

Q 1 A solution of 20% isobutyl ketone and 10% 1-butanol in water had a flash point of 35°C. (7)

a) What is the class, classification code and packing group of this solution?

Based on the flashpoint the mixture meets the criteria of a Class 3, PG III, with the classification code F1 as both flammable ingredients do not have subsidiary hazards

b) Select an appropriate UN number and proper shipping name for the solution

UN 1993 FLAMMABLE LIQUID, N.O.S. (Contains isobutyl ketone, 1-butanol)

Ref ADR 3.2 Table B, Table A, 2.2.3.1.3, 2.2.3.3, 3.3 SP274, 3.1.2.8

Q2 A new liquid turpentine substitute is produced with a flash point of 39°C. (4)

a) What packing group applies to this solvent?

Packing group III

b) It is to be distributed by a printing supplies company. Can it be shipped under the proper shipping name PRINTING INK RELATED MATERIAL?

No, SP163 which applies to UN 1210 PRINTING INK RELATED MATERIAL states that this entry cannot be used for a substance mentioned in Table A – Turpentine substitute has its own entry, UN1300

Ref ADR 2.2.3.1.3, 3.2 Table A, Table B 3.3 SP163

Q3 To what class do the following substances belong? (4)

a) A substance which has a self accelerating polymerisation temperature (SAPT) of 60°C and has a heat of reaction of 400 J/g

Class 4.1 Polymerising Substances

b) A substance which can cause disease in animals

Class 6.2 Infectious Substances

Ref ADR 2.2.41.1.20, 2.2.62.1.1

Q4 What does the following label signify? (3)



That the package contains lithium batteries of Class 9 miscellaneous dangerous substances and articles

Ref [ADR 5.2.2.2.2, 5.2.2.1.3](#)

Q5 Bromine solution is to be shipped in fibreboard boxes from Italy to Ireland. The boxes are small with each only containing 4 x 200 ml glass bottles (9)

a) Do the boxes need to be UN approved? Explain your answer.

Bromine Solution has the UN number UN 1744. It is not allowed to be packaged as Limited Quantities or Excepted Quantities 0 code in dangerous goods list. Thus only Packing Instruction P804 applies which requires the use of UN packaging as all sections of 4.1.1 apply

b) The boxes will be placed on pallets and covered with black shrink wrap displaying the UN number. Is this sufficient? Explain your answer in full.

No, The outside of the shrink wrap must also display labels No 8 & 6.1 and orientation marks on two opposite sides and the word OVERPACK in letters 12 mm high in Italian (language of the shipper) and one of English, French or German

Ref [ADR 3.2 Table B, Table A columns 1, 5, 7A, 7B, 8 4.1.4 P804, 4.1.1.3, 5.2.2.1.1, 5.2.1.10, 5.1.2.1 a & b](#)

Q6 Can pure Dibenzoyl peroxide be carried on the same vehicle with sodium bromate? (6)

Dibenzoyl peroxide 100% is assigned to UN 3102 and must be labelled with label nos 5.2 +1

Sodium bromate is assigned to UN 1494 and must be labelled with label no 5.1

According to the table in 7.5.2.1 mixed loading of goods with label no 5.1 is not permitted with goods labelled 5.2 +1

Ref [ADR 2.2.52.4, 3.2 Table A, Table B 7.5.2.1](#)

Q7 A UN approved packaging has the following packaging code (5)

Ⓢ 6HA1/X/250/19/S/MAR621

Explain the meaning of the following elements of the code

6HA1 Composite packaging –steel drum with plastic receptacle/liner

X Successfully tested for packing groups I, II, And III

250 The hydraulic pressure test in kPa for a packaging intended to hold liquids

S The state authorising allocation of the mark - Sweden

Ref [ADR 6.1.3.1, 61.2.7](#)

Q8 An ADR trained driver arrives at a customer site to pick up a dangerous goods load (5)

a) The goods are loaded by a forklift operated by site staff. Under ADR what training if any is required for the forklift driver?

The driver should have general awareness safety and function specific training according to 1.3 as he is a participant identified in ADR1.4

b) Another member of the customer's staff asks the driver for a lift home as he will be passing by his house. Is this allowed?

No passengers are not allowed

c) If the driver is accompanied by a helper, what training is required for the helper??

The helper must have training in accordance with 1.3 and be also capable of operating the fire extinguishers

Ref ADR 1.3.1, 1.3.2, 8.3.1, 8.2.3, 8.3.2

Q9 What additional information must be shown on the transport document for the following? (4)

a) A liquid offered for transport above 100°C without any indication from the proper shipping name that it is an elevated temperature shipment

HOT

b) A shipment of a temperature controlled package?

Control and emergency temperatures

Ref ADR 5.4.1.1.14, 5.4.1.1.15

Q 10 Is it possible to transport empty uncleaned storage tanks from a decommissioned petrol station exempt from the ADR transport regulations? (3)

Yes (the storage tank would have been used for class 3 substances)

Ref ADR 1.1.3.1 (f)