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ANNEX I

DANGEROUS SUBSTANCES

Dangerous substances covered by the hazard categories listed in Column 1 of Part 1 of this Annex are subject to the qualifying quantities set out in Columns 2 and 3 of Part 1.

Where a dangerous substance is covered by Part 1 of this Annex and is also listed in Part 2, the qualifying quantities set out in Columns 2 and 3 of Part 2 apply.

PART 1

Categories of dangerous substances

This Part covers all dangerous substances falling under the hazard categories listed in Column 1:

Column 1	Column 2	Column 3
Hazard categories in accordance with Regulation (EC) No 1272/2008	Qualifying quantity (tonnes) of dangerous substances as referred to in Article 3(10) for the application of	
	Lower-tier requirements	Upper-tier requirements
Section 'H' – HEALTH HAZARDS		
H1 ACUTE TOXIC Category 1, all exposure routes	5	20
H2 ACUTE TOXIC — Category 2, all exposure routes — Category 3, inhalation exposure route (see note 7)	50	200
H3 STOT SPECIFIC TARGET ORGAN TOXICITY – SINGLE EXPOSURE STOT SE Category 1	50	200
Section 'P' – PHYSICAL HAZARDS		
P1a EXPLOSIVES (see note 8) — Unstable explosives or — Explosives, Division 1.1, 1.2, 1.3, 1.5 or 1.6, or — Substances or mixtures having explosive properties according to method A.14 of	10	50

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Regulation (EC) No 440/2008 (see note 9) and do not belong to the hazard classes Organic peroxides or Self-reactive substances and mixtures		
P1b EXPLOSIVES (see note 8) Explosives, Division 1.4 (see note 10)	50	200
P2 FLAMMABLE GASES Flammable gases, Category 1 or 2	10	50
P3a FLAMMABLE AEROSOLS (see note 11.1) 'Flammable' aerosols Category 1 or 2, containing flammable gases Category 1 or 2 or flammable liquids Category 1	150 (net)	500 (net)
P3b FLAMMABLE AEROSOLS (see note 11.1) 'Flammable' aerosols Category 1 or 2, not containing flammable gases Category 1 or 2 nor flammable liquids category 1 (see note 11.2)	5 000(net)	50 000(net)
P4 OXIDISING GASES Oxidising gases, Category 1	50	200
P5a FLAMMABLE LIQUIDS — Flammable liquids, Category 1, or — Flammable liquids Category 2 or 3 maintained at a temperature above their boiling point, or — Other liquids with a flash point ≤ 60 °C, maintained at a temperature above their boiling point (see note 12)	10	50

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<p>P5b FLAMMABLE LIQUIDS</p> <p>— Flammable liquids Category 2 or 3 where particular processing conditions, such as high pressure or high temperature, may create major-accident hazards, or</p> <p>— Other liquids with a flash point ≤ 60 °C where particular processing conditions, such as high pressure or high temperature, may create major-accident hazards (see note 12)</p>	<p>50</p>	<p>200</p>
<p>P5c FLAMMABLE LIQUIDS</p> <p>Flammable liquids, Categories 2 or 3 not covered by P5a and P5b</p>	<p>5 000</p>	<p>50 000</p>
<p>P6a SELF-REACTIVE SUBSTANCES AND MIXTURES and ORGANIC PEROXIDES</p> <p>Self-reactive substances and mixtures, Type A or B or organic peroxides, Type A or B</p>	<p>10</p>	<p>50</p>
<p>P6b SELF-REACTIVE SUBSTANCES AND MIXTURES and ORGANIC PEROXIDES</p> <p>Self-reactive substances and mixtures, Type C, D, E or F or organic peroxides, Type C, D, E, or F</p>	<p>50</p>	<p>200</p>
<p>P7 PYROPHORIC LIQUIDS AND SOLIDS</p> <p>Pyrophoric liquids, Category 1</p> <p>Pyrophoric solids, Category 1</p>	<p>50</p>	<p>200</p>
<p>P8 OXIDISING LIQUIDS AND SOLIDS</p>	<p>50</p>	<p>200</p>

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Oxidising Liquids, Category 1, 2 or 3, or Oxidising Solids, Category 1, 2 or 3		
Section 'E' – ENVIRONMENTAL HAZARDS		
E1 Hazardous to the Aquatic Environment in Category Acute 1 or Chronic 1	100	200
E2 Hazardous to the Aquatic Environment in Category Chronic 2	200	500
Section 'O' – OTHER HAZARDS		
O1 Substances or mixtures with hazard statement EUH014	100	500
O2 Substances and mixtures which in contact with water emit flammable gases, Category 1	100	500
O3 Substances or mixtures with hazard statement EUH029	50	200

PART 2

Named dangerous substances

Column 1	CAS number ^a	Column 2	Column 3
Dangerous substances		Qualifying quantity (tonnes) for the application of	
		Lower-tier requirements	Upper-tier requirements
1. Ammonium nitrate (see note 13)	—	5 000	10 000
2. Ammonium nitrate (see note 14)	—	1 250	5 000

a The CAS number is shown only for indication.

b Provided that the mixture in the absence of sodium hypochlorite would not be classified as Aquatic Acute Category 1 [H400].

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3.	Ammonium nitrate (see note 15)	—	350	2 500
4.	Ammonium nitrate (see note 16)	—	10	50
5.	Potassium nitrate (see note 17)	—	5 000	10 000
6.	Potassium nitrate (see note 18)	—	1 250	5 000
7.	Arsenic pentoxide, arsenic (V) acid and/or salts	1303-28-2	1	2
8.	Arsenic trioxide, arsenious (III) acid and/or salts	1327-53-3		0,1
9.	Bromine	7726-95-6	20	100
10.	Chlorine	7782-50-5	10	25
11.	Nickel compounds in inhalable powder form: nickel monoxide, nickel dioxide, nickel sulphide, trinickel disulphide, dinickel trioxide	—		1

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b Provided that the mixture in the absence of sodium hypochlorite would not be classified as Aquatic Acute Category 1 [H400].

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12.	Ethyleneimine	151-56-4	10	20
13.	Fluorine	7782-41-4	10	20
14.	Formaldehyde (concentration ≥ 90 %)	50-00-0	5	50
15.	Hydrogen	1333-74-0	5	50
16.	Hydrogen chloride (liquefied gas)	7647-01-0	25	250
17.	Lead alkyls	—	5	50
18.	Liquefied flammable gases, Category 1 or 2 (including LPG) and natural gas (see note 19)	—	50	200
19.	Acetylene	74-86-2	5	50
20.	Ethylene oxide	75-21-8	5	50
21.	Propylene oxide	75-56-9	5	50
22.	Methanol	67-56-1	500	5 000
23.	4, 4'- Methylene bis (2- chloraniline) and/or salts, in powder form	101-14-4		0,01

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24.	Methylisocyanate	624-83-9		0,15
25.	Oxygen	7782-44-7	200	2 000
26.	2,4 -Toluene diisocyanate	584-84-9	10	100
	2,6 -Toluene diisocyanate	91-08-7		
27.	Carbonyl dichloride (phosgene)	75-44-5	0,3	0,75
28.	Arsine (arsenic trihydride)	7784-42-1	0,2	1
29.	Phosphine (phosphorus trihydride)	7803-51-2	0,2	1
30.	Sulphur dichloride	10545-99-0		1
31.	Sulphur trioxide	7446-11-9	15	75
32.	Polychlorodibenzofurans and polychlorodibenzodioxins (including TCDD), calculated in TCDD equivalent (see note 20)	—		0,001
33.	The following CARCINOGENS or the mixtures containing the following	—	0,5	2

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b Provided that the mixture in the absence of sodium hypochlorite would not be classified as Aquatic Acute Category 1 [H400].

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	carcinogens at concentrations above 5 % by weight: 4-Aminobiphenyl and/or its salts, Benzotrichloride, Benzidine and/or salts, Bis (chloromethyl) ether, Chloromethyl methyl ether, 1,2-Dibromoethane, Diethyl sulphate, Dimethyl sulphate, Dimethylcarbamoyl chloride, 1,2-Dibromo-3-chloropropane, 1,2-Dimethylhydrazine, Dimethylnitrosamine, Hexamethylphosphoric triamide, Hydrazine, 2-Naphthylamine and/or salts, 4-Nitrodiphenyl, and 1,3 Propanesultone			
34.	Petroleum products and alternative fuels	—	2 500	25 000
(a)	gasolines and naphthas,			
(b)	kerosenes (including jet fuels),			
(c)	gas oils (including diesel fuels, home heating oils and gas oil blending streams)			
(d)	heavy fuel oils			

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b Provided that the mixture in the absence of sodium hypochlorite would not be classified as Aquatic Acute Category 1 [H400].

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(e)	alternative fuels serving the same purposes and with similar properties as regards flammability and environmental hazards as the products referred to in points (a) to (d)			
35.	Anhydrous Ammonia	7664-41-7	50	200
36.	Boron trifluoride	7637-07-2	5	20
37.	Hydrogen sulphide	7783-06-4	5	20
38.	Piperidine	110-89-4	50	200
39.	Bis(2-dimethylaminoethyl) (methyl)amin	3030-47-5	50	200
40.	3-(2-Ethylhexyloxy)propylamin	5397-31-9	50	200
41.	Mixtures ^b of sodium hypochlorite classified as Aquatic Acute Category 1 [H400] containing less than 5 % active chlorine and		200	500

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	not classified under any of the other hazard categories in Part 1 of Annex I.			
42.	Propylamine (see note 21)	107-10-8	500	2 000
43.	Tert-butyl acrylate (see note 21)	1663-39-4	200	500
44.	2-Methyl-3-butenitrile (see note 21)	16529-56-9	500	2 000
45.	Tetrahydro-3,5-dimethyl-1,3,5-thiadiazine-2-thione (Dazomet) (see note 21)	533-74-4	100	200
46.	Methyl acrylate (see note 21)	96-33-3	500	2 000
47.	3-Methylpyridine (see note 21)	108-99-6	500	2 000
48.	1-Bromo-3-chloropropane (see note 21)	109-70-6	500	2 000

a The CAS number is shown only for indication.

b Provided that the mixture in the absence of sodium hypochlorite would not be classified as Aquatic Acute Category 1 [H400].

NOTES TO ANNEX I

- Substances and mixtures are classified in accordance with Regulation (EC) No 1272/2008.

2. Mixtures shall be treated in the same way as pure substances provided they remain within concentration limits set according to their properties under Regulation (EC) No 1272/2008, or its latest adaptation to technical progress, unless a percentage composition or other description is specifically given.
3. The qualifying quantities set out above relate to each establishment.

The quantities to be considered for the application of the relevant Articles are the maximum quantities which are present or are likely to be present at any one time. Dangerous substances present at an establishment only in quantities equal to or less than 2 % of the relevant qualifying quantity shall be ignored for the purposes of calculating the total quantity present if their location within an establishment is such that it cannot act as an initiator of a major accident elsewhere at that establishment.

4. The following rules governing the addition of dangerous substances, or categories of dangerous substances, shall apply where appropriate:

In the case of an establishment where no individual dangerous substance is present in a quantity above or equal to the relevant qualifying quantities, the following rule shall be applied to determine whether the establishment is covered by the relevant requirements of this Directive.

This Directive shall apply to upper-tier establishments if the sum:

$$q_1/Q_{U1} + q_2/Q_{U2} + q_3/Q_{U3} + q_4/Q_{U4} + q_5/Q_{U5} + \dots \text{ is greater than or equal to } 1,$$

where q_x = the quantity of dangerous substance x (or category of dangerous substances) falling within Part 1 or Part 2 of this Annex,

and Q_{UX} = the relevant qualifying quantity for dangerous substance or category x from Column 3 of Part 1 or from Column 3 of Part 2 of this Annex.

This Directive shall apply to lower-tier establishments if the sum:

$$q_1/Q_{L1} + q_2/Q_{L2} + q_3/Q_{L3} + q_4/Q_{L4} + q_5/Q_{L5} + \dots \text{ is greater than or equal to } 1,$$

where q_x = the quantity of dangerous substance x (or category of dangerous substances) falling within Part 1 or Part 2 of this Annex,

and Q_{LX} = the relevant qualifying quantity for dangerous substance or category x from Column 2 of Part 1 or from Column 2 of Part 2 of this Annex.

This rule shall be used to assess the health hazards, physical hazards and environmental hazards. It must therefore be applied three times:

- (a) for the addition of dangerous substances listed in Part 2 that fall within acute toxicity category 1, 2 or 3 (inhalation route) or STOT SE category 1, together with dangerous substances falling within section H, entries H1 to H3 of Part 1;
- (b) for the addition of dangerous substances listed in Part 2 that are explosives, flammable gases, flammable aerosols, oxidising gases, flammable liquids, self-reactive substances and mixtures, organic peroxides, pyrophoric liquids and solids, oxidising liquids and solids, together with dangerous substances falling within section P, entries P1 to P8 of Part 1;
- (c) for the addition of dangerous substances listed in Part 2 that fall within hazardous to the aquatic environment acute category 1, chronic category 1 or chronic category 2, together with dangerous substances falling within section E, entries E1 and E2 of Part 1.

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The relevant provisions of this Directive apply where any of the sums obtained by (a), (b) or (c) is greater than or equal to 1.

5. In the case of dangerous substances which are not covered by Regulation (EC) No 1272/2008, including waste, but which nevertheless are present, or are likely to be present, in an establishment and which possess or are likely to possess, under the conditions found at the establishment, equivalent properties in terms of major-accident potential, these shall be provisionally assigned to the most analogous category or named dangerous substance falling within the scope of this Directive.
6. In the case of dangerous substances with properties giving rise to more than one classification, for the purposes of this Directive the lowest qualifying quantities shall apply. However, for the application of the rule in Note 4, the lowest qualifying quantity for each group of categories in Notes 4(a), 4(b) and 4(c) corresponding to the classification concerned shall be used.
7. Dangerous substances that fall within Acute Toxic Category 3 via the oral route (H 301) shall fall under entry H2 ACUTE TOXIC in those cases where neither acute inhalation toxicity classification nor acute dermal toxicity classification can be derived, for example due to lack of conclusive inhalation and dermal toxicity data.
8. The hazard class Explosives includes explosive articles (see Section 2.1 of Annex I to Regulation (EC) No 1272/2008). If the quantity of the explosive substance or mixture contained in the article is known, that quantity shall be considered for the purposes of this Directive. If the quantity of the explosive substance or mixture contained in the article is not known, then, for the purposes of this Directive, the whole article shall be treated as explosive.
9. Testing for explosive properties of substances and mixtures is only necessary if the screening procedure according to Appendix 6, Part 3 of the UN Recommendations on the Transport of Dangerous Goods, Manual of Tests and Criteria (UN Manual of Tests and Criteria)⁽¹⁾ identifies the substance or mixture as potentially having explosive properties.
10. If Explosives of Division 1.4 are unpacked or repacked, they shall be assigned to the entry P1a, unless the hazard is shown to still correspond to Division 1.4, in accordance with Regulation (EC) No 1272/2008.
- 11.1. Flammable aerosols are classified in accordance with the Council Directive 75/324/EEC of 20 May 1975 on the approximation of the laws of the Member States relating to aerosol dispensers⁽²⁾ (Aerosol Dispensers Directive). ‘Extremely flammable’ and ‘Flammable’ aerosols of Directive 75/324/EEC correspond to Flammable Aerosols Category 1 or 2 respectively of Regulation (EC) No 1272/2008.
- 11.2. In order to use this entry, it must be documented that the aerosol dispenser does not contain Flammable Gas Category 1 or 2 nor Flammable Liquid Category 1.
12. According to paragraph 2.6.4.5 in Annex I to Regulation (EC) No 1272/2008, liquids with a flash point of more than 35 °C need not be classified in Category 3 if negative results have been obtained in the sustained combustibility test L.2, Part III, section 32 of the UN Manual of Tests and Criteria. This is however not valid under elevated conditions such as high temperature or pressure, and therefore such liquids are included in this entry.
13. Ammonium nitrate (5 000 / 10 000): fertilisers capable of self-sustaining decomposition

This applies to ammonium nitrate-based compound/composite fertilisers (compound/composite fertilisers contain ammonium nitrate with phosphate and/or potash) which are capable of self-sustaining decomposition according to the UN Trough Test (see UN Manual of Tests and Criteria, Part III, subsection 38.2), and in which the nitrogen content as a result of ammonium nitrate is

- between 15,75 %⁽³⁾ and 24,5 %⁽⁴⁾ by weight, and either with not more than 0,4 % total combustible/organic materials or which fulfil the requirements of Annex III-2 to Regulation (EC) No 2003/2003 of the European Parliament and of the Council of 13 October 2003 relating to fertilisers⁽⁵⁾,
 - 15,75 % by weight or less and unrestricted combustible materials.
14. Ammonium nitrate (1 250 / 5 000): fertiliser grade

This applies to straight ammonium nitrate-based fertilisers and to ammonium nitrate-based compound/composite fertilisers which fulfil the requirements of Annex III-2 to Regulation (EC) No 2003/2003 and in which the nitrogen content as a result of ammonium nitrate is

- more than 24,5 % by weight, except for mixtures of straight ammonium nitrate-based fertilisers with dolomite, limestone and/or calcium carbonate with a purity of at least 90 %,
- more than 15,75 % by weight for mixtures of ammonium nitrate and ammonium sulphate,
- more than 28 %⁽⁶⁾ by weight for mixtures of straight ammonium nitrate-based fertilisers with dolomite, limestone and/or calcium carbonate with a purity of at least 90 %.

15. Ammonium nitrate (350 / 2 500): technical grade

This applies to ammonium nitrate and mixtures of ammonium nitrate in which the nitrogen content as a result of the ammonium nitrate is

- between 24,5 % and 28 % by weight, and which contain not more than 0,4 % combustible substances,
- more than 28 % by weight, and which contain not more than 0,2 % combustible substances.

It also applies to aqueous ammonium nitrate solutions in which the concentration of ammonium nitrate is more than 80 % by weight.

16. Ammonium nitrate (10 / 50): 'off-specs' material and fertilisers not fulfilling the detonation test

This applies to

- material rejected during the manufacturing process and to ammonium nitrate and mixtures of ammonium nitrate, straight ammonium nitrate-based fertilisers and ammonium nitrate-based compound/composite fertilisers referred to in Notes 14 and 15, that are being or have been returned from the final user to a manufacturer, temporary storage or reprocessing plant for reworking, recycling or treatment for safe use, because they no longer comply with the specifications of Notes 14 and 15,
- fertilisers referred to in first indent of Note 13, and Note 14 to this Annex which do not fulfil the requirements of Annex III-2 to Regulation (EC) No 2003/2003.

17. Potassium nitrate (5 000 / 10 000)

This applies to those composite potassium-nitrate based fertilisers (in prilled/granular form) which have the same hazardous properties as pure potassium nitrate.

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18. Potassium nitrate (1 250 / 5 000)

This applies to those composite potassium-nitrate based fertilisers (in crystalline form) which have the same hazardous properties as pure potassium nitrate.

19. Upgraded biogas

For the purpose of the implementation of this Directive, upgraded biogas may be classified under entry 18 of Part 2 of Annex I where it has been processed in accordance with applicable standards for purified and upgraded biogas ensuring a quality equivalent to that of natural gas, including the content of Methane, and which has a maximum of 1 % Oxygen.

20. Polychlorodibenzofurans and polychlorodibenzodioxins

The quantities of polychlorodibenzofurans and polychlorodibenzodioxins are calculated using the following factors:

WHO 2005 TEF			
2,3,7,8-TCDD	1	2,3,7,8-TCDF	0,1
1,2,3,7,8-PeCDD	1	2,3,4,7,8-PeCDF	0,3
		1,2,3,7,8-PeCDF	0,03
1,2,3,4,7,8-HxCDD	0,1		
1,2,3,6,7,8-HxCDD	0,1	1,2,3,4,7,8-HxCDF	0,1
1,2,3,7,8,9-HxCDD	0,1	1,2,3,7,8,9-HxCDF	0,1
		1,2,3,6,7,8-HxCDF	0,1
1,2,3,4,6,7,8-HpCDD	0,01	2,3,4,6,7,8-HxCDF	0,1
OCDD	0,0003	1,2,3,4,6,7,8-HpCDF	0,01
		1,2,3,4,7,8,9-HpCDF	0,01
		OCDF	0,0003

(T = tetra, P = penta, Hx = hexa, Hp = hepta, O = octa)

Reference — Van den Berg et al: The 2005 World Health Organisation Re-evaluation of Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds

21. In cases where this dangerous substance falls within category P5a Flammable liquids or P5b Flammable liquids, then for the purposes of this Directive the lowest qualifying quantities shall apply.

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- (1) More guidance on waiving of the test can be found in the A.14 method description, see Commission Regulation (EC) No 440/2008 of 30 May 2008 laying down test methods pursuant to Regulation (EC) No 1907/2006 of the European Parliament and of the Council on the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) ([OJ L 142, 31.5.2008, p. 1](#)).
- (2) [OJ L 147, 9.6.1975, p. 40](#).
- (3) 15,75 % nitrogen content by weight as a result of ammonium nitrate corresponds to 45 % ammonium nitrate.
- (4) 24,5 % nitrogen content by weight as a result of ammonium nitrate corresponds to 70 % ammonium nitrate.
- (5) [OJ L 304, 21.11.2003, p. 1](#).
- (6) 28 % nitrogen content by weight as a result of ammonium nitrate corresponds to 80 % ammonium nitrate.