

APPENDIX A: CLASSIFICATION OF HAZARDOUS SUBSTANCES

UN Class	Hazard	Division	Description	Effects Group	Hazard Level
1	Explosives	1.1	Articles and substances having a mass explosion hazard.	Fire/Explosion	Extreme
		1.2	Articles and substances having a projection hazard, but not a mass explosion hazard.	Fire/Explosion	High
		1.3	Articles and substances having a fire hazard and either a minor blast hazard or a minor projection hazard or both, but not a mass explosion hazard. This division comprises articles and substances that: ? give rise to considerable radiant heat, or ? burn one after another, producing minor blast and/or projection effects.	Fire/Explosion	Medium
		1.4, 1.5, 1.6	Not applicable.		

UN Class	Hazard	Division	Description	Effects Group	Hazard Level
2	Gases	LPG	LPG	Fire/Explosion	Medium
		2.1	Flammable gases: gases which at 20°C and a standard pressure of 101.3 kPA: ? are ignitable when in a mixture of 13% or less by volume with air, or ? have a flammable range with air of at least 12% regardless of the lower flammability limit. This class includes aerosols containing flammable propellants.	Fire/Explosion	High
		2.2	Not applicable.		
		2.3	Toxic gases: gases which are known to be toxic or corrosive to humans and pose a hazard to health. This division is divided into the following categories: a) Inhalation toxicity vapours LC ₅₀ : < 200 ppm (= ml/m ³) b) Inhalation toxicity vapours LC ₅₀ : ? 200 ppm - 5,000 ppm (=ml/m ³)	Human Health	Extreme
Human Health	High				

UN Class	Hazard	Division	Description	Effects Group	Hazard Level
3	Flammable Liquids		Flammable liquids comprising liquids, mixtures of liquids, or liquids containing solids in suspension which give off a flammable vapour at specific temperatures. This class is divided into three packaging groups (PG).		
		3 PGI	Flash point: < 23°C Initial boiling point: < 35°C	Fire/Explosion	High
		3 PGII	Flash point: < 23°C Initial boiling point: > 35°C	Fire/Explosion	High
		3 PGIII	Flash point: ? 23°C; ? 60.5°C Initial boiling point: > 35°C	Fire/Explosion	Medium
		Combustible Liquids	Flash point: > 60.5°C	Fire/Explosion	Low
				Environment	Medium

UN Class	Hazard	Division	Description	Effects Group	Hazard Level
4	Flammable Solids	4.1	??Flammable solids that are readily combustible or may cause fire easily through an ignition source or friction. ??Self-reacting substances that are thermally unstable and are liable to undergo a strongly exothermic decomposition even without the participation of oxygen. ??Desensitised explosives: substances which are wetted with water or alcohol or diluted with other substances to suppress their explosive properties.	Fire/Explosion	High
		4.2	Substances liable to spontaneous combustion: ? pyrophoric substances: liquid or solid substances which, even in small quantities, ignite within 5 minutes of coming in contact with air ? self-heating substances: solid substances which generate heat when in contact with air without additional energy supply.	Fire/Explosion	Extreme
		4.3	Substances, which in contact with water, become spontaneously flammable, or emit flammable gases.	Fire/Explosion	Extreme

UN Class	Hazard	Division	Description	Effects Group	Hazard Level
5	Oxidising substances and organic peroxides	5.1	Oxidising substances: substances which, in themselves are not necessarily combustible, but may cause or contribute to the combustion of other materials by yielding oxygen.	Fire/Explosion	High
		5.2	Organic peroxides: organic substances that are thermally unstable and may undergo exothermic, self-accelerating decomposition. They may: ? be liable to explosive decomposition, ? burn rapidly, ? be sensitive to impact or friction, ? react dangerously with other substances cause damage to the eyes.	Fire/Explosion	Extreme

UN Class	Hazard	Division	Description	Effects Group	Hazard Level	
6	Poisonous (toxic) substances	6.1	Poisonous substances: substances which are liable to cause death or injury, or to harm human health if swallowed, inhaled, or contacted by the skin. This division is divided into three packaging groups (PG).			
		6.1 PGI	a) Oral toxicity LD ₅₀ (mg/kg): Dermal toxicity LD ₅₀ (mg/kg): Inhalation toxicity dust/mist LC ₅₀ (mg/l):	? 1 ? 10 ? 0.5	Human Health	Extreme
			b) Oral toxicity LD ₅₀ (mg/kg): Dermal toxicity LD ₅₀ (mg/kg): Inhalation toxicity dust/mist LC ₅₀ (mg/l):	> 1 - 5 > 10 - 40 ? 0.5	Human Health	High
		6.1 PGII	Oral toxicity LD ₅₀ (mg/kg): Dermal toxicity LD ₅₀ (mg/kg): Inhalation toxicity dust/mist LC ₅₀ (mg/l):	> 5 - 50 > 40 - 200 > 0.5 - 2	Human Health	Medium
		6.1 PGIII	Oral toxicity LD ₅₀ (mg/kg): Dermal toxicity LD ₅₀ (mg/kg): Inhalation toxicity dust/mist LC ₅₀ (mg/l):	> 50 - 500 (liquids), > 50 - 200 (solids) > 200 - 1,000 > 2 - 10	Human Health	Low
			Carcinogen		Human Health	High
		6.2	Not applicable			

UN Class	Hazard	Division	Description	Effects Group	Hazard Level
8	Corrosives		Substances which, by chemical action, can cause severe damage when in contact with living tissue or, in the case of leakage, will materially damage or destroy other materials. Corrosives are divided into three packaging groups (PG).		
		8 PGI	Very dangerous substances and preparations.	Human Health Environment	Medium High
		8 PGII	Substances and preparations presenting medium hazard.	Human Health Environment	Medium High
		8 PGIII	Substances and preparations presenting minor hazard.	Environment	High

UN Class	Hazard	Division	Description	Effects Group	Hazard Level
	Ecotoxic	Group 1	Ecotoxic substances: any substance exhibiting a toxic effect on the ecosystem, based on the toxicity to aquatic life. This division is divided into four categories.	Environment	Extreme
			a) 96 hr LC ₅₀ salmonid fish (mg/l): <0.1 48 hr EC ₅₀ daphnia (mg/l): <0.1 72 hr EC ₅₀ algae (mg/l): <0.1		
			b) 96 hr LC ₅₀ salmonid fish (mg/l): ?0.1 - 1.0 48 hr EC ₅₀ daphnia (mg/l): ?0.1 - 1.0 72 hr EC ₅₀ algae (mg/l): ?0.1 - 1.0		
			c) 96 hr LC ₅₀ salmonid fish (mg/l): ?1.0 - 10.0 48 hr EC ₅₀ daphnia (mg/l): ?1.0 - 10.0 72 hr EC ₅₀ algae (mg/l): ?1.0 - 10.0		
		d) 96 hr LC ₅₀ salmonid fish (mg/l): ?10.0 - 100.0 48 hr EC ₅₀ daphnia (mg/l): ?10.0 - 100.0 72 hr EC ₅₀ algae (mg/l): ?10.0 - 100.0	Environment	Low	
		Group 2	Environmentally damaging or persistent substances: any substance exhibiting a damaging (other than toxic) effect on the ecosystem. This division is divided into two categories.	Environment	Medium
			c) BOD ₅ (mg/l): >10,000 d) BOD ₅ (mg/l): >1,000		
		Pesticides	Pesticides are deemed to have an extreme hazard level unless data can be provided to demonstrate lesser toxicity.	Environment	Extreme
		Corrosives	All corrosives (Class 8, PG I - III) have a high Environmental Effects hazard level.	Environment	High