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Back to top CAS Registry No.: 124-38-9Other Names: CO2, Liquefied carbon dioxide, Refrigerated carbon dioxideMain Uses: Manufacture of other chemicals, food processing, numerous other usesAppearance: Colourless gas.Odour: OdourlessCanadian TDG: UN1013, UN2187 Back to top According to the Commission des normes, de l'équité, de la santé et de la sécurité du travail (CNESST) carbon dioxide (gas) can be classified as: Gases under pressure - Compressed gasThe signal word is warning.Hazard statement includes:Contains gas under pressure; may explode if heatedNote: Carbon dioxide has been classified by the American Conference of Governmental Industrial Hygienists (ACGIH) as an asphyxiant. Please note that this classification was retrieved from the CNESST site on December 5, 2023 and was established by CNESST personnel to the best of their knowledge based on data obtained from scientific literature, and it incorporates the criteria contained in the Hazardous Products Regulations (SOR/2015-17). It does not replace the supplier's classification which can be found on its Safety Data Sheet. Back to top Emergency Overview: Colourless gas. Odourless. Will not burn. COMPRESSED GAS. Contains refrigerated gas. May explode if heated. CONFINED SPACE HAZARD. Can accumulate in hazardous amounts in low-lying areas especially inside confined spaces. ASPHYXIANT. High concentrations can displace oxygen in air and cause suffocation. May cause frostbite. Back to top Main Routes of Exposure: InhalationInhalation: Low concentrations are not harmful. Higher concentrations can affect respiratory function and cause excitation followed by depression of the central nervous system. A high concentration can displace oxygen in the air. If less oxygen is available to breathe, symptoms such as headache, rapid breathing, rapid heart rate, clumsiness, emotional upsets and fatigue can result. As less oxygen becomes available, nausea and vomiting, collapse, convulsions, coma and death can occur. Symptoms occur more quickly with physical effort. Lack of oxygen can cause permanent damage to organs including the brain and heart.Skin Contact: Not irritating. Direct contact with the liquefied gas can chill or freeze the skin (frostbite). Symptoms of mild frostbite include numbness, prickling and itching. Symptoms of more severe frostbite include a burning sensation and stiffness. The skin may become waxy white or yellow. Blistering, tissue death and infection may develop in severe cases.Eye Contact: May cause mild irritation. Direct contact with the liquefied gas can freeze the eye. Permanent eye damage or blindness can result.Ingestion: Not a relevant route of exposure (gas).Effects of Long-Term (Chronic) Exposure: Not harmful.Carcinogenicity: Not known to cause cancer.International Agency for Research on Cancer (IARC): Not specifically evaluated.American Conference for Governmental Industrial Hygienists (ACGIH): Not specifically designated.Teratogenicity / Embryotoxicity: Not known to harm the unborn child.Reproductive Toxicity: Not known to be a reproductive hazard.Mutagenicity: Not known to be a mutagen. Back to top Inhalation: In case of oxygen deficiency: take precautions to ensure your own safety before attempting rescue (e.g. wear appropriate protective equipment). If breathing is difficult, trained personnel should administer emergency oxygen. If the heart has stopped, trained personnel should start cardiopulmonary resuscitation (CPR) or automated external defibrillation (AED). Get medical attention immediately. Treatment is urgently required. Transport to a hospital.Skin Contact: Not applicable (gas). Liquefied gas: quickly remove victim from source of contamination. DO NOT attempt to rewarm the affected area on site. DO NOT rub area, flush with water, or apply direct heat. Carefully cut around clothing that sticks to the skin and remove the rest of the garment. Do not remove frozen clothing from frostbitten areas. Loosely cover the affected area with a sterile dressing. DO NOT allow victim to drink alcohol or smoke. Get medical attention immediately.Eye Contact: Not applicable (gas). Liquefied gas: immediately and flush with large amounts of gently flowing water for at least 15 minutes, occasionally lifting the upper and lower eyelids. DO NOT attempt to rewarm. Cover both eyes with a sterile dressing. DO NOT allow victim to drink alcohol or smoke. Get medical attention immediately. Treatment is urgently required. Transport to a hospital.Ingestion: Not applicable (gas).First Aid Comments: Some of the first aid procedures recommended here require advanced first aid training. All first aid procedures should be periodically reviewed by a medical professional familiar with the chemical and its conditions of use in the workplace. Back to top Flammable Properties: Does not burn.Suitable Extinguishing Media: Not combustible. Use extinguishing agent suitable for surrounding fire.Specific Hazards Arising from the Chemical: Can displace oxygen in the air, causing suffocation. Gas may accumulate in hazardous amounts in low-lying areas especially inside confined spaces, resulting in a health hazard. Closed containers may rupture violently when heated releasing contents. In a fire, the following hazardous materials may be generated: very toxic carbon monoxide, carbon dioxide. Back to top Chemical Stability: Normally stable.Conditions to Avoid: High temperatures. Temperatures above 52.0 °C (125.6 °F)Incompatible Materials: Increased risk of fire and explosion on contact with: metal powder or dusts. Not corrosive to metals.Hazardous Decomposition Products: None known.Possibility of Hazardous Reactions: None known. Back to top Personal Precautions: Increase ventilation to area or move leaking container to a well-ventilated and secure area. Vapour or gas may accumulate in hazardous amounts in low-lying areas especially inside confined spaces, if ventilation is not sufficient.Methods for Containment and Clean-up: Stop or reduce leak if safe to do so. Ventilate the area to prevent the gas from accumulating, especially in confined spaces. Back to top Handling: Prevent unintentional contact with incompatible chemicals. Use the pressure regulator appropriate for cylinder pressure and contents. Secure cylinder in an up-right position. Protect cylinders from damage. Use a suitable hand truck to move cylinders; do not drag, roll, slide, or drop. If used in a confined space, check for oxygen deficiency before worker entry and during work.Storage: Store in an area that is: cool, dry, well-ventilated, out of direct sunlight and away from heat and ignition sources, temperature-controlled, secure and separate from work areas, on the ground floor or preferably, if storing in large volumes, in an isolated, detached building. Always secure (e.g. chain) cylinders in an upright position to a wall, rack or other solid structure. Back to top ACGIH® TLV® - TWA: 5000 ppmACGIH® TLV® - STEL [C]: 30000 ppmExposure Guideline Comments: TLV® = Threshold Limit Value. TWA = Time-Weighted Average. STEL = Short-term Exposure Limit. C = Ceiling limit.Adapted from: 2022 TLVs® and BEIs® - Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices. Cincinnati: American Conference of Governmental Industrial Hygienists (ACGIH)NOTE: In many (but not all) Canadian jurisdictions, the exposure limits are similar to the ACGIH® TLVs®. Since legislation varies by jurisdiction, contact your local jurisdiction for exact details. A list is available in the OSH Answers on Canadian Governmental Occupational Health & Safety Departments.A list of which acts and regulations that cover exposure limits to chemical and biological agents is available on our website. Please note that while you can see the list of legislation for free, you will need a subscription to view the actual documentation. Back to top Engineering Controls: Use local exhaust ventilation, if general ventilation is not adequate to control amount in the air. Back to top Eye/Face Protection: Wear chemical safety goggles. (frost bite).Skin Protection: Always wear insulated protective clothing, if contact with refrigerated gas is possible.Respiratory Protection:Up to 40000 ppm: (APF = 10) Any supplied-air respirator. (APF = 50) Any self-contained breathing apparatus with a full facepiece.APF = Assigned Protection FactorRecommendations apply only to National Institute for Occupational Safety and Health (NIOSH) approved respirators. Refer to the NIOSH Pocket Guide to Chemical Hazards for more information. Fact sheet last revised: 2024-01-16 Back to top The purpose of the Transportation of Dangerous Goods (TDG) Act and Regulations is to promote public safety when dangerous goods are being imported, offered for transport, handled, or transported by road, rail, air, or water (marine). TDG also establishes safety requirements.Note: The information below is provided as guidance only and is for the transportation of dangerous goods by road. Always check the TDG Act and Regulations to ensure compliance.Please also see the following documents in this series: Back to top Dangerous goods are classified into 9 classes, based on the substance's characteristics and properties. These criteria are outlined in the TDG Regulations.Assigning a substance into a hazard class is usually done by the consignor. The person deciding the classification must be competent, meaning they have the education, training, and experience required for the task. Some substances have been assigned classes in the TDG Regulations.For more information on how classification works, please see OSH Answers include. Back to top Always consult the TDG Regulations for full details on classes, divisions, and exemptions. This table provides a general overview of each class.ClassHazardExamplesClass 1 ExplosivesThere are six divisions in this category. To be included, the substance or article has the ability to be a mass explosion, fragment projection, fire hazard (along with a minor blast or projection hazard), may ignite or initiate during transport, be very insensitive with a mass explosion hazard, or extremely insensitive with no mass explosion hazard.Ammonium picrateCartridges for weapons (with specific characteristics)Ammunition, Smoke, White PhosphorusPyrotechnic substances (e.g., Safety Devices, Pyrotechnic)Signals, Distress Class 2 GasesThere are three divisions: flammable gases, non-flammable and non-toxic gases, and toxic gases.Aerosols under UN 1950, AEROSOLS may be transported as flammable or non-flammable or non-toxic gases, depending on the properties of the aerosol. PropaneNitrogen, compressed Nitrogen, refrigerated liquidCarbon dioxideAir, compressedSulfur hexafluorideLiquefied petroleum gasHydrogen sulfide Class 3 Flammable LiquidsBased on a liquid's flash point and other properties, substances are included in this class if they are expected to be able to catch fire at common temperatures.GasolineDieselKeroseneEthanol solutionClass 4 Substances/ Products include: Flammable Solids; Substances Liable to Spontaneous Combustion; Substances That on Contact with Water Emit Flammable Gases (Water-reactive Substances)Class 4 has three divisions: flammable solids, substances liable to spontaneous combustion, and water reactive substances.These substances may cause fire (through friction), become explosive when in contact with water, become explosive even with contact with oxygen (air), or undergo a reaction that will result in a stronger exothermic reaction (a reaction that releases heat). For example, Class 4.2 Substances liable to spontaneous combustion includes substances that will ignite within 5 minutes of coming into contact with air.SulphurSafety matchesNaphthalene, crude Naphthalene, refinedCarbon, activatedCalcium carbideClass 5 Oxidizing Substances including Organic PeroxidesThe two divisions are oxidizing substances and organic peroxides.These substances may explosively decompose, burn rapidly, be sensitive to impact or friction, react dangerously with other substances, or cause damage to the eyes. Ammonium nitrate-based fertilizerCalcium peroxideOrganic Peroxide Type C, LiquidClass 6 Toxic and Infectious SubstancesThe two divisions are toxic substances and infections substances.Substances are included in class 6 if they can cause death or serious injury or harm to human health if swallowed, inhaled, or in contact with skin.Medical or clinical waste may also be classified as an infectious substance if they contain regulated properties. Toxic substances examples:StrychnineArsenicChloroformPhenol, solidInfectious substances examples:Bacteria such as Anthracis•Viruses such as HantavirusClass 7 Radioactive MaterialsCategory I – WhiteCategory II – YellowCategory III - YellowFissile MaterialRadioactive materials are classified in accordance with the Packaging and Transport of Nuclear Substances Regulations 2015.Class 7 Radioactive material has no divisions or packing groups. Instead, there are three categories based on the maximum radiation dose exposure from the packages. The three categories are identified with the following labels: Radioactive White-I – low hazard Radioactive Yellow-II – moderate hazard Radioactive Yellow-III – high hazard Radioactive materials emit invisible radiation that can cause serious health effects. High radiation levels can cause reduced blood count, nausea, fatigue, hair loss, etc. Small amounts of radiation received over a long period may cause long-term health effects such as cancer and genetic mutations.Radioactive material, Type B(M) Package, Fissile Class 8 Corrosive SubstancesThere are no divisions in this class. Substances are included in Class 8 if they are known to cause injury to the skin such as burns, destruction (thickness), or lesions. Substances that cause corrosion of steel or aluminum surfaces are also included in this TDG class.Acetic acid, solution (10 to 50%)Sulphuric acid, spentBattery fluid, acidBattery fluid, alkaliClass 9 Miscellaneous Products, Substances or OrganismsClass 9 Lithium batteriesSubstances are considered Class 9 when they are listed in column 3 of Schedule 1 in the TDG Regulation, or by other inclusions and exclusions as defined in the regulations.Substances include those that present a danger sufficient to be included in the TDG regulations, but which cannot be assigned to any other class. Carbon dioxide, solid (Dry Ice)Lithium cells and batteriesLiquid substances transported at or above 100 degrees CSolid substances transported at or above above 240 degrees C Back to top Recently, the TDG Regulations were amended. The definition of "dangerous goods safety mark" was withdrawn from the TDG Regulations. However, the TDG regulations and many Transport Canada publications still refer to the former terminology of "dangerous goods safety marks." Thus, we include both terms in our OSH Answers fact sheet. The TDG Act defines a "dangerous goods mark" as a symbol, device, sign, label, placard, letter, word, number or abbreviation, or any combination of those things, that is to be displayed to indicate the presence or nature of danger on dangerous goods, or on a means of containment or means of transport used in importing, offering for transport, handling or transporting dangerous goods. The size, shape and colour of the required dangerous goods marks or dangerous goods safety marks are outlined in the TDG Regulations.The following table shows common dangerous goods marks or dangerous goods safety marks for each class. To view all the required dangerous goods marks or dangerous goods safety marks, please see the Appendix in Part 4 of the TDG Regulations. ClassSample Dangerous Goods Mark(s) or Dangerous Goods Safety Mark(s)Class 1 ExplosivesSample shows: Class 1.1., 1.2 and 1.3Class 2 GasesSamples show: Class 2.1 Flammable gases; Class 2.2 Non-flammable and non-toxic gases; Class 2.3 Toxic gases, and Class 2 dangerous goods mark with yellow background for oxidizing gases Class 3 Flammable LiquidsSample shows: Class 3 Flammable liquidsClass 4 Substances/Products include: Flammable Solids; Substances Liable to Spontaneous Combustion; Substances That on Contact with Water Emit Flammable Gases (Water-reactive Substances)Sample shows: Class 4.1 Flammable solidsClass 5 Oxidizing Substances, including Organic PeroxidesSample shows: Glass 5.1 Oxidizing substancesClass 6 Toxic and Infectious SubstancesSamples show: Class 6.1 Toxic substances; Class 6.2 Infectious substancesClass 7 Radioactive MaterialsCategory I – WhiteCategory II – YellowCategory III - YellowFissile MaterialSample shows: Class 7 Radioactive materials,Category I WhiteClass 8 Corrosive SubstancesSample shows: Class 8 CorrosivesClass 9 Miscellaneous Products, Substances or OrganismsSamples show: Class 9 Miscellaneous Products, Substances or Organisms; Class 9 Lithium Batteries Fact sheet first published: 2021-02-15 Fact sheet last revised: 2025-01-21 Back to top CAS Registry No.: 14808-60-7Other Names: Crystalline silica, Quartz; Silicone dioxide; Tripoli Main Uses: Many uses including in mining, fabrication, manufacturing, and constructionAppearance: Colourless crystals.Odour: OdourlessCanadian TDG: Not specifically listed in Canadian TDG Regulations, but may be regulated as part of a chemical family or group Not Otherwise Specified (N.O.S.). Consult the regulations. Back to top According to the Commission des normes, de l'équité, de la santé et de la sécurité du travail (CNESST), silica (quartz) can be classified as:Carcinogenicity - Category 1ASpecific target organ toxicity - repeated exposure - Category 1The signal word is danger.The hazard statements include: May cause cancer.Causes damage to organs through prolonged or repeated exposurePlease note that this classification was retrieved from the CNESST site on March 3, 2025 and was established by CNESST personnel to the best of their knowledge based on data obtained from scientific literature and it incorporates the criteria contained in the Hazardous Products Regulations (SOR/2015-17). It does not replace the supplier's classification which can be found on its Safety Data Sheet. Back to top Emergency Overview: Colourless crystals. Odourless. Will not burn. VERY TOXIC. Prolonged or repeated exposure causes damage to the lungs. CANCER HAZARD. May cause cancer, if inhaled. Back to top Main Routes of Exposure: Inhalation; skin contact; eye contact.Inhalation: At high concentrations: can irritate the nose and throat.Skin Contact: Not irritating.Eye Contact: May cause slight irritation as a "foreign object". Tearing, blinking and mild temporary pain may occur as particles are rinsed from the eye by tears.Ingestion: Not harmful.Effects of Long-Term (Chronic) Exposure: VERY TOXIC. Can cause lung damage if the dust is breathed in. Symptoms may include shortness of breath, chronic cough and weight loss. There may be a decrease in lung function and the ability to do some physical activities. In severe cases, there can be effects on the heart and death from heart failure.Carcinogenicity: CARCINOGEN. Known to cause: lung cancer.International Agency for Research on Cancer (IARC): Group 1 - Carcinogenic to humans.American Conference for Governmental Industrial Hygienists (ACGIH): A2 - Suspected human carcinogen.Teratogenicity / Embryotoxicity: Not known to harm the unborn child.Reproductive Toxicity: Not known to be a reproductive hazard.Mutagenicity: Conclusions cannot be drawn from the limited studies available. Back to top Inhalation: Take precautions to ensure your own safety before attempting rescue (e.g., wear appropriate protective equipment). Move the victim to fresh air.Skin Contact: Quickly and gently blot or brush away the excess chemical. Wash gently and thoroughly with gently flowing water and non-abrasive soap for 5 minutes.Eye Contact: Quickly and gently blot or brush the chemical off the face. Immediately flush the contaminated eye(s) with gently flowing water for 5 minutes, occasionally lifting the upper and lower eyelids. If irritation or pain persists, get medical attention. Ingestion: Have the victim rinse their mouth with water. Get medical attention if the victim feels unwell.First Aid Comments: If exposed or concerned, see a medical professional for advice. All first aid procedures should be periodically reviewed by a medical professional familiar with the chemical and its conditions of use in the workplace.Note to Physicians: Some jurisdictions specifically regulate an ingredient of this product and require a complete medical surveillance program. Specific information should be sought from the appropriate government agency in your jurisdiction. Back to top Flammable Properties: Does not burn.Suitable Extinguishing Media: Not combustible. Use an extinguishing agent suitable for surrounding fire.Specific Hazards Arising from the Chemical: None known. Not known to generate any hazardous decomposition products in a fire. Back to top Chemical Stability: Normally stable.Conditions to Avoid: Generation of dust.Incompatible Materials: Increased risk of fire and explosion on contact with: oxidizing agents (e.g. peroxides). Not corrosive to metals.Hazardous Decomposition Products: None known.Possibility of Hazardous Reactions: None known. Back to top Personal Precautions: Evacuate the area immediately. Isolate the hazard area. Keep out unnecessary and unprotected personnel. Ventilate area.Methods for Containment and Clean-up: Avoid dry sweeping. If necessary, use a dust suppressant such as water. Do not use compressed air for clean-up. Collect using a shovel/scoop or approved HEPA vacuum and place in a suitable container for disposal. Back to top Handling: Before handling, it is important that all engineering controls are operating and that protective equipment requirements and personal hygiene measures are being followed. Only trained personnel should work with this product. Immediately report leaks, spills or failures of the safety equipment (e.g. ventilation system). Avoid generating dusts. Prevent unintentional contact with incompatible chemicals.Storage: Keep the amount in storage to a minimum. Empty containers may contain hazardous residue. Store separately. Keep closed. Store in an area that is: separate from incompatible materials. Back to top ACGIH® TLV® - TWA: 0.025 mg/m3 A2 (respirable)Exposure Guideline Comments: TLV® = Threshold Limit Value. TWA = Time-Weighted Average. A2 = Suspected human carcinogen.Adapted from: 2025 TLVs® and BEIs® - Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices. Cincinnati: American Conference of Governmental Industrial Hygienists (ACGIH)NOTE: In many (but not all) Canadian jurisdictions, the exposure limits are similar to the ACGIH® TLVs®. Since legislation varies by jurisdiction, contact your local jurisdiction for exact details. A list is available in the OSH Answers on Canadian Governmental Occupational Health & Safety Departments.A list of acts and regulations that cover exposure limits to chemical and biological agents is available on our website. Please note that while you can see the list of legislation for free, you will need a subscription to view the actual documentation. Back to top Engineering Controls: Use a local exhaust ventilation and enclosure, if necessary, to control the amount in the air. It may be necessary to use stringent control measures such as process enclosure to prevent product release into the workplace. Back to top Eye/Face Protection: Safety goggles suitable for dust protection.Skin Protection: It is good practice to prevent skin contact.Respiratory Protection:Up to 0.5 mg/m3: (APF = 25) Any powered, air-purifying respirator with a high-efficiency particulate filter; Any supplied air respirator operated in a continuous-flow mode. Up to 1.25 mg/m3: APF = 50) Any air-purifying, full-facepiece respirator with an N100, R100, or P100 filter; Any powered, air-purifying respirator with a tight-fitting facepiece and a high-efficiency particulate filter.Up to 2.5 mg/m3: (APF = 1000) Any supplied-air respirator operated in a pressure-demand or other positive-pressure mode.APF = Assigned Protection FactorRecommendations apply only to National Institute for Occupational Safety and Health (NIOSH) approved respirators. Refer to the NIOSH Pocket Guide to Chemical Hazards for more information. Fact sheet last revised: 2025-03-10 Back to top CAS Registry No.: 108-88-3Other Names: Methylbenzene, ToluolMain Uses: Manufacture of other chemicals, solvent.Appearance: Clear colourless liquid.Odour: Aromatic, sweet, pungentCanadian TDG: UN1294 Back to top According to the Commission des normes, de l'équité, de la santé et de la sécurité du travail (CNESST), toluene can be classified as:Flammable liquids - Category 2Acute toxicity - inhalation - Category 4 Skin corrosion/irritation - Category 2 Reproductive toxicity - Category 2 Specific target organ toxicity - single exposure (narcotic effects) - Category 3 - Narcotic effect Specific target organ toxicity - repeated exposure - Category 1 Aspiration hazard - Category 1 The signal word is danger.The hazard statements are:Highly flammable liquid and vapourHarmful if inhaledCauses skin irritationSuspected of damaging fertility or the unborn childMay cause drowsiness or dizzinessCauses damage to organs through prolonged or repeated exposureMay be fatal if swallowed and enters airwaysPlease note that this classification was retrieved from the CNESST site on April 4, 2023 and was established by CNESST personnel to the best of their knowledge based on data obtained from scientific literature and it incorporates the criteria contained in the Hazardous Products Regulations (SOR/2015-17). It does not replace the supplier's classification which can be found on its Safety Data Sheet. Back to top Emergency Overview: Clear colourless liquid. Aromatic odour. HIGHLY FLAMMABLE LIQUID AND VAPOUR. Distant ignition and flashback are possible. Can accumulate static charge. Can float on water and spread the fire. CONFINED SPACE HAZARD. Can accumulate in hazardous amounts in low-lying areas especially inside confined spaces. May cause drowsiness and dizziness. IRRITANT. Causes moderate or severe skin irritation. ASPIRATION hazard. May be fatal if swallowed and enters the airways. TERATOGEN/EMBRYOTOXIN. May damage the unborn child. Back to top Main Routes of Exposure: Inhalation. Skin contact. Eye contact.Inhalation: Can irritate the nose and throat. Can harm the nervous system. Symptoms may include headache, nausea, dizziness, drowsiness, and confusion. A severe exposure can cause unconsciousness.Skin Contact: SKIN IRRITANT. Causes moderate to severe irritation. Symptoms include pain, redness, and swelling. Can be absorbed through the skin. Can cause effects as described for inhalation.Eye Contact: May cause mild irritation.Ingestion: Can cause effects as described for inhalation. Aspiration hazard. May be drawn into the lungs if swallowed or vomited, causing severe lung damage. Death can result.Effects of Long-Term (Chronic) Exposure: Can cause dry, red, cracked skin (dermatitis) following skin contact. Exposure to this chemical and loud noise may cause greater hearing loss than expected from noise exposure alone. Effects on colour vision have been reported, but the evidence is inconclusive. May harm the nervous system. Conclusions cannot be drawn from the limited studies available. At high concentrations: May harm the kidneys.Carcinogenicity: Not known to cause cancer.International Agency for Research on Cancer (IARC): Group 3 - Not classifiable as to its carcinogenicity to humans.American Conference for Governmental Industrial Hygienists (ACGIH): A4 - Not classifiable as a human carcinogen.Teratogenicity / Embryotoxicity: DEVELOPMENTAL HAZARD. May harm the unborn child based on animal information. Has been associated with: low birth weight or size, learning disabilities, and hearing loss.Reproductive Toxicity: Not known to be a reproductive hazard.Mutagenicity: Not known to be a mutagen. Back to top Inhalation: Take precautions to prevent a fire (e.g. remove sources of ignition). Move victim to fresh air. If breathing has stopped, trained personnel should begin artificial respiration (AR). Get medical attention as soon as possible.Skin Contact: Avoid direct contact. Wear chemical protective clothing if necessary. Quickly take off contaminated clothing, shoes and leather goods (e.g., watchbands, belts). Quickly and gently blot or brush away excess chemical. Immediately wash gently and thoroughly with gently flowing water and non-abrasive soap for 15-20 minutes. Get medical attention promptly. Thoroughly clean clothing, shoes and leather goods before reuse or dispose of safely.Eye Contact: Avoid direct contact. Wear chemical protective gloves if necessary. Quickly and gently blot or brush chemical off the face. Immediately flush the contaminated eye(s) with gently flowing water, occasionally lifting the upper and lower eyelids. Get medical attention immediately.Ingestion: Have victim rinse mouth with water. If vomiting occurs naturally, have victim lean forward to reduce risk of aspiration. Have victim rinse mouth with water again. Get medical attention immediately.First Aid Comments: Some of the first aid procedures recommended here require advanced first aid training. All first aid procedures should be periodically reviewed by a medical professional familiar with the chemical and its conditions of use in the workplace. Back to top Flammable Properties: HIGHLY FLAMMABLE LIQUID. Can ignite at room temperature. Releases vapour that can form explosive mixture with air. Can be ignited by static discharge.Suitable Extinguishing Media: Carbon dioxide, dry chemical powder, appropriate foam, water spray or fog. Foam manufacturers should be consulted for recommendations regarding types of foams and application rates. Use water to keep non-leaking, fire-exposed containers cool.Specific Hazards Arising from the Chemical: Liquid can float on water and may travel to distant locations and/or spread fire. Liquid can accumulate static charge by flow, splashing or agitation. Vapour may travel a considerable distance to a source of ignition and flash back to a leak or open container. Vapour may accumulate in hazardous amounts in low-lying areas especially inside confined spaces, resulting in a toxicity hazard. Closed containers may rupture violently when heated releasing contents. In a fire, the following hazardous materials may be generated: very toxic carbon monoxide, carbon dioxide; reactive chemicals; toxic, flammable aldehydes; and other chemicals. Back to top Chemical Stability: Normally stable.Conditions to Avoid: Open flames, sparks, static discharge, heat and other ignition sources.Incompatible Materials: Reacts violently with: nitric acid. Increased risk of fire and explosion on contact with: oxidizing agents (e.g., peroxides). Not corrosive to: aluminum alloys, carbon steel.Hazardous Decomposition Products: None known.Possibility of Hazardous Reactions: None known. Back to top Personal Precautions: Evacuate the area immediately. Isolate the hazard area. Keep out unnecessary and unprotected personnel. Eliminate all ignition sources. Use grounded, explosion-proof equipment.Methods for Containment and Clean-up: Stop or reduce leak if safe to do so. Small spills or leaks: contain and soak up spill with absorbent that does not react with spilled product. Large spills or leaks: contact emergency services and manufacturer/supplier for advice.Other Information: Report spills to local health, safety and environmental authorities, as required. Back to top Handling: In the event of a spill or leak, exit the area immediately. Eliminate heat and ignition sources such as sparks, open flames, hot surfaces and static discharge. Post "No Smoking" signs. Avoid generating vapours or mists. Electrically bond and ground equipment. Ground clips must contact bare metal. Avoid repeated or prolonged skin contact with product or with contaminated equipment/surfaces.Storage: Store in an area that is: cool, well-ventilated, out of direct sunlight and away from heat and ignition sources, clear of combustible and flammable materials (e.g., old rags, cardboard), separate from incompatible materials. Keep amount in storage to a minimum. Electrically bond and ground containers. Ground clips must contact bare metal. Avoid bulk storage indoors. Back to top ACGIH® TLV® - TWA: 20 ppm OTO A4 BEI®Exposure Guideline Comments: TLV® = Threshold Limit Value. TWA = Time-Weighted Average. OTO = Ototoxicant (chemical has the potential to cause hearing impairment alone or in combination with noise, even below 85dBA). A4 = Not classifiable as a human carcinogen. BEI® = Biological Exposure Index.Adapted from: 2022 TLVs® and BEIs® - Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices. Cincinnati: American Conference of Governmental Industrial Hygienists (ACGIH)NOTE: In many (but not all) Canadian jurisdictions, the exposure limits are similar to the ACGIH® TLVs®. Since legislation varies by jurisdiction, contact your local jurisdiction for exact details. A list is available in the OSH Answers on Canadian Governmental Occupational Health & Safety Departments.A list of which acts and regulations that cover exposure limits to chemical and biological agents is available on our website. Please note that while you can see the list of legislation for free, you will need a subscription to view the actual documentation. Back to top Engineering Controls: Use a local exhaust ventilation and enclosure, if necessary, to control amount in the air. For large scale use of this product: use non-sparking ventilation systems, approved explosion-proof equipment and intrinsically safe electrical systems in areas where this product is used and stored. Control static electricity discharges which includes bonding of equipment to ground. Back to top Eye/Face Protection: Wear chemical safety goggles and face shield when contact is possible.Skin Protection: Wear chemical protective clothing e.g. gloves, aprons, boots. Suitable materials include: Viton®,Vitron®/Butyl rubber, Silver Shield® - PE/EVAL/PE, ChemMAX® (3, 4 Plus), Frontline® 500, AlphaTec® (4000, EVO, VPS), Tychem® (5000, 6000, 6000 FR, 9000, Responder® CSM, 10000, 10000 FR), Zytron® (300, 500). Not recommended: butyl rubber, natural rubber, neoprene rubber, polyvinylchloride – PVC, Saranex®.Respiratory Protection:Up to 500 ppm: (APF = 10) Any chemical cartridge respirator with organic vapor cartridge(s)*; or Any supplied-air respirator*.(APF = 25) Any powered, air-purifying respirator with organic vapor cartridge(s)*.(APF = 50) Any air-purifying, full-facepiece respirator (gas mask) with a chin-style, front- or back-mounted organic vapor canister; or Any self-contained breathing apparatus with a full facepiece.*Reported to cause eye irritation or damage; may require eye protection.APF = Assigned Protection FactorRecommendations apply only to National Institute for Occupational Safety and Health (NIOSH) approved respirators. Refer to the NIOSH Pocket Guide to Chemical Hazards for more information. Fact sheet last revised: 2023-04-06 Back to top GHS stands for the Globally Harmonized System of Classification and Labelling of Chemicals. It is a system of hazard communication for chemical hazards that can be adopted by countries around the world. GHS was developed by a United Nations (UN) international team of hazard communication experts. They established the following two major standardized elements: 1. rules for classifying the hazards of chemical products (i.e., substances, materials, or mixtures) 2. hazard communication tools such as: format for safety data sheets (SDSs), content for label and SDSs with hazard and precautionary statements symbols signal word NOTE: This document discusses the global GHS, as developed by the United Nations. GHS is a 'non-binding' system of hazard communication. Only the elements of GHS that have been explicitly adopted by Canadian legislation are enforceable. See the OSH Answers documents on WHMIS 2015 for a summary of how GHS was implemented in Canada. Back to top GHS was developed because many different countries had different systems for classification and labelling of chemical products. In addition, several different systems can exist even within the same country. While existing systems were similar in many respects, their differences were significant enough to result in different hazard classifications, labels, or SDS for the same product. For example, one country may classify a product as carcinogenic while another country will not. This situation has been expensive for governments to regulate and enforce, costly for companies who have to comply with many different systems, and confusing for workers who need to understand the hazards of a chemical in order to work safely. As more and more countries adopt the principles of GHS, the benefits include: Promoting regulatory efficiency. Facilitating trade. Easing compliance. Reducing costs. Providing improved, consistent hazard information. Encouraging the safe transport, handling and use of chemicals. Promoting better emergency response to chemical incidents. Reducing the need for animal testing. Back to top GHS covers all hazardous chemicals products, such as those used for the following purposes: industrial chemicals consumer chemical products pesticides agricultural chemicals pharmaceuticals The target audiences for GHS include workers in many different industries (e.g., warehouses, construction, chemical manufacturing, transportation), emergency responders, and consumers. Back to top SDS – Safety Data Sheet. The GHS SDS has 16 sections in a set order, and minimum information is prescribed. Labels - With the GHS, certain information will appear on the label. Standardized elements such as chemical identify, hazard statements, signal words and symbols will appear on the label according to the classification of that chemical or mixture. Precautionary statements may also be required, if adopted by your regulatory authority. Hazard group – While not given a formal definition, GHS divides hazards into three major groups – health, physical and environmental. Class – Class is the term used to describe the different types of hazards. For example, Gases under Pressure is an example of a class in the physical hazards group. Category – Category is the name used to describe the sub-sections of classes. For example, Self-Reactive Chemicals have 7 categories. Each category has rules or criteria to determine what chemicals are assigned to that category. Categories are assigned numbers (or letters) with category 1 (or A) being the most hazardous. Hazard Statement – For each category of a class, a standardized statement is used to describe the hazard. For example, the hazard statement for chemicals which meet the criteria for the class Self-heating substances and mixtures, Category 1 is Self-heating; may catch fire. This hazard statement would appear both on the label and on the SDS. Precautionary Statement – These statements are standardized phrases that describe the recommended steps to be taken to minimize or prevent adverse effects from exposure to or resulting from improper handling or storage of a hazardous product. Signal word – There are two signal words used by the GHS – Danger and Warning. These signal words are used to communicate the level of hazard on both the label and the SDS. The appropriate signal word to use is set out by the classification system. For example, the signal word for Self-heating substances and mixtures, Category 1 is Danger while Warning is used for the less serious Category 2. There are categories where no signal word is used. Pictogram – Pictogram refers to the GHS symbol on the label and SDS. Not all categories have a pictogram associated with them. Back to top GHS consists of three major hazard groups : Physical hazards. Health hazards. Environmental hazards. Within each of these hazard groups there are classes and categories. Back to top Criteria for classifying chemicals have been developed for the following health hazard classes: Acute toxicity. Skin corrosion/irritation. Serious eye damage/eye irritation. Respiratory or skin sensitization. Germ cell mutagenicity. Carcinogenicity. Reproductive toxicity. Specific target organ toxicity - single exposure. Specific target organ toxicity - repeated exposure. Aspiration hazard. Back to top Criteria for classifying chemicals have been developed for the following physical hazard classes: Explosives. Flammable gases. Aerosols. Oxidizing gases. Gases under pressure. Flammable liquids. Flammable solids. Self-reactive substances and mixtures. Pyrophoric liquids. Pyrophoric solids. Self-heating substances and mixtures. Substances and mixtures which, in contact with water, emit flammable gases. Oxidizing liquids. Oxidizing solids. Organic peroxides. Corrosive to metals. Back to top Criteria for classifying chemicals have been developed for the following environmental hazard classes: Hazardous to the aquatic environment (acute and chronic). Hazardous to the ozone layer. Back to top The GHS criteria are specified in the publication known as the Globally Harmonized System of Classification and Labelling of Chemicals (GHS) from the United Nations Economic Commission for Europe (UNECE) (this publication is often referred to as the "purple book".) The first edition of this book was published in 2003. Since then, the GHS book has been revised every two years as needed and as experience is gained in its implementation. All editions are available in multiple languages and can be accessed for free at the UNECE website. When checking the criteria for a particular hazard class and or a category, make sure that you are viewing the revised edition of the GHS purple book that corresponds to the version that was adopted by your country. Back to top No. The GHS is a 'non-binding' system of hazard communication. However, as mentioned above, there are many benefits when it is voluntarily adopted by countries around the globe. Back to top It is up to the country's authorities to decide how GHS will be adopted in their legislation. For example, Canada adopted the GHS by revising the existing WHMIS legislation. Back to top No. When a country adopts GHS, the country has freedom to: Select one or more of the hazard classes Select the categories it will adopt for a particular hazard class The key is that when a GHS hazard class is adopted by a country, the country must adopt that hazard class as specified by GHS. This adoption will help make sure that each country has the same classification criteria as each other. For example, if a country adopts the flammable hazard class and only the Category 1 level, the criteria for Category 1 will be the same for all the countries that adopted this Category. In situations where the country had regulations concerning hazard classes that are not included in GHS, the country is free to include or create legislation to maintain desired levels of protection. Back to top The UNECE publishes information about the status of implementation of GHS by country. Examples include: Canada Canada adopted GHS in February 2015 by amending the federal Hazardous Product Act (HPA) and the publication of a new regulation titled Hazardous Products Regulations (HPR) under the HPA which is commonly referred to as the federal Workplace Hazardous Materials Information System 2015 (WHMIS 2015) legislation. Provincial and territorial jurisdictions also updated their related legislation. Note that the amendment of the HPA and implementation of the new HPR is based on the fifth revised edition (Rev 5). Amendments are expected from time to time to keep WHMIS in alignment with current GHS recommendations. WHMIS 2015 regulatory updates can be monitored by checking: United States (USA) United States adopted the GHS elements from the 3rd revised edition of the GHS purple book in their Hazardous Communication Standard (HCS) in 2012. This standard is commonly referred to as HCS 2012 and is currently in full force. OSHA is conducting rulemaking to harmonize the HCS to the latest edition of the GHS and to codify a number of enforcement policies that have been issued since the 2012 standard. In their "OSHA Trade Release", OSHA announced that they are issuing a proposed rule to update the HCS 2012 with the 7th revised edition of the GHS purple book. Check regulatory updates at: OSHA Trade Release Information and resources for the current US HCS 2012 standard is available at: Hazard communication Europe Information about the adoption of GHS in EU and European Economic Area's legislation and revisions is available at: GHS implementation: EU and European Economic Area The EU Classification, Labelling and Packaging (CLP) regulations was updated to align with GHS as of January 20, 2009. Currently CLP with the adopted GHS elements is in full force. The CLP was updated to include changes introduced in the 6th and 7th revised editions of GHS. These changes have been in force as of October 17, 

class (the primary class and possible subsidiary class/es)Identification number (the UN number)Packing group, compatibility group, or the infectious substance category for biohazardous substancesand, if applicable,the compatibility group letter;the subsidiary class(es) Back to top Use all three schedules as listed in the TDG Regulations.1. Determine the shipping name: Check if the product name or chemical technical name is listed in Schedule 1 or Schedule 3. If the product's name is listed only in Schedule 3, use the UN number from Column 3 in this schedule to look up the product in Schedule 1. Use the descriptive text written in lowercase letters following a shipping name (see the examples for UN2789 and UN2790 below) to determine the shipping name that most precisely describes the dangerous goods. See the extracted data from Schedule 3 below for “Gasoline” and “Acetic acid solutions.”Column 1AColumn 1B Column 2 Column 3Column 4Shipping and or Technical NameAppellation réglementaire et/ou techniqueClass or DivisionUN NumberMarine PollutantGASOLINEESSENCE3UN1203GASOLINEACETIC ACID SOLUTION, not less than 50% but not more than 80% acid, by massACIDE ACÉTIQUE EN SOLUTION contenant au moins 50 % mais au maximum 80 % (masse) d’acide8UN2790 ACETIC ACID SOLUTION, more than 80% acid, by massACIDE ACÉTIQUE EN SOLUTION contenant plus de 80 % (masse) d’acide8UN2789 2. Determine the other classification elements (i.e., class, packing group, etc.)If the product's name is listed in Schedule 1 or you located it by using the listed UN Number in Schedule 3, use the shipping name and its corresponding data (UN number, class, packing group/category) from that row. The data below is an example showing UN1203, GASOLINE. See the extracted data below from Schedule 1 for gasoline, and the acetic acid solutions.Col.1UN Number Col.2Shipping Name and DescriptionCol.3ClassCol.4Packing Group / CategoryCol.5Special ProvisionsCol.6aExplosive Limit and Limited Quantity IndexCol.6bExcepted QuantitiesCol.7ERAP IndexCol.8Passenger Carrying Vessel IndexCol.9Passenger Carrying Road Vehicle or Passenger Carrying Railway Vehicle IndexUN1203GASOLINE; MOTOR SPIRIT; orPETROL3II8898150 30LE2-100L5LUN2789UN1337ACETIC ACID, GLACIAL;orACETIC ACID SOLUTION, more than 80% acid, by massNITROSTARCH, WETTED with not less than 20% water, by mass8(3)4.1III--E2E03 00075Forbidden1L 1 kgUN2790ACETIC ACID SOLUTION, not less than 50% but not more than 80% acid, by mass8II-1LE2--1 LFor example, based on the above information from Schedule 1, we have the following data for the classification elements for UN1203:SHIPPING NAME (in Column 2 of Schedule 1): GASOLINE; MOTOR SPIRIT; or PETROL (when selecting the shipping name, you can use one of the three listed names, such as “gasoline”)The Class (in Column 3 of Schedule 1): 3Identification Number (in Column 1 of Schedule 1): UN1203Packing Group (in Column 4 of Schedule 1): IIColumn 3 in Schedules 1 and column 2 in Schedule 3 will also indicate if a dangerous good is forbidden by all routes of transportation. Schedule 1 also includes information if transportation of a dangerous good is forbidden by a specific route of transportation (e.g., marine vessel/water). Examples of such products are:UN1096 SIGNALS, SMOKE which is not allowed to be transported on a shipCHLORINE DIOXIDE hydrate, frozen or not hydrated are examples of products that are forbidden by all routes of transportation as indicated in Schedule 3 with an entry of Forbidden in Column 2 - Primary Class. Note that these types of products do not have a UN Number.UN0196 SIGNALS, SMOKE which is not allowed to be transported on a Passenger Carrying Road Vehicle or Passenger Carrying Railway Vehicle.3. If the product is not listed by a specific name in Schedule 1 or 3, check if it meets any of the criteria for the hazard classes in Part 2 - Classification. Laboratory tests are required for pure substances, solutions, and mixtures. When test results and the hazard class criteria are compared, there are three possible conclusions:a) The laboratory test results show the product does not meet any of the criteria for the hazard classes. In this case, the product is not TDG regulated and the product does not need to comply with the TDG Regulations.b) The laboratory test results show the product falls into one class and one packing group. See Section 2.4. Consult Schedule 3 for a shipping name that most precisely describes the dangerous goods as follows: First check if the substance’s formal chemical name or synonyms, or article’s specific name, are listed in Schedule 3. If present, use the corresponding UN number in Schedule 1 to determine the shipping name and its corresponding data (UN number, class, packing group/category) in Schedule 1 to assign the classification to the dangerous good. Note that the data for the classification elements in Schedule 1 for the selected shipping name and that from the laboratory must match, and the shipping name’s descriptive text accurately describes the dangerous good. For example: UN1090, Acetone Class 3 Packing Group II and UN2789, ACETIC ACID SOLUTION, more than 80% acid, by mass Class 8(3) Packing Group II.If there are several UN numbers associated with the shipping name, select the UN Number that the laboratory data matches the classification criteria for the classification elements and the shipping name’s descriptive text. See above for the two UN numbers that are listed for Acetic acid solutions. If more than one packing group appears for a shipping name (e.g., UN1987 ALCOHOLS, N.O.S.), select the packing group that matches the laboratory data most closely with the classification criteria for the class or division.If the substance’s or article’s specific names or synonym names are NOT listed on Schedule 3, then select the shipping names based on the hierarchical order listed below that match the dangerous good’s laboratory data with the classification criteria for the shipping name’s classification elements and descriptive text.I. Check for generic entry names for well defined group of substances by usage (e.g., adhesives, perfumeries, pesticides, peroxides) that matches the laboratory data. For example, UN1133, ADHESIVES Class 3 Packing Group III. If there are no generic entry names for defined group of substances by usage, check for particular chemical family name or technical nature (e.g., nitrates, hypochlorites, alcohols, etc.) that matches the laboratory data. For example, UN1987, ALCOHOLS N.O.S. Class 3 Packing group II.III. In absence of generic names for defined groups of substances or chemical family names technical nature, select a name that represents the hazard of the class (e.g., (e.g., self-reactive, oxidizing, toxic, etc.) or division and that matches the laboratory data. For example: UN1993, FLAMMABLE LIQUID, N.O.S. Class 3 Packing Group III.c) The laboratory test results show the product falls into more than one class or packing group. See Section 2.5. Determine the primary class, subsidiary class(es) and packing group by using section 2.8 - Precedence of Classes in Part 2, Classification. Consult Schedule 3 for the shipping name that most precisely describes the dangerous goods. Use the shipping name and its corresponding data (UN number, class, packing group/category) in Schedule 1 to assign the classification to the dangerous good. For example: UN3086, TOXIC SOLID, OXIDIZING, N.O.S. Class 6.1 (5.1) Packing Group I.Note: when there are several options for a shipping name, the shipping name should be assigned in a hierarchical order (described further below). Back to top Shipping name is the name of the dangerous good as it appears in column 2 of Schedule 1. There may be occasions when several different shipping names can be used. Generally, the shipping name should be selected in the following hierarchical order:Specific chemical name (e.g., acetone, sulfuric acid, etc.)Substance or product usage (e.g., pesticide, adhesive, fuel, etc.)Chemical family name (e.g., alcohol, ketone, etc.)Product usage (e.g., pesticide, adhesive, fuel, etc.)Generic hazard/risk followed by N.O.S. (e.g., flammable, toxic, etc.)When the shipping name is not a specific name such as a family name, then these shipping names are followed by N.O.S. N.O.S. means Not Otherwise Specified. It is used for dangerous goods that do not have a specific entry by name in Schedule 1. For example:Norbornene or Bicyclo[2.2.1]hept-2-ene (formal chemical name) is not specifically listed in Schedule 3. So, the next step is to check if there is a shipping name based on usage. This substance is not part of a well-defined group of substances for a particular usage or family group in the TDG Regulations. Thus, a shipping name is selected based on the generic hazard. This product could be shipped as UN1325, Flammable solid, organic, N.O.S. Back to top Solutions or Mixtures: When a solution or a mixture consists of one dangerous good mixed with non-dangerous goods (e.g., water) and the properties for the solution are the same as for the pure substance, the shipping name of the pure substance is followed by the word “solution” or “mixture” as applicable. The concentration of the solution or mixture may be included. Example: ETHANOL SOLUTION with more than 24% ethanol, by volume (UN1170).Product mixture or solution that consists of multiple dangerous goods: If there is no specific name for the mixture or solution in Schedule 1, then the shipping name is determined according to the hierarchical order below that most precisely describes the mixture or solution. In addition, the technical name of the most dangerous substance needs to be provided in brackets as required in Special Provision 16 in Schedule 2. Special provisions are specified in Column 5 of Schedule 1.Chemical family name followed by N.O.S. (e.g., alcohol, ketone, etc.)Generic hazard/risk followed by N.O.S. (e.g., flammable, toxic, etc.)For example: Both gasoline and diesel are listed by their name in Schedule 1. However, if these two substances were mixed, the resulting mixture or solution of these two products would still be regulated as a dangerous good. The mixture could no longer be described as "Gasoline" or "Diesel" since it would no longer have a specific name in Schedule 1 or 3. A mixture that consists of 80% gasoline and 20% diesel will be assigned to the following shipping name: FLAMMABLE LIQUID, N.O.S. (gasoline), which is based on a Class 3 flammability hazard/risk.Definition for a mixture – a product that contains two or more ingredients.Definition for a solution – When the ingredients in a mixture are completely dissolved. For example: the mixture is liquid and homogeneous and the ingredients will not separate (e.g., no visible solids or two different phases such as you would observe when oil and water are mixed).Wastes: If the product is a waste, then the shipping name is either preceded or followed by the word “waste” if the text “waste” is not already part of the shipping name. Examples: COTTON WASTE, OILY (UN1364), or REGULATED MEDICAL WASTE, N.O.S. (UN3291) Back to top The following variations of the listed shipping name are allowed: It can be written in the singular or the plural.It can be written with or without punctuation marks.It can include any descriptive text associated with the shipping name in column 2 of Schedule 1.If the person writes the shipping name with the descriptive text associated with that shipping name and the descriptive text includes a concentration range, the person may write, instead of the concentration range, the actual concentration of the dangerous goods.It can be spelled in the same manner as it is spelled in 49 CFR, the UN Recommendations, the ICAO Technical Instructions or the IMDG Code.It can be written in upper- or lower-case letters.It can be written in a different word order if the word order does not change the meaning of the shipping name.It can include the qualifying words “stabilized” and “temperature controlled” provided:These words are not already part of the shipping name,The dangerous goods are not “self-reactive” or “organic peroxides”, andFor safety reasons, the dangerous goods must be stabilized, or temperature controlled when transported. Back to top If the product's name (e.g., chemical name) is listed in Schedule 1 or 3, the primary hazard class is listed in Column 3 of Schedule 1 as well as in Column 2 of Schedule 3 for that shipping name.However, if the product's name is not listed in Schedule 1 or 3, then the product must be tested at a laboratory. Once the material has been tested at a laboratory, the test results are compared to the classification criteria in Part 2. Your product may meet the criteria for one or more of the following nine TDG hazard classes:Class 1 ExplosivesClass 2 GasesClass 3 Flammable LiquidsClass 4 Substances/Products include: Flammable Solids; Substances Liable to Spontaneous Combustion; Substances That on Contact with Water Emit Flammable Gases (Water-reactive Substances)Class 5 Oxidizing Substances, including Organic PeroxidesClass 6 Toxic and Infectious SubstancesClass 7 Radioactive MaterialsClass 8 Corrosive SubstancesClass 9 Miscellaneous Products, Substances or OrganismsIf your product meets the criteria for several hazard classes, the primary class must be determined. The primary class of dangerous goods is the hazard class that poses the highest hazard and takes precedence over any other class that poses a lower hazard. It is determined according to the specification in section 2.8 and the “Precedence of Classes Table,” which is provided in Part 2.The class posing a lower hazard will be identified as a subsidiary class. More than one subsidiary class is possible. Subsidiary classes are provided in brackets and are only listed in Column 3 of Schedule 1 (not Schedule 3). For example, “UN3518 ADSORBED GAS, TOXIC, OXIDIZING, CORROSIVE, N.O.S.” has three hazard classes assigned to it in Column 3 of Schedule 1. These are the primary class, 2.3, and two subsidiary hazard classes, 5.1 and 8.SCHEDULE 1Col.1UNNumberCol.2Shipping Name and DescriptionCol.3ClassCol.4Packing Group / CategoryCol.5Special ProvisionsCol.6aExplosive Limit and Limited Quantity IndexCol.6bExcepted QuantitiesCol.7ERAP IndexCol.8Passenger Carrying Vessel IndexCol.9Passenger Carrying Road Vehicle or Passenger Carrying Railway Vehicle IndexUN3518ADSORBED GAS, TOXIC, OXIDIZING, CORROSIVE, N.O.S2.3 (5.1) (8) 1623380E025ForbiddenForbidden Back to top Once you have determined the shipping name for the dangerous good in Schedule 3 then look up the UN number in Column 1 of Schedule 1 (see above). If the product's name (e.g., chemical name) is listed in Schedule 1 or 3 then the primary class is in Column 3 of Schedule 1 and in Column 2 of Schedule 3 for that shipping name. However, if the product's name is not listed in Schedule 1 or 3, then the product must be tested at a laboratory. Back to top It depends on the professional assessment of the patient’s specimen, which is based on medical history. See Transport Canada publication “Classification of patient specimens.” Back to top Yes. Subsection 2.2(4) and Parts 9 and 10 of the TDG Regulations authorize you to use the classification from the:International Civil Aviation Organization (ICAO) Technical Instructions for the transport of dangerous goods by air,International Maritime Dangerous Goods (IMDG) Code for the transport of dangerous goods by ship orCode of Federal Regulations (49 CFR) (U.S. Regulations) for the transportation of dangerous goods by road. Note: The NA numbers in the 49 CFR are not permitted in Canada. Back to top Many substances in Schedule 1 are assigned one or more packing groups. See Column 4 in Schedule 1. The packing group for a dangerous good is determined by using the laboratory test data and comparing it to the criteria in Part 2. For example, if you have a product for which you determined that the shipping name will be “FLAMMABLE LIQUID, N.O.S. (gasoline),” and the laboratory provided the following test result:Initial boiling point is greater than 35°C at an absolute pressure of 101.3 kPaFlashpoint[]Using this data and comparing it to that in Section 2.19, it is determined that this dangerous good needs to be assigned to Packing Group II. Back to top The compatibility group is only assigned for explosives. Consequently, the compatibility group will be already assigned by Natural Resources Canada. Information on compatibility groups is provided in Appendix 2 of Part 2 in the TDG Regulations. Back to top Information on how to do the assignment is provided in Section 2.36 of Part 2. Meanwhile, the actual assigned category is obtained from Appendix 3 in Part 2. Back to top The classification or shipping description is reported in the following order as per Part 3.5:(i) the UN number,(ii) the shipping name and, immediately after the shipping name unless it is already part of it,(a) for dangerous goods that are subject to special provision 16, the technical name, in parentheses, of at least one of the most dangerous substances that predominantly contributes to the hazard or hazards posed by the dangerous goods, and(b) for a liquefied petroleum gas that has not been odorized, the words “Not Odourized” or “Not Odorized” or “Sans odorisant”,(iii) the primary class, which may be shown as a number only or under the heading “Class” or “Classe” or following the word “Class” or “Classe”,(iv) for dangerous goods with a primary class of Class 1, Explosives, the compatibility group letter following the primary class,(v) the subsidiary class or classes, in parentheses, which may be shown as a number only or under the heading “subsidiary class” or “classe subsidiaire” or following the words “subsidiary class” or “classe subsidiaire”, except that, for transport by aircraft or by ship, the subsidiary class or classes may be shown after the information required by this paragraph,(vi) the packing group roman numeral, which may be shown under the heading “PG” or “GE” or following the letters “PG” or “GE” or following the words “Packing Group” or “Groupe d'emballage”, and(vii) for dangerous goods that are subject to special provision 23, the words “toxic by inhalation” or “toxic – inhalation hazard” or “toxique par inhalation” or “toxicité par inhalation”;Note that a dangerous good description will only include the requirements that are listed above that apply to it. So, if temperature control is not required for a dangerous good that is being transported then this information is not included. However, the order of information must be as presented above. Examples of classification descriptions of dangerous goods are:UN1203, GASOLINE, 3, IIUN1203, GASOLINE, Class 3, PG IIUN1214, ISOBUTYLAMINE, Class 3, Subsidiary Class (8), IIUN1214, ISOBUTYLAMINE, Class 3(8), Packing Group IIUN3381, TOXIC BY INHALATION LIQUID, N.O.S., Class 6.1 PG IUN 1075 LIQUEFIED PETROLEUM GASES (propane); Not odourized, Class 2.1UN 2902 PESTICIDE, LIQUID, TOXIC, N.O.S. (drazoxolon) Class 6.1UN 1993 WASTE FLAMMABLE LIQUID, N.O.S. (toluene and ethyl alcohol), 3, II Back to top As per subsection 11.1(1) of the TDG Regulations, the IMDG Code must be consulted for international transport by ship.For transport from the United States into Canada by road vehicle or railway vehicle, the shipping name used must be one that is recognized in Schedule 1 of the TDG Regulations or in the UN Recommendations.The ICAO Technical Instructions, as well as Part 12, Air, of the TDG Regulations, must be consulted for all shipments by air. Fact sheet last revised: 2024-04-09