
629	Welding fumes	- 5	- -	PPM mg/m^3		أبخرة اللحام المعدني
630	Wood hard dusts (certain hard wood)	- 1	- -	PPM mg/m^3	C_1	أغبرة الخشب القاسي
631	Wood (soft) dusts	- 5	- -	PPM mg/m^3	C_1	أغبرة الخشب اللين
632	V&P-naphtha 8032-32-4	300 1370	- -	PPM mg/m^3		نافتا P,V
633	Xylene (all isomers) 1330-20-7	100 434	150 651	PPM mg/m^3		كزيلين (جميع الإيزوميرات)
634	Xylidine 1300-73-8	0.5 2.5	- -	PPM mg/m^3	C_2 sk	كزيليدين
635	2,4-Xylidine 95-68-1	2 10	- -	PPM mg/m^3	C_3 sk	4,2 كزيليدين
636	Xylidine (mixed isomers) 1300-73-8	0.5 2.5	- -	PPM mg/m^3	C_2 sk	كزيليدين (إيزوميرات مختلطة)
637	Ytrium compounds (as Y) 7440-65-5	- 1	- -	PPM mg/m^3		مركبات الإيثريوم
638	Zinc Chromate 13530-65-9 11103-86-9 3730-23-5	- 0.01	- -	PPM mg/m^3	C_1	كرومات الزنك
639	Zinc chloride fume 7646-85-6	- 1	- -	PPM mg/m^3		أدخنة كلوريد الزنك
640	Zinc oxide fumes 1314-13-2	- 5	- 10	PPM mg/m^3		أدخنة أوكسيد الزنك
641	Zirconium compounds (as Zr) 7440-67-7	- 5	- 10	PPM mg/m^3		مركبات الزركونيوم

Appendix (4)

Examples of desensitized explosives

The following examples of desensitized explosives are taken from the Dangerous Goods List in the UN Model Regulations[29]:

UN Number	**Name and description**
Solid Desensitized Explosives	
UN 1310	AMMONIUM PICRATE WETTED with not less than 10% water by mass
UN 1320	DINITROPHENOL WETTED with not less than 15% water by mass
UN 1321	DINITROPHENOLATES, WETTED with not less than 15% water, by mass
UN 1322	DINITRORESORCINOL, WETTED with not less than 15% water, by mass
UN 1336	NITROGUANIDINE (PICRITE), WETTED with not less than 20% water, by mass
UN 1337	NITROSTARCH, WETTED with not less than 20% water, by mass
UN 1344	TRINITROPHENOL, WETTED with not less than 30% water, by mass
UN 1347	SILVER PICRATE, WETTED with not less than 30% water, by mass
UN 1348	SODIUM DINITRO-o-CRESOLATE, WETTED with not less than 15% water, by mass
UN 1349	SODIUM PICRAMATE, WETTED with not less than 20% water, by mass
UN 1354	TRINITROBENZENE, WETTED with not less than 30% water, by mass
UN 1355	TRINITROBENZOIC ACID, WETTED with not less than 30% water, by mass
UN 1356	TRINITROTOLUENE (TNT) WETTED with not less than 30% water by mass
UN 1357	UREA NITRATE, WETTED with not less than 20 % water by mass
UN 1517	ZIRCONIUM PICRAMATE, WETTED with not less than 20% water, by mass
UN 1571	BARIUM AZIDE, WETTED with not less than 50% water, by mass
UN 2555	NITROCELLULOSE WITH WATER (not less than 25% water by mass)
UN 2556	NITROCELLULOSE WITH ALCOHOL (not less than 25% alcohol by mass, and not more than 12.6% nitrogen by dry mass
UN 2557	NITROCELLULOSE, with not more than 12.6% nitrogen, by dry mass, MIXTURE WITH or WITHOUT PLASTICIZER, WITH or WITHOUT PIGMENT
UN 2852	DIPICRYL SULPHIDE, WETTED withnot less than 10% water, by mass
UN 2907	ISOSORBIDE DINITRATE MIXTURE with not less than 60% lactose, mannose, starch or calcium hydrogen phosphate

[29] https://unece.org/rev-21-2019 *(UN Model Regulations, 2019)*

UN 3317	2-AMINO-4,6-DINITROPHENOL, WETTED with not less than 20% water, by mass
UN 3319	NITROGLYCERIN MIXTURE, DESENSITIZED, SOLID, N.O.S. with more than 2% but not more than 10% nitroglycerin, by mass
UN 3344	PENTAERYTHRITE TETRANITRATE MIXTURE, DESENSITIZED, SOLID, N.O.S. with more than 10% but not more than 20% PETN, by mass
UN 3364	TRINITROPHENOL (PICRIC ACID), WETTED with not less than 10% water by mass
UN 3365	TRINITROCHLOROBENZENE (PICRYL CHLORIDE), WETTED, with not less than 10% water by mass
UN 3366	TRINITROTOLUENE (TNT), WETTED, with not less than 10% water by mass
UN 3367	TRINITROBENZENE, WETTED, with not less than 10% water by mass
UN 3368	TRINITROBENZOIC ACID, WETTED, with not less than 10% water by mass
UN 3369	SODIUM DINITRO-o-CRESOLATE, WETTED, with not less than 10% water by mass
UN 3370	UREA NITRATE, WETTED, with not less than 10% water by mass
UN 3376	4-NITROPHENYLHYDRAZINE, with not less than 30% water by mass
UN 3380	DESENSITIZED EXPLOSIVE, SOLID, N.O.S.
UN 3474	1-HYDROXYBENZOTRIAZOLE MONOHYDRATE
Liquid Desensitized Explosives	
UN 1204	NITROGLYCERIN SOLUTION IN ALCOHOL with not more than 1% nitroglycerin
UN 2059	NITROCELLULOSE SOLUTION, FLAMMABLE with not more than 12.6% nitrogen, by dry mass, and not more than 55% nitrocellulose
UN 3064	NITROGLYCERIN, SOLUTION IN ALCOHOL with more than 1% but not more than 5% nitroglycerin
UN 3343	NITROGLYCERIN MIXTURE, DESENSITIZED, LIQUID, FLAMMABLE, N.O.S. with not more than 30% nitroglycerin, by mass
UN 3357	NITROGLYCERIN MIXTURE, DESENSITIZED, LIQUID, N.O.S. with not more than 30% nitroglycerin, by mass
UN 3379	DESENSITIZED EXPLOSIVE, LIQUID, N.O.S.

Appendix (5)

Setting up a chemicals register in the GCC States – guidance from the WHO document "National chemicals registers and inventories: benefits and approaches to development"[30]

Reliable information on chemicals at international and regional levels is required to inform national decision-making and thus minimize the negative effects of chemicals on humans and the environment. The Strategic Approach to International Chemicals Management (SAICM) states that "knowledge and information are basic needs for decision-making for the sound management of chemicals, including products and articles containing chemicals"[31].

As such, GCC States should establish a regional register or, if needed, national registers that are compatible with each other to encourage coordination.

The following principles may be considered in setting up a database:

- Before deciding how chemicals should be controlled, those that should be controlled should be identified.
- Such decisions require organized information about the chemicals produced, imported and used in a country and about the risks associated with their marketing and use.
- Legislation should oblige producers, importers and other stakeholders to submit adequate information on chemicals to the appropriate government body and authorize the government to collect additional information, including confidential commercial information, as appropriate.
- Laws should also provide for the communication of information on safe handling and use to all people, including workers, farmers and consumers, who may come into contact with potentially harmful chemicals at any stage of their life cycle.

Several types of information or data should be collected at national level in order to facilitate sound chemicals management, including:

- chemical properties (and risks and hazards);
- the type and volume of chemicals produced, used, transported and stored (and the users);
- hazardous activities and installations;
- pollution of environmental media (air, water, ground), drinking-water, food, consumer products (by monitoring);
- toxic wastes (volume, location); and
- poisonings (statistics, first aid, poison control).

[30] https://www.euro.who.int/__data/assets/pdf_file/0018/361701/9789289052948-eng.pdf (WHO, 2018)
[31] http://www.saicm.org/About/Texts/tabid/5460/language/en-US/Default.aspx (SAICM, 2006)

Appendix (6)

International trade control measures under the Basel, Rotterdam, Stockholm and Minamata Conventions

The Rotterdam Convention is structured around the following two procedures for the movement of chemicals: **(i)** The Prior Informed Consent (PIC) procedure for chemicals listed in **Annex III** to the Convention, and **(ii)** The Export Notification procedure for other banned and severely restricted chemicals not listed yet in **Annex III** of the Convention. According to the "International trade control measures under the Basel, Rotterdam and Stockholm Conventions"[32], Parties are required to take the necessary measures to ensure that import and export movements of chemicals covered by the Conventions comply with the following provisions:

- *The movements of hazardous chemicals listed in **Annex III** of the Rotterdam Convention are subject to the Prior Informed Consent procedure. Exports are only allowed if the State of import has consented to the future import of the specific chemical through an Import Response. If the Party has, in its Import Response, consented to import subject to specified conditions, these conditions must also be complied with (**article 10 and article 11**).*

- *When a chemical not listed in **Annex III** but banned or severely restricted by a Party is exported from its territory, that Party must notify each individual importing Party before the first shipment and annually thereafter (**article 12**), the information requirements for export notifications are contained in **Annex V**.*

- *Exports of banned or severely restricted chemicals, as well as of chemicals subject to the PIC procedure, that are to be used for occupational purposes must be appropriately labelled and accompanied by health and safety information in the form of a safety data sheet that follows an internationally recognized format (**article 13 paragraph 4**). A widely-accepted, internationally-recognized format is a safety data sheet with 16 headings as set out in the GHS[33] .*

- *A Party deciding not to consent or providing specified conditions to the import of certain chemicals, must also refuse, or allow only under the same specified conditions, imports of these chemicals from any source, including from non-Parties, and must ban or allow only under the same conditions, production and use of the chemicals in its country (**article 10 paragraph 9**).*

*The following measures of the Stockholm Convention on the import and export of persistent organic pollutants (POPs) covered by the Convention (**Annex A** and **B** of the Convention) should also be taken into account:*

[32] http://www.brsmeas.org/Implementation/Publications/Other/tabid/2645/language/en-US/Default.aspx# (Secretariat of the Basel, Rotterdam and Stockholm Conventions, 2015)
[33] https://www.unece.org/trans/danger/publi/ghs/ghs_rev08/08files_e.html (GHS Rev 8, UNECE, 2019)

- *In general, it is important to ensure that any import and export of the chemicals listed in **Annexes A** and **B** of the Convention complies with strict requirements.*

- *With regards to imports, measures must be taken so that: "a chemical listed in **Annex A** or **Annex B** is imported only: **(i)** for the purpose of environmentally sound disposal as set forth in **paragraph 1 (d)** of **Article 6**; or **(ii)** for a use or purpose which is permitted for that Party under **Annex A** or **Annex B**."*

- *In terms of export: "a chemical listed in **Annex A** for which any production or use specific exemption is in effect or a chemical listed in **Annex B** for which any production or use specific exemption or acceptable purpose is in effect, taking into account any relevant provisions in existing international prior informed consent instruments, is exported only: **(i)** For the purpose of environmentally sound disposal as set forth in article **6 paragraph 1 (d)**; **(ii)** To a Party which is permitted to use that chemical under **Annex A** or **Annex B**; or **(iii)** To a State not Party to this Convention which has provided an annual certification to the exporting Party. Such certification shall specify the intended use of the chemical and include a statement that, with respect to that chemical, the importing State is committed to: **(a)** Protect human health and the environment by taking the necessary measures to minimize or prevent releases; **(b)** Comply with the provisions of **paragraph 1** of **Article 6**; and **(c)** Comply, where appropriate, with the provisions of **paragraph 2** of **Part II** of **Annex B**."*

The following **figure 3** shows a summary of the Basel and Rotterdam Conventions' measures with regard to the movement of chemicals.

	BASEL	ROTTERDAM	ROTTERDAM
Object	All the hazardous and other wastes covered by the Convention	Chemicals listed in annex III of the Convention.	Chemicals outside annex III that are banned or restricted by the Exporting Party
Timing	As a general rule, for each proposed movement	Subsequent to the listing of the substance in Annex III	Prior to the first export following adoption of the corresponding final regulatory action
Trigger	TBM proposed by State of export to State of transit and State of import, using a Notification Document	Decision Guidance Document sent by the Secretariat to all Parties	Export notification sent by State of export to State of import
Decision by the State of import (and State of transit)	Consent/ deny/ request for additional information	Consent/ no consent/ consent with conditions	Acknowledgement
Form for expressing decision	Written decision communicated to the State of export by the import (and transit) State in the Notification Document	Written notification sent to the Secretariat. Notifications (so-called "Import Responses") made available in the PIC circular	Written notification
Contact	Competent Authority	Designated National Authority	Designated National Authority

Figure 3: *Summary of the Basel and Rotterdam Conventions' measures with regard to the movement of chemicals.*

Note: to facilitate reading, "Object" may also be considered to mean "Scope". Moreover, TBM means "transboundary movement"

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[34] http://chm.pops.int/Portals/4/download.aspx?d=UNEP-CHW-LEAFLET-PUB-IntlTradeControl.English.pdf
(International trade control measures under the Based, Rotterdam and Stockholm Conventions, UNEP/BRS, 2015)

*The following considerations of the Minamata Convention **(Article 3)** on mercury supply sources and trade should also be taken into account:*

- Each Party shall not allow primary mercury mining that was not being conducted within its territory at the date of entry into force of the Convention for it.

- Each Party shall only allow primary mercury mining that was being conducted within its territory at the date of entry into force of the Convention for a period of up to 15 years after that date. During this period, mercury from such mining shall only be used in manufacturing of mercury-added products in accordance with **Article 4**, in manufacturing processes in accordance with **Article 5**, or be disposed of in accordance with **Article 11**, using operations which do not lead to recovery, recycling, reclamation, direct re-use or alternative uses.

- Each Party shall:

  - Endeavour to identify individual stocks of mercury or mercury compounds exceeding 50 metric tons, as well as sources of mercury supply generating stocks exceeding 10 metric tons per year, that are located within its territory;

  - Take measures to ensure that, where the Party determines that excess mercury from the decommissioning of chlor-alkali facilities is available, such mercury is disposed of in accordance with the guidelines for environmentally sound management referred to in **paragraph 3 (a)** of **Article 11**, using operations that do not lead to recovery, recycling, reclamation, direct re-use or alternative uses.

- Each Party shall not allow the export of mercury except:

  - To a Party that has provided the exporting Party with its written consent, and only for the purpose of:

    - A use allowed to the importing Party under this Convention; or

    - Environmentally sound interim storage as set out in **Article 10**; or

  - To a non-Party that has provided the exporting Party with its written consent, including certification demonstrating that:

    - The non-Party has measures in place to ensure the protection of human health and the environment and to ensure its compliance with the provisions of **Articles 10 and 11**; and

    - Such mercury will be used only for a use allowed to a Party under this Convention or for environmentally sound interim storage as set out in **Article 10.7.**

- An exporting Party may rely on a general notification to the Secretariat by the importing Party or non-Party as the written consent required by the paragraph above (starting with "Each Party shall not allow the export of mercury except"). Such general notification shall set out any terms and conditions under which the importing Party or non-Party provides its consent. The notification may be revoked at any time by that Party or non-Party. The Secretariat shall keep a public register of all such notifications.

- Each Party shall not allow the import of mercury from a non-Party to whom it will provide its written consent unless the non-Party has provided certification that the mercury is not from sources identified as not allowed under **paragraph 3** or **paragraph 5 (b)**.