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Working Party on the Transport of Dangerous Goods

Joint Meeting of Experts on the Regulations annexed to the European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways (ADN) (ADN Safety Committee)

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Implementation of the European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways (ADN): Training of experts

ADN catalogue of questions 20~~21~~23: Chemicals

Transmitted by the Central Commission for the Navigation of the Rhine (CCNR)[*, **]

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** A/76/6 (Sect. 20), para. 20.76.

Chemicals — knowledge of physics and chemistry

Examination objective 1: General

Number	*Source*	*Correct answer*
331 01.0-01	Basic general knowledge	B
	The combustion of butane is: A A physical reaction B A chemical reaction C A biological reaction D A geological reaction	
331 01.0-02	Basic general knowledge	B
	Which of the following could happen to a substance in a physical reaction? A The substance’s state changes and the substance itself also changes B The substance’s state changes but the substance itself does not change C The substance’s state does not change but the substance itself changes D The substance’s state does not change, nor does the substance itself	
331 01.0-03	Basic general knowledge	C
	Which of the following reactions is a chemical reaction? A The melting of candle wax B The dissolving of sugar in water C The oxidation of iron D The evaporation of motor spirit or gasoline or petrol	
331 01.0-04	Basic general knowledge	D
	Which of the following reactions is a physical reaction? A The combustion of diesel fuel B The decomposition of water into hydrogen and oxygen C The oxidation of aluminium D The solidification of benzene	

Chemicals — knowledge of physics and chemistry

Examination objective 1: General

Number	*Source*	*Correct answer*
331 01.0-05	Basic general knowledge	B
	Which of the following reactions is a physical reaction? A The decomposition of mercury oxide into mercury and oxygen B The expansion of gasoil C The polymerization of styrene D The combustion of home heating oils	
331 01.0-06	Basic general knowledge	A
	What is the evaporation of UN No. 1846, CARBON TETRACHLORIDE? A A physical reaction B A chemical reaction C A biological reaction D A geological reaction	
331 01.0-07	Basic general knowledge	B
	What is polymerization of UN No. 2055, STYRENE MONOMER STABILIZED? A A physical reaction B A chemical reaction C A biological reaction D A geological reaction	
331 01.0-08	Basic general knowledge	C
	What is the combustion of UN No. 2247, n-DECANE? A A biological reaction B A physical reaction C A chemical reaction D A geological reaction	

Chemicals — knowledge of physics and chemistry

Examination objective 2: Temperature, pressure, volume

Number	*Source*	*Correct answer*
331 02.0-01	Basic knowledge of physics	C
	Which value is equivalent to 0.5 bar? A 0.5 kPa B 5.0 kPa C 50.0 kPa D 500.0 kPa	
331 02.0-02	Basic knowledge of physics	B
	A closed container has a pressure of 180 kPa at a temperature of 27 °C. The volume of the container does not change. What is the excess pressure at 77 °C? A 154.3 kPa B 210.0 kPa C 230.0 kPa D 513.3 kPa	
331 02.0-03	Basic knowledge of physics	D
	If ~~A~~a closed cargo tank is 95 % filled with UN No. 1547, ANILINE,~~.~~ ~~W~~when will vaporization of the aniline cease? A Once the pressure of the aniline vapour is equal to the outside air pressure B Once the aniline has completely vaporized C Once the critical temperature has been reached D Once the pressure of the aniline vapour is equal to the saturated vapour pressure	
331 02.0-04	Basic knowledge of physics	A
	The pressure above a liquid increases. What happens to the liquid’s boiling point? A The boiling point increases B The boiling point decreases C The boiling point remains the same D The boiling point increases then drops	

Chemicals — knowledge of physics and chemistry

Examination objective 2: Temperature, pressure, volume

Number	*Source*	*Correct answer*
331 02.0-05	Basic knowledge of physics	C
	What happens when ~~A~~a closed bottle of gas is heated in the sun~~. What happens~~? A Only the pressure rises B Only the temperature rises C Both the pressure and the temperature rise D The pressure falls, but the temperature rises	
331 02.0-06	Basic knowledge of physics	C
	A closed empty cargo tank with a volume of 240 m^3 has an excess pressure of 10 kPa. The tank receives a liquid cargo of 80 m^3. The temperature remains constant. What is then the excess pressure in the cargo tank? A 5 kPa B 7.5 kPa C 15 kPa D 30 kPa	
331 02.0-07	Basic knowledge of physics	B
	A liquid at constant temperature has: A A specific shape and a specific volume B No specific shape, but a specific volume C A specific shape, but no specific volume D No specific shape or volume	
331 02.0-08	Basic knowledge of physics	A
	What is the critical temperature? A The temperature above which a gas cannot be liquefied B The lowest temperature possible, namely 0 K C The temperature above which a gas can be liquefied D The temperature at which the lower explosive limit is reached	
331 02.0-09	Basic knowledge of physics	A
	Which temperature is equivalent to 353 K? A 80 ºC B 253 ºC C 353 ºC D 626 ºC	

Chemicals — knowledge of physics and chemistry

Examination objective 2: Temperature, pressure, volume

Number	*Source*	*Correct answer*
331 02.0-10	Basic knowledge of physics	C
	At 21 °C, the volume of an enclosed gas is 98 litres. The pressure remains constant. What is the volume at 30 °C? A 95 litres B 98 litres C 101 litres D 140 litres	
331 02.0-11	Basic knowledge of physics	B
	What is the lowest temperature possible? A 0 ºC B 0 K C -273 K D 273 K	
331 02.0-12	Basic knowledge of physics	B
	Which liquids are considered as liquids having a low boiling point? A Liquids with a boiling point below 0 °C B Liquids with a boiling point below 100 °C C Liquids with a boiling point between 100 °C and 150 °C D Liquids with a boiling point above 150 °C	
331 02.0-13	Basic knowledge of physics	C
	When a pure substance melts, what happens to the temperature? A It rises B It falls C It remains constant D It rises or falls depending on the substance	
331 02.0-14	Basic knowledge of physics	B
	The boiling point of UN No. 1897, TETRACHLOROETHYLENE is 121 °C. What is tetrachloroethylene? A A liquid with a low boiling point B A liquid with a medium boiling point C A liquid with a high boiling point D A gas	

Chemicals — knowledge of physics and chemistry

Examination objective 2: Temperature, pressure, volume

Number	*Source*	*Correct answer*
331 02.0-15	Basic knowledge of physics	C
	Wha~~t~~i~~ch~~ temperature in kelvin is equivalent to a temperature of 30 °C? A 30 K B 243 K C 303 K D -243 K	
331 02.0-16	Basic knowledge of physics	D
	Which are liquids with a high boiling point? A Liquids with a boiling point below 50 °C B Liquids with a boiling point below 100 °C C Liquids with a boiling point between 100 °C and 150 °C D Liquids with a boiling point above 150 °C	
331 02.0-17	Basic knowledge of physics	B
	In Gay-Lussac's law, what unit is always used to express temperature? A ºC B K C Pa D ºF	
331 02.0-18	Basic knowledge of physics	A
	The boiling point of UN No. 1155, DIETHYL ETHER is 35 °C. What is diethyl ether? A A liquid with a low boiling point B A liquid with a medium boiling point C A liquid with a high boiling point D A liquid with a very high boiling point	
331 02.0-19	Basic knowledge of physics	D
	Which unit is used to express pressure? A The kelvin B The litre C The newton D The pascal	

Chemicals — knowledge of physics and chemistry

Examination objective 2: Temperature, pressure, volume

Number	*Source*	*Correct answer*
331 02.0-20	Basic knowledge of physics	D
	What ppm value is equivalent to a volume of 100 %? A 1 ppm B 100 ppm C 1,000 ppm D 1,000,000 ppm	
331 02.0-21	Basic knowledge of physics	B
	A closed container has an excess pressure of 200 kPa at a temperature of 7 °C. The excess pressure rises to 400 kPa. The volume does not change. What is the new temperature? A 14 ºC B 287 ºC C 560 ºC D -133 ºC	
331 02.0-22	Basic knowledge of physics	C
	What happens to the pressure ~~I~~in an enclosed space~~,~~ when the absolute temperature drops to half the initial temperature in the space~~. What happens to the pressure~~? A The pressure doubles B The pressure remains constant C The pressure drops by half D The pressure becomes four times lower	
331 02.0-23	Basic knowledge of physics	C
	What does the boiling point of a liquid signify? A The pressure of the liquid at a temperature of 100 °C B The quantity of liquid that reaches boiling point C The temperature at which the liquid is converted to a vapour at a pressure of 100 kPa D The volume of a liquid at a temperature of 100 °C and a pressure of 100 kPa	

Chemicals — knowledge of physics and chemistry

Examination objective 3: Physical state

Number	*Source*	*Correct answer*
331 03.0-01	Basic knowledge of physics	C
	What is the transition from solid to gaseous state called? A Solidification B Condensation C Sublimation D Gasification	
331 03.0-02	Basic knowledge of physics	B
	What is the transition from gaseous to liquid state called? A Solidification B Condensation C Maturation D Sublimation	
331 03.0-03	Basic knowledge of physics	B
	What is condensation an example of? A The transition from gaseous to solid state B The transition from gaseous to liquid state C The transition from liquid to gaseous state D The evaporation of a substance	
331 03.0-04	Basic knowledge of physics	A
	Which of the following is an example of sublimation? A The transition of carbonic snow to a gaseous state B The formation of condensation on a cold window C The solidification of molten iron D The evaporation of liquid hexane from soya cake	
331 03.0-05	Basic knowledge of physics	D
	What is solidification? A The transition from solid to liquid state B The transition from liquid to gaseous state C The transition from gaseous to liquid state D The transition from liquid to solid state	

Chemicals — knowledge of physics and chemistry

Examination objective 3: Physical state

Number	*Source*	*Correct answer*
331 03.0-06	Deleted (2012)	
331 03.0-07	Basic knowledge of physics	C
	What is the transition from solid to gaseous state called? A Melting B Solidification C Sublimation D Gasification	
331 03.0-08	Basic knowledge of physics	A
	At normal pressure, the temperature of a substance is higher than its boiling point. What then is the physical state of the substance? A Gaseous B Liquid C Solid D Liquid or solid	
331 03.0-09	Basic knowledge of physics	B
	What physical state does UN No. 1605, ETHYLENE DIBROMIDE (1.2 DIBROMETHANE) assume at a temperature of +5 °C? A A gaseous state B A solid state C A liquid state D An indeterminate state	
331 03.0-10	Basic knowledge of physics	C
	What is the transition of a substance from a solid state to a gaseous state called? A Evaporation B Condensation C Sublimation D Recombination	
331 03.0-11	Basic knowledge of chemistry	A
	If ~~A~~a new substance is formed as a result of a reaction,~~.~~ ~~W~~what kind of reaction has taken place? A A chemical reaction B A physical reaction C A meteorological reaction D A logical reaction	

Chemicals — knowledge of physics and chemistry

Examination objective 4: Fire, combustion

Number	*Source*	*Correct answer*
331 04.0-01	Basic knowledge of substances	B
	The explosivity range of UN No. 1547, ANILINE is 1.2 % to 11 % (by volume). What would the properties of a mixture of 0.1 % (by volume) of aniline and 99.9 % (by volume) of air be? A Flammable but not explosive B Neither flammable nor explosive C Flammable and explosive D Not flammable, but explosive	
331 04.0-02	Basic knowledge of substances	B
	The auto-ignition temperature of UN No. 1779, FORMIC ACID is 480 °C. Which of the following is true if the temperature of the formic acid-air mixture is below 480 °C? A The formic acid cannot ignite B The formic acid cannot ignite spontaneously (of its own accord) C The formic acid might ignite spontaneously (of its own accord) D The formic acid might ignite spontaneously (of its own accord), but not explode	
331 04.0-03	Basic knowledge of substances	C
	What is a catalyst? A A substance that prevents polymerization without contaminating the product B A substance that prevents static electricity without contaminating the product C A substance that accelerates a reaction but is not altered by the reaction D A substance that can be added as a colouring without contaminating the product	
331 04.0-04	Basic knowledge of substances	B
	What is a detonation? A A cleaning product B An explosion C A test tube D An inhibitor	

Chemicals — knowledge of physics and chemistry

Examination objective 4: Fire, combustion

Number	*Source*	*Correct answer*
331 04.0-05	Basic knowledge of substances	C
	The flash-point of UN No. 1282, PYRIDINE is 20 ºC. What happens to pyridine at a temperature of 25 ºC? A It is liable to ignite spontaneously B It does not produce enough vapour to be ignitable C It produces enough vapour to be ignitable D It produces too much vapour to be ignitable	
331 04.0-06	Basic knowledge of substances	A
	Which reaction requires the highest speed of combustion? A A detonation B A deflagration C An explosion D An implosion	
331 04.0-07	Basic knowledge of substances	C
	How can an explosion be prevented by thermal intervention? A By heating the substance B By increasing the pressure on the substance C By cooling the substance D By compressing the substance	
331 04.0-08	Basic knowledge of substances	B
	The explosivity range of UN No. 1114, BENZENE is 1.2 to 8.6 % (by volume). What would the properties of a mixture of 5 % (by volume) of benzene and 95 % (by volume) of air be? A Non-flammable but explosive B Flammable and explosive C Neither flammable nor explosive D Flammable but not explosive	

Chemicals — knowledge of physics and chemistry

Examination objective 5: Density

Number	*Source*	*Correct answer*
331 05.0-01	Basic knowledge of substances – ρ = m/V	B
	A cargo of UN No. 2874, FURFURYL ALCOHOL has a mass of 550 tonnes. The relative density of furfuryl alcohol is 1.1. What is the volume of the cargo? A 5 m^3 B 500 m^3 C 605 m^3 D 2,000 m^3	
331 05.0-02	Basic knowledge of substances – ρ = m/V	C
	A cargo of UN No. 1991, CHLOROPRENE, STABILZED, has a volume of 500 m^3. The relative density of chloroprene is 0.96. What is the mass of the cargo? A 0.48 t B 192.0 t C 480.0 t D 521.0 t	
331 05.0-03	Basic knowledge of substances – ρ = m/V	A
	A cargo of 600 m^3 UN No. 1218, ISOPRENE, STABILIZED, has a mass of 420 tonnes. What then is the relative density of the isoprene? A 0.7 B 2.03 C 1.43 D 2.52	
331 05.0-04	Basic knowledge of substances – ρ = m/V	B
	How is the density of a substance calculated? A By dividing the volume by the mass B By dividing the mass by the volume C By multiplying the volume by the mass D By adding the mass and the volume	

Chemicals — knowledge of physics and chemistry

Examination objective 5: Density

Number	*Source*	*Correct answer*
331 05.0-05	Basic knowledge of substances – ρ = m/V	C
	~~The temperature of a quantity~~ What happens to the density of UN No. 1547, ANILINE if the temperature increases~~. What happens to the density of the aniline~~? A The density increases B The density remains constant C The density decreases D The density sometimes increases and sometimes decreases	
331 05.0-06	Basic knowledge of substances – ρ = m/V	B
	The mass density (density) of a substance is given as 2.15 kg/dm^3. Which value corresponds to this density? A 0.00215 t/m^3 B 2.15 t/m^3 C 21.5 t/m^3 D 215 t/m^3	
331 05.0-07	Basic knowledge of substances – ρ = m/V	B
	The relative density of a liquid is 0.95. What is the mass of 1,900 m^3 of this liquid? A 1,805 kg B 1,805 t C 200 kg D 200 t	
331 05.0-08	Basic knowledge of substances – ρ = m/V	A
	The mass of 180 litres of UN No. 1092, ACROLEINE, STABILIZED is 144 kg. What is the relative density of the substance? A 0.8 B 1.25 C 2.59 D 3.6	

Chemicals — knowledge of physics and chemistry

Examination objective 5: Density

Number	*Source*	*Correct answer*
331 05.0-09	Basic knowledge of substances – ρ = m/V	C
	The relative density of a substance is 1.15. What is its volume if its mass is 2,300 tonnes? A 250 m^3 B 500 m^3 C 2,000 m^3 D 2,645 m^3	
331 05.0-10	Basic knowledge of substances – ρ = m/V	A
	If ~~T~~the volume of a quantity of gas decreases,~~.~~ ~~W~~what happens to ~~the~~ its density? A The density increases B The density remains constant C The density decreases D The density sometimes increases and sometimes decreases	
331 05.0-11	Basic knowledge of substances – ρ = m/V	A
	How is the mass of a substance calculated? A By multiplying the mass density (density) by the volume B By dividing the mass density (density) by the volume C By dividing the volume by the mass density (density) D By dividing the volume by the pressure	
331 05.0-12	Basic knowledge of substances – ρ = m/V	C
	How is the volume of a substance calculated? A By multiplying the mass density (density) by the mass B By dividing the mass density (density) by the mass C By dividing the mass by the mass density (density) D By dividing the mass by the pressure	
331 05.0-13	Basic knowledge of substances – ρ = m/V	A
	~~The temperature~~ What happens to the density of ~~a quantity of~~ UN No. 2789, ACETIC ACID SOLUTION if the temperature decreases~~. How does the density of the acetic acid change~~? A The density increases B The density decreases C The density remains constant D The density sometimes increases and sometimes decreases	

Chemicals — knowledge of physics and chemistry

Examination objective 5: Density

Number	*Source*	*Correct answer*
331 05.0-14	Basic knowledge of substances – ρ = m/V	C
	What is the unit of mass density (density) used in the International System of Units (SI)? A m^3 B kg C kg/m^3 D l	
331 05.0-15	Basic knowledge of substances – ρ = m/V	C
	What does the density of a gas depend on? A On temperature only B On pressure only C On pressure and temperature D On volume only	
331 05.0-16	Basic knowledge of substances – ρ = m/V	B
	In most cases, how does the density of liquid vapours compare with the density of the outside air? A It is equivalent B It is higher C It is lower D None of the above	

Chemicals — knowledge of physics and chemistry

Examination objective 6: Mixtures, chemical bonds

Number	*Source*	*Correct answer*
331 06.0-01	Basic knowledge of chemistry	B
	A metal reacts with oxygen. A black powdery substance results. What do we call this substance? A An element B A compound C An alloy D A mixture	
331 06.0-02	Basic knowledge of chemistry	D
	Which of the following statements is true? A A mixture always consists of three substances in specific proportions B A mixture involves a chemical reaction C When a mixture is produced, heat is always released D A mixture is composed of at least two substances	
331 06.0-03	Basic knowledge of chemistry	C
	What is pure water (H_2O) an example of? A An alloy B An element C A compound D A mixture	
331 06.0-04	Basic knowledge of chemistry	C
	What does an organic compound always contain? A Hydrogen atoms B Oxygen atoms C Carbon atoms D Nitrogen atoms	

Chemicals — knowledge of physics and chemistry

Examination objective 6: Mixtures, chemical bonds

Number	*Source*	*Correct answer*
331 06.0-05	Basic knowledge of chemistry	A
	What is formed when sugar is dissolved? A A mixture B A compound C An alloy D An element	
331 06.0-06	Basic knowledge of chemistry	B
	What happens when hydrogen is released from a compound? A Being heavier than air, it collects near the ground B Being lighter than air, it rises C It immediately combines with nitrogen in the air D Water is formed in a catalytic reaction	
331 06.0-07	Basic knowledge of chemistry	D
	Which elements are contained in the compound nitric acid (HNO_3)? A Sulphur, nitrogen and oxygen B Carbon, hydrogen and nitrogen C Helium, sodium and oxygen D Hydrogen, nitrogen and oxygen	
331 06.0-08	Basic knowledge of chemistry	B
	Can liquids be mixed? A Yes, liquids are always miscible B Yes, but not all liquids are miscible with each other C No, liquids are never miscible D Yes, liquids are miscible in any proportions	

Chemicals — knowledge of physics and chemistry

Examination objective 7: Molecules, atoms

Number	*Source*	*Correct answer*
331 07.0-01	Basic knowledge of chemistry	A
	What is $NaNO_3$? A An inorganic compound B An organic compound C A mixture D An alloy	
331 07.0-02	Basic knowledge of chemistry	B
	What is C_3H_8? A A mixture B An organic compound C An inorganic compound D An alloy	
331 07.0-03	Basic knowledge of chemistry	D
	What is the symbol for the element “oxygen”? A S B H C N D O	
331 07.0-04	Basic knowledge of chemistry	B
	What is the symbol for the element “nitrogen”? A S B N C O D H	
331 07.0-05	Basic knowledge of chemistry	C
	Which of the following statements is false? A Molecules are composed of atoms B A pure substance is composed of a single type of molecule C A compound is always composed of a single type of atom D An element is composed of a single type of atom	

Chemicals — knowledge of physics and chemistry

Examination objective 7: Molecules, atoms

Number	*Source*	*Correct answer*
331 07.0-06	Basic knowledge of chemistry	A
	What is the symbol for the element “hydrogen”? A H B O C W D N	
331 07.0-07	Basic knowledge of chemistry	A
	What are molecules? A Molecules are electrically neutral particles composed of two or more atoms B Molecules are the smallest units of a substance that have half of all the properties of the substance C Molecules are atoms that form at 20 °C D Molecules are components of atoms	
331 07.0-08	Basic knowledge of chemistry	A
	What is an element always made up of? A Atoms B Mixtures C Compounds D Molecules	
331 07.0-09	Basic knowledge of chemistry	B
	What is the term for an electrically neutral particle composed of two or more atoms? A A neutron B A molecule C An ion D A proton	

Chemicals — knowledge of physics and chemistry

Examination objective 7: Molecules, atoms

Number	*Source*	*Correct answer*
331 07.0-10	Basic knowledge of chemistry	B
	What is the correct formula for three molecules of water? A $(H_2O)_3$ B $3\ H_2O$ C H_6O_3 D H_2O	
331 07.0-11	Basic knowledge of chemistry	D
	What is the Latin name for oxygen? A Ferrum B Hydrogenium C Nitrogenium D Oxygenium	
331 07.0-12	Basic knowledge of chemistry	B
	In chemical formulae, what is the significance of the letter “N”? A Carbon B Nitrogen C Hydrogen D Oxygen	
331 07.0-13	Basic knowledge of chemistry	A
	What is the symbol for carbon? A C B H C K D O	
331 07.0-14	Basic knowledge of chemistry	B
	What is the molecular mass of UN No. 1294, TOLUENE ($C_6H_5CH_3$)? (C = 12, H = 1) A 78 B 92 C 104 D 106	

Chemicals — knowledge of physics and chemistry

Examination objective 7: Molecules, atoms

Number	*Source*	*Correct answer*
331 07.0-15	Basic knowledge	A
	At what temperature does the kinetic energy of molecules equal zero? A -273 °C B 212 K C 273 K D -100 °C	

Chemicals — knowledge of physics and chemistry

Examination objective 8: Polymerization

Number	*Source*		*Correct answer*
331 08.0-01	Basic knowledge of chemistry		B
	What is an inhibitor?		
	A	A substance that accelerates a reaction	
	B	A substance that prevents polymerization	
	C	A substance that attacks the nervous system	
	D	A substance that prevents electrostatic charge	
331 08.0-02	Basic knowledge of chemistry		A
	What substance prevents polymerization?		
	A	An inhibitor	
	B	A capacitor	
	C	A catalyst	
	D	An indicator	
331 08.0-03	Basic knowledge of chemistry		A
	Which of the following statements is correct?		
	A	An inhibitor should be properly mixed with the product	
	B	An inhibitor may react with the product	
	C	An inhibitor may easily evaporate from the product	
	D	An inhibitor should have a low flash-point	
331 08.0-04	Basic knowledge of chemistry		A
	What is polymerization?		
	A	The process by which one or more reactions result in a very large molecule	
	B	A process of combustion during which much heat is liberated	
	C	The process by which a compound is destroyed under the effect of heat	
	D	The process by which a compound is destroyed under the effect of an electric current	

Chemicals — knowledge of physics and chemistry

Examination objective 8: Polymerization

Number	*Source*	*Correct answer*
331 08.0-05	Basic knowledge of chemistry	C
	A cargo tank contains a product that is liable to polymerize easily. To prevent polymerization, an inhibitor has been added. During carriage, a small quantity of the product evaporates and condenses some time later on the surface of the cargo tanks. What might happen to the condensate? A The condensate will not polymerize since it contains an inhibitor B The condensate will not polymerize since it will evaporate first C The condensate might polymerize since it does not contain an inhibitor D The condensate might polymerize even though it still contains some inhibitor	
331 08.0-06	Basic knowledge of chemistry	B
	During transport of a cargo of UN No. 2055, STYRENE MONOMER STABILIZED~~styrene~~, precautionary measures ~~should~~ have to be taken to ensure that the cargo is sufficiently stabilized. What particulars do not need to be included in the transport document? A The name and quantity of the stabilizer added B The pressure above the stabilized liquid C The date at which the stabilizer was added and its duration of effectiveness under normal conditions D The temperature limits affecting the stabilizer	
331 08.0-07	Basic knowledge	D
	What does the syllable “poly” in the word “polymerization” signify? A Large B Long C Atom D Many	
331 08.0-08	Basic knowledge of chemistry	A
	What characterizes polymerization? A A rise in temperature B A drop in temperature C A change in colour D A change in mass	

Chemicals — knowledge of physics and chemistry

Examination objective 8: Polymerization

Number	*Source*		*Correct answer*
331 08.0-09	Basic knowledge of chemistry		C
	What is an inhibitor?		
	A	A type of adhesive	
	B	A cleaning product	
	C	A stabilizer	
	D	A product that lowers the freezing-point	
331 08.0-10	Basic knowledge of chemistry		D
	A substance is liquid at 20 °C and decomposes readily at temperatures above 35 °C. What might this substance be?		
	A	A stable gas	
	B	An unstable gas	
	C	A stable liquid	
	D	An unstable liquid	
331 08.0-11	Basic knowledge of chemistry		C
	What is a positive catalyst?		
	A	A substance that prevents polymerization	
	B	A substance that prevents electrostatic charge	
	C	A substance that accelerates a reaction	
	D	A substance that prevents the formation of heat	
331 08.0-12	Basic knowledge of chemistry		B
	What is a negative catalyst?		
	A	A substance that promotes polymerization	
	B	A substance that slows a chemical reaction	
	C	A substance that prevents electrostatic charge	
	D	A substance that inhibits evaporation of a liquid	
331 08.0-13	Basic knowledge of chemistry		B
	What is the difference between a chemically stable substance and a chemically unstable substance?		
	A	A chemically stable substance decomposes more readily than a chemically unstable substance	
	B	A chemically unstable substance decomposes readily, while a chemically stable substance does not readily decompose	
	C	A chemically unstable substance evaporates more readily than a chemically stable substance	
	D	A chemically unstable substance has a higher melting-point than a chemically stable substance	

Chemicals — knowledge of physics and chemistry

Examination objective 8: Polymerization

Number	*Source*	*Correct answer*
331 08.0-14	Basic knowledge of chemistry	B
	What do we call the process whereby monomers band together during a chemical reaction? A Evaporation B Polymerization C Decomposition D Condensation	
331 08.0-15	Basic knowledge of chemistry	B
	Which product should be transported in a stabilized state? A UN No. 1114, BENZENE B UN No. 1301, VINYL ACETATE, STABILIZED C UN No. 1863, FUEL, AVIATION, TURBINE ENGINE WITH MORE THAN 10 % BENZENE D UN No. 2312, PHENOL, MOLTEN	
331 08.0-16	Basic knowledge of chemistry	C
	Why is a stabilizer (inhibitor) added to certain products? A To prevent them from exploding B To prevent them from evaporating C To prevent them from polymerizing D To prevent them from freezing	
331 08.0-17	Basic knowledge of chemistry	C
	What often triggers polymerization? A An inhibitor B An excess of nitrogen C A rise in temperature D A drop in temperature	

Chemicals — knowledge of physics and chemistry

Examination objective 9: Acids, bases

Number	*Source*	*Correct answer*
331 09.0-01	Basic knowledge of chemistry	B
	What are solutions with a pH value above 7 ~~called~~also known as? A Acids B Bases C Soaps D Suspensions	
331 09.0-02	Basic knowledge of chemistry	C
	UN No. 1824, SODIUM HYDROXIDE SOLUTION is an example of which of the following? A A strong acid B A weak acid C A strong base D A weak base	
331 09.0-03	Basic knowledge of chemistry	A
	UN No. 1830, SULPHURIC ACID containing more than 51 % of acid is an example of which of the following? A A strong acid B A weak acid C A strong base D A weak base	
331 09.0-04	Basic knowledge of chemistry	D
	What is the pH value of a base? A Always greater than 14 B Always lower than 7 C Always equal to 7 D Always greater than 7	
331 09.0-05	Basic knowledge of chemistry	C
	How can a base solution be neutralized? A By carefully adding soap B By carefully adding water C By carefully adding an acid solution D By carefully adding caustic soda	

Chemicals — knowledge of physics and chemistry

Examination objective 9: Acids, bases

Number	*Source*	*Correct answer*
331 09.0-06	Basic knowledge of chemistry	B
	What are the three properties that characterize an acid? A Corrosive, attacks certain metals, pH greater than 7 B Corrosive, attacks certain metals, pH less than 7 C Corrosive, attacks certain metals, soapy odour D Corrosive, turns litmus paper red, soapy odour	
331 09.0-07	Basic knowledge of chemistry	D
	What is the difference between an acid solution with a pH of 1 and an acid solution with a pH of 3? A The solution with a pH of 1 is more base B The solution with a pH of 1 is more neutral C The solution with a pH of 1 is more diluted D The solution with a pH of 1 is more acidic	
331 09.0-08	Basic knowledge of chemistry	B
	What is the difference between a solution with a pH of 11 and a solution with a pH of 8? A The solution with a pH of 11 is more acidic B The solution with a pH of 11 is more base C The solution with a pH of 11 is weaker D There is no difference	
331 09.0-09	Basic knowledge of chemistry	C
	What is the pH value of a neutral solution? A 0 B 1 C 7 D 14	

Chemicals — knowledge of physics and chemistry

Examination objective 9: Acids, bases

Number	*Source*	*Correct answer*
331 09.0-10	Basic knowledge of chemistry	D
	Which is the greatest hazard posed by acids and bases when carried in inland navigation? A Toxicity B Flammability C Explosibility D Corrosivity	
331 09.0-11	Basic knowledge of chemistry	A
	What do hydroxides always contain? A OH^- B H^+ C H_3O^+ D CO^-	
331 09.0-12	Basic knowledge of chemistry	B
	UN No. 2790, ACETIC ACID SOLUTION, PG III is an example of which of the following? A A strong acid B A weak acid C A strong base D A weak base	
331 09.0-13	Basic knowledge of chemistry	B
	What substance is produced when an acid reacts with a metal? A Oxygen B Hydrogen C Nitrogen D Water	

Chemicals — knowledge of physics and chemistry

Examination objective 9: Acids, bases

Number	*Source*	*Correct answer*
331 09.0-14	Basic knowledge of chemistry	D
	What are bases also called? A Organic substances B Inorganic substances C Alkanoic acids D Alkaline substances	
331 09.0-15	Basic knowledge of chemistry	B
	Which of the following products is a base? A UN No. 1685, SODIUM ARSENATE B UN No. 1814, POTASSIUM HYDROXIDE SOLUTION C UN No. 1230, METHANOL D UN No. 1573, CALCIUM ARSENATE	
331 09.0-16	Basic knowledge of chemistry	A
	What is the pH value of a strong acid? A 0-3 B 7 C 8-10 D 10-12	

Chemicals — knowledge of physics and chemistry

Examination objective 10: Oxidation

Number	*Source*	*Correct answer*
331 10.0-01	Basic knowledge of chemistry	A
	Which is an example of slow oxidation? A The formation of iron rust B An explosion of liquefied gas C The combustion of natural gas D The evaporation of motor spirit or gasoline or petrol	
331 10.0-02	Basic knowledge of chemistry	B
	What are reducing agents? A Substances that readily donate oxygen to other substances B Substances that readily take up oxygen from other substances C Substances that are highly flammable D Substances that never react with other substances	
331 10.0-03	Basic knowledge of chemistry	C
	What is oxidation? A The bonding of a substance with carbon B The bonding of a substance with hydrogen C The bonding of a substance with oxygen D The bonding of a substance with nitrogen	
331 10.0-04	Basic knowledge of chemistry	A
	What are oxidants? A Substances that readily donate oxygen to other substances B Substances that readily take up oxygen from other substances C Substances that are highly flammable D Substances that never react with other substances	
331 10.0-05	Basic knowledge of chemistry	B
	What reaction is characteristic of flammable substances? A They release oxygen B They react with oxygen C They do not react with oxygen D They produce oxygen	

Chemicals — knowledge of physics and chemistry

Examination objective 10: Oxidation

Number	*Source*	*Correct answer*
331 10.0-06	Basic knowledge of chemistry	B
	Which of the following is characteristic of readily flammable substances? A They do not readily react with oxygen B They react readily with oxygen C They never react with oxygen D They release oxygen	
331 10.0-07	Basic knowledge of chemistry	A
	What is oxidation? A The reaction of a substance with oxygen B The reaction of a substance with nitrogen C The addition of oxygen D The addition of nitrogen	

Chemicals — knowledge of physics and chemistry

Examination objective 11: Knowledge of chemicals

Number	*Source*	*Correct answer*
331 11.0-01	Basic knowledge of chemistry	A
	C_4H_{10} is an example of: A An alkane B An alkene C An aromate D A cycloalkane	
331 11.0-02	Basic knowledge of chemistry	C
	Which of the following constitute two important groups of hydrocarbons? A Oxidants and reducing agents B Acids and bases C Alkanes and alkenes D Bases and hydroxides	
331 11.0-03	Basic knowledge of chemistry	A
	What is a polymer? A A chain of very large molecules comprising repeated molecular units B A chemical that should prevent a particular substance from polymerizing C A chemical that accelerates a reaction but is not altered by the reaction D A readily flammable product that could trigger a chemical reaction	
331 11.0-04	Basic knowledge of chemistry	B
	What are organic nitrogen compounds? A Aromates B Nitriles C Ethers D Esters	

Chemicals — knowledge of physics and chemistry

Examination objective 11: Knowledge of chemicals

Number	*Source*	*Correct answer*
331 11.0-05	Basic knowledge of chemistry	C
	What is the term for hydrocarbons in which one or several hydrogen atoms ~~are~~ have been replaced by a hydroxyl (OH radical)? A Esters B Ethers C Alcohols D Ketones	
331 11.0-06	Basic knowledge of chemistry	C
	What is the term for substances whose molecules contain a very large quantity of oxygen? A Alkenes B Ketones C Peroxides D Nitriles	
331 11.0-07	Basic knowledge of chemistry	D
	Which of the following is an example of a ketone? A UN No. 1170, ETHANOL B UN No. 1203, MOTOR SPIRIT or GASOLINE or PETROL C UN No. 2055, STYRENE MONOMER, STABILIZED D UN No. 1090, ACETONE	
331 11.0-08	Basic knowledge of chemistry	D
	Which of the following constitutes an important group of esters? A Alcohols B Peroxides C Bases D Fats and oils	

Chemicals — knowledge of physics and chemistry

Examination objective 11: Knowledge of chemicals

Number	*Source*	*Correct answer*
331 11.0-09	Basic knowledge of chemistry	B
	The atomic mass of hydrogen is 1, the atomic mass of oxygen is 16 and the atomic mass of sulphur is 32. What is the molecular mass of sulphuric acid (H_2SO_4)? A 49 B 98 C 129 D 146	
331 11.0-10	Basic knowledge of chemistry	C
	The atomic mass of carbon is 12 and the atomic mass of oxygen is 16. What is the molecular mass of carbon dioxide (CO_2)? A 38 B 40 C 44 D 76	
331 11.0-11	Basic knowledge of chemistry	B
	The atomic mass of calcium is 40, the atomic mass of oxygen is 16 and the atomic mass of hydrogen is 1. What is the molecular mass of calcium hydroxide ($Ca(OH)_2$)? A 58 B 74 C 96 D 114	
331 11.0-12	Basic knowledge of chemistry	A
	Why are aromates so called? A Because of their odour B Because of their colour C Because of their toxicity D Because of their solubility	

Chemicals — knowledge of physics and chemistry

Examination objective 11: Knowledge of chemicals

Number	*Source*	*Correct answer*
331 11.0-13	Basic knowledge of chemistry	D
	Which is an example of a nitric compound? A UN No. 2312, PHENOL, MOLTEN B UN No. 1090, ACETONE C UN No. 1203, MOTOR SPIRIT or GASOLINE or PETROL D UN No. 1664, NITROTOLUENES, LIQUID	
331 11.0-14	Basic knowledge of chemistry	B
	What is UN No. 1230, METHANOL an example of? A An ester B An alcohol C A nitrile D An ether	
331 11.0-15	Basic knowledge of chemistry	D
	Which of the following is an example of an alkene? A UN No. 1011, BUTANE B UN No. 1077, PROPYLENE C UN No. 1170, ETHANOL D UN No. 1001, ACETYLENE, DISSOLVED	
331 11.0-16	Basic knowledge of chemistry	B
	Which of the following substances is saturated? A UN No. 1077, PROPENE B UN No. 1265, PENTANES, liquid C UN No. 1962, ETHYLENE, DISSOLVED D UN No. 1055, ISOBUTYLENE	
331 11.0-17	Basic knowledge of chemistry	B
	Which group of substances tends to be toxic and carcinogenic? A Alcohols B Aromates C Alkane acids D Alkanes	

Chemicals — knowledge of physics and chemistry

Examination objective 11: Knowledge of chemicals

Number	*Source*	*Correct answer*
331 11.0-18	Basic knowledge of chemistry	C
	What is PVC? A A monomer B An alkane acid C A polymer D An aromate	
331 11.0-19	Basic knowledge of chemistry	A
	What is the term for double bond hydrocarbons? A Alkenes B Alkanes C Alcynes D Alcyones	
331 11.0-20	Deleted (2011)	

Chemicals — knowledge of physics and chemistry

Examination objective 12: Chemical reactions

Number	*Source*		*Correct answer*
331 12.0-01	Basic knowledge of chemistry		B
	Why is it important to ensure that water does not come into contact with SULPHURIC ACID concentrate containing more than 51 % acid (UN No. 1830)?		
	A	Because when water is added, flammable hydrogen gas is formed	
	B	Because this results in the release of much heat, causing water to evaporate and bubble	
	C	Because this results in polymerization of the sulphuric acid	
	D	Because sulphuric acid reacts with water, releasing highly toxic vapours	
331 12.0-02	Basic knowledge of chemistry		A
	Which of the following is a classic example of a self-accelerating reaction?		
	A	The polymerization of styrene	
	B	The decomposition of water into hydrogen and oxygen	
	C	The reaction of nitrogen with water	
	D	The oxidation of iron	
331 12.0-03	Basic knowledge of chemistry		B
	A chemical that is liable to polymerization is loaded. The adjoining cargo tank contains another chemical. What must be ensured with regard to the chemical in the adjoining cargo tank?		
	A	The chemical must not contain water	
	B	The chemical must not be too hot	
	C	The chemical must not be readily flammable	
	D	The chemical must not contain any inhibitor	
331 12.0-04	Basic knowledge of chemistry		A
	How might the self-reaction of a substance be initiated?		
	A	By heating	
	B	By adding a stabilizer	
	C	By avoiding contamination from another cargo	
	D	By adding an inert gas	

Chemicals — knowledge of physics and chemistry

Examination objective 12: Chemical reactions

Number	*Source*	*Correct answer*
331 12.0-05	Basic knowledge of chemistry	C
	How can reaction of the cargo with air be prevented? A By heating the cargo B By cooling the cargo C By wafting the cargo with an inert gas D By continuously moving the cargo around	
331 12.0-06	Basic knowledge of chemistry	D
	Which two types of substance have corrosive properties? A Alcohols and acids B Alcohols and bases C Precious metals and bases D Acids and bases	
331 12.0-07	Basic knowledge of chemistry	B
	Which gas is released ~~W~~when a metal reacts with an acid~~, it releases a gas. Which one~~? A Oxygen B Hydrogen C Methane D Chlorine	
331 12.0-08	Basic knowledge of chemistry	C
	What results from the complete combustion of propane? A Oxygen and hydrogen B Carbon monoxide and water C Carbon dioxide and water D Carbon and hydrogen	
331 12.0-09	Basic knowledge of chemistry	B
	What results from the incomplete combustion of propane? A Oxygen and hydrogen B Carbon monoxide and water C Carbon dioxide and water D Carbon and hydrogen	

Chemicals — knowledge of physics and chemistry

Examination objective 12: Chemical reactions

Number	*Source*	*Correct answer*
331 12.0-10	Basic knowledge of chemistry	A
	How can a self-reaction of the cargo caused by oxygen be prevented?	
	A By wafting it with an inert gas	
	B By ensuring it is contaminated further	
	C By heating it	
	D By continuously decanting it	
331 12.0-11	Basic knowledge of chemistry	A
	What does adding an inhibitor prevent?	
	A Polymerization	
	B Boiling	
	C A fall in pressure	
	D Condensation	
331 12.0-12	Basic knowledge of chemistry	B
	What results from the complete combustion of pentane?	
	A Oxygen and hydrogen	
	B Carbon dioxide and water	
	C Carbon and water	
	D Pentane oxide and water	
331 12.0-13	Basic knowledge of chemistry	D
	What results from the incomplete combustion of hexane?	
	A Hexanol and water	
	B Carbon dioxide and water	
	C Oxygen and water	
	D Carbon monoxide and water	
331 12.0-14	Basic knowledge of chemistry	B
	A chemical reaction releases heat. What is this reaction called?	
	A An endothermic reaction	
	B An exothermic reaction	
	C A heterogenic reaction	
	D A homogenic reaction	

Chemicals — knowledge of physics and chemistry

Examination objective 12: Chemical reactions

Number	*Source*	*Correct answer*
331 12.0-15	Basic knowledge of chemistry	A
	~~A~~ What is the term for a reaction that gives rise to a new substance~~. What is the term for such a reaction~~? A A chemical reaction B A physical reaction C A meteorological reaction D A logical reaction	
331 12.0-16	Basic knowledge of chemistry	D
	Auto-oxidation is a chemical reaction in which the substance itself supplies the component required for the reaction. What is the component? A Carbon dioxide B Carbonic acid gas C Nitrogen D Oxygen	

Practice

Examination objective 1: Measurements

Number	*Source*	*Correct answer*
332 01.0-01	Maximum permissible concentration at the workplace	A
	What is the maximum permissible concentration at the workplace? A A legally prescribed concentration B A recommendation from the manufacturer of the dangerous substance C A recommendation of UNECE D A recommendation from a “gas” expert	
332 01.0-02	Maximum permissible concentration at the workplace	B
	What is the meaning of the letter “S” when it appears in the value for ~~T~~the maximum permissible concentration at the workplace ~~is accompanied by an “S”. What is the meaning of this “S”~~? A The abbreviation of the country where the limit value at the workplace is applicable B The toxic substance can be absorbed by the skin C The value is permitted D The substance can cause skin disease	
332 01.0-03	Measuring the concentration of gas	C
	What is the meaning of “n=10” on ~~A~~a gas measurement test tube ~~is marked “n=10”. What does this mean~~? A The margin for error of measurement with this test tube is 10 % B To obtain an exact value, 10 measurements should be taken C To carry out a measurement, 10 pumps should be done with the toximeter D The measured value should be multiplied by 10	
332 01.0-04	Basic general knowledge	C
	Under normal conditions, what is the oxygen content of air? A 17 % B 19 % C 21 % D 22 %	

Practice

Examination objective 1: Measurements

Number	*Source*	*Correct answer*
332 01.0-05	Measuring the concentration of gas	A
	A catalytic oxidation explosimeter is to be used to measure whether there are mixtures of explosive gases and air in a cargo tank. In this case, is the content of oxygen important as well? A Yes, the measurement is based on a combustion process. The content of oxygen influences the result B No, when the oxygen content is under 21 % in the cargo tank to be measured, no explosive mixture of gas (vapour) and air can form C No, catalytic oxidation explosimeters work independently of oxygen content D No, the measurement must be taken outside the cargo tank to be measured. Therefore, the oxygen content is of no importance	
332 01.0-06	Measuring the concentration of gas	B
	We want to measure if a gas mixture in a cargo tank is explosive. The limit value for deciding is 20 % less than the lower explosive limit. Why? A Because the explosive limit is highly dependent on the temperature and humidity in the cargo tank B To ensure that the gas concentration is indeed under the lower explosive limit throughout the entire tank C So that even when the voltage is too weak (nearly empty battery) a reliable measurement can still be taken D Because when the oxygen content changes the gas mixture is not immediately able to explode	
332 01.0-07	Measuring the concentration of gas	A
	Where ~~will~~ would it be expected to find the highest toxic gas concentrations ~~be measured~~ in a cargo tank? A Depending on the density of the gas, either at the top or at the bottom of the cargo tank B The concentration is the same throughout the cargo tank C At the top of the cargo tank, as toxic gas is always lighter than air D At the bottom of the cargo tank, as toxic gas is always heavier than air	
332 01.0-08	Deleted (10.12.2020)	

Practice

Examination objective 1: Measurements

Number	*Source*	*Correct answer*
332 01.0-09	Maximum permissible concentration at the workplace	B
	The value of the maximum permissible concentration at the workplace is accompanied by a short-term value phase [TGG-15]. What does this mean? A That the weighted average time can be considered only after a period of 15 minutes B That the value of the maximum permissible concentration at the workplace may not be exceeded for more than 15 minutes C That the value of the maximum permissible concentration at the workplace must have the same value for at least 15 minutes D That the value of the maximum permissible concentration at the workplace is applicable only if work must be done with this substance for more than 15 minutes	
332 01.0-10	Maximum permissible concentration at the workplace	C
	What ~~is the list of value assessments for~~are ~~the~~ maximum permissible concentration~~s~~ at the workplace? A ~~An assessment list~~Maximum values established internationally B Maximum values ~~An assessment list~~ established at the level of continental Europe C Maximum values ~~An assessment list~~ established at the national level D ~~A n~~Non-binding maximum values~~assessment list~~	
332 01.0-11	Measuring the concentration of gas	A
	What should be done to check, using a gas concentration meter, whether explosive vapour-gas mixtures are present in a cargo tank? A The oxygen content should be taken into account or the result will not be reliable B Simply take the measurement, as the oxygen content is not important C Measure only the toxicity or the result will not be reliable D First measure the oxygen content and the toxicity or the result will not be reliable	

Practice

Examination objective 1: Measurements

Number	*Source*	*Correct answer*
332 01.0-12	Maximum permissible concentration at the workplace	D
	~~A measurement test tube bears~~ What is the meaning of~~the mark~~ "n=10"~~.~~ on a measurement test tube~~What does this mean~~? A The test tube may be reused after 10 minutes B The vapour should be left to act for 10 minutes before the result is read C The result of the measurement should be read within a maximum of 10 minutes D To obtain a reliable result 10 pumpings are required	
332 01.0-13	Maximum permissible concentration at the workplace	C
	The maximum permissible concentration is calculated for what period per 24 hours? A For 4 hours B For 6 hours C For 8 hours D For 12 hours	
332 01.0-14	Basic general knowledge	A
	What is the meaning of 1 ppm? A 1 part per million parts B 1 part per mass C 1 part per metric tonne D 1 part per milligram	

Practice

Examination objective 2: Sampling techniques

Number	*Source*	*Correct answer*
332 02.0-01	1.2.1	A
	What is the correct description of a partly closed sampling device? A A device penetrating through the boundary of the cargo tank such that during sampling only a small quantity of gaseous or liquid cargo can escape from the cargo tank B A device penetrating through the boundary of the cargo tank but constituting a part of a closed system designed so that during sampling no gas or liquid may escape from the cargo tank C A device composed of an opening with a diameter of not more than 0.30 m fitted with a self-closing flame arrester D A device with which the substance under pressure is released into the test tube by a reduction valve	
332 02.0-02	3.2.3.2, Table C	B
	The kind of sampling device that should be used for sampling is specified where? A ADN, Part 1 B ADN, Part 3 C The certificate of approval D The instructions in writing	
332 02.0-03	7.2.4.22.4	C
	Why, for safety reasons, should a nylon string never be used when taking a~~A~~ sample ~~is taken~~ through a sampling ~~device~~opening~~. For what safety reason should a nylon string never be used~~? A The string might break under the effect of the substance B The cylinder may slip from the nylon string C The use of a nylon string may result in an electrostatic charge D The use of nylon string is prohibited by occupational safety provisions	
332 02.0-04	3.2.3.2, Table C	B
	Following loading with UN No. 2486, ISOBUTYL ISOCYANATE, a sample must be taken. What kind of device must be used, at the very least? A A sampling device B A closed-type sampling device C A closed-type sampling device with a pressure-release lock chamber D A partly closed sampling device	

Practice

Examination objective 2: Sampling techniques

Number	*Source*	*Correct answer*
332 02.0-05	3.2.3.2, Table C	A
	If a sample has to be taken ~~A~~after ~~loading~~ a type N tank vessel has been loaded with UN No. 1203, MOTOR SPIRIT or GASOLINE or PETROL, ~~a sample must be taken.~~ ~~W~~what kind of device must be used, at the very least? A A sampling device B A closed-type sampling device C A closed-type sampling device with a pressure-release lock chamber D A partly closed sampling device	
332 02.0-06	3.2.3.2, Table C, 7.2.4.16.8, 8.1.5	B
	What protective equipment must be worn during sampling with a closed-type sampling device? A None, as a closed-type device is being used B Depending on the cargo, the same as used in other work during loading and unloading C Only a breathing apparatus D Unknown, as no measurement has been taken	
332 02.0-07	1.2.1	C
	If ~~A~~a sample is taken using a partly closed sampling device,~~.~~ ~~H~~how are the air and vapour that were in the test tube evacuated? A Through the loading pipe B By returning to the cargo tank C By evacuation ~~T~~to the open air~~, through a discharge pipe~~ D Through the vessel's gas extraction pipes	
332 02.0-08	3.2.3.2, Table C	A
	Some substances must be carried in type C tank vessels. What kind of sampling device should not be used for such substances? A An open-type sampling opening B A partly closed sampling device C A closed-type sampling device D A closed-type sampling device with a lock chamber	

Practice

Examination objective 2: Sampling techniques

Number	*Source*	*Correct answer*
332 02.0-09	7.2.4.22.3	B
	When must there be a 10-minute wait before a sample is taken from a cargo requiring marking with one or two blue cones? A Always B When an open-type sampling opening is used C When a partly closed sampling device is used D Only when flammable liquids are involved	
332 02.0-10	3.2.3.2, Table C	D
	When must a closed-type sampling device be used? A When substances are carried for which marking with one blue light or cone is required B When substances are carried for which marking with two blue lights or cones is required C When substances are carried for which marking with a blue cone or light is not required D When substances are carried for which the equipment in question is required in Table C	
332 02.0-11	7.2.4.22.3 Basic knowledge of physics	C
	Under ADN, for some substances, sample openings may not be opened until 10 minutes after the loading has been interrupted. Why? A Because the pressure is reduced only after 10 minutes B Because the liquid in a cargo tank reaches a reasonable temperature only after 10 minutes C Because a possible electrostatic charge would be discharged only after 10 minutes D Because the safety measures can be taken only after 10 minutes	
332 02.0-12	1.2.1	A
	What is the purpose of a closed-type sampling device? A To ~~P~~prevent ~~the release of~~ gas or liquid escaping from the cargo tanks and spreading into the environment B To ~~R~~remove the least possible liquid from the cargo C To ~~R~~reduce evaporation, which means a loss of cargo, to a minimum D To ~~O~~obtain a pure sample	

Practice

Examination objective 3: Cleaning of cargo tanks

Number	*Source*	*Correct answer*
332 03.0-01	7.2.3.44	A
	After unloading, a type C tank vessel has to clean its cargo tanks. The cleaning product has the following physical properties: boiling point 161 °C, ~~melting point < 40 °C,~~ flash point 36 °C. Can it be used? A Yes, according to ADN the use of cleaning products with a flash point <55 °C is allowed in the explosion hazardous area B No, a cleaning product with the above physical properties has no grease diluting properties and is thus unsuitable for use as a cleaning product C No, according to ADN cleaning products should not be used to clean type-C tank vessel cargo tanks D No, according to ADN a cleaning product must have a flash point >60 °C	
332 03.0-02	Cleaning the cargo tanks	B
	What does it mean if a product is in the group of cleaning products known as “saponifying”? A An acid used as a cleaning product for tanks B It is a product that through a chemical reaction transforms an oily product into a soapy emulsion C It is a synthetic cleaning product D It is a device that, by adding water, transforms solid soap into liquid soap	
332 03.0-03	Cleaning the cargo tanks	C
	Sodium hydroxide (caustic acid) is what kind of cleaning product? A A detergent B An emulsion C A saponifying agent D An acidic cleaning product	
332 03.0-04	Cleaning the cargo tanks	A
	What name is given to the machines commonly used to clean tanks in inland navigation? A “Butterwash” machines B Centrifugal sprinklers C Nebulizers D Type-C sprinklers	

Practice

Examination objective 3: Cleaning of cargo tanks

Number	*Source*	*Correct answer*
332 03.0-05	7.2.3.44	B
	Liquids with a flash point under 55 °C are used for cleaning. Where can such products be used? A In the engine room B Only in the explosion hazardous area C Only in the cargo tanks D Only on the deck, both in the explosion hazardous area and outside it	
332 03.0-06	Cleaning the cargo tanks	D
	What risk is to be avoided in steam cleaning a cargo tank containing explosive mixtures? A Heating of the cargo tank B Oxidation C Increase in gas concentration D Electrostatic charge	
332 03.0-07	Cleaning the cargo tanks	A
	What is a detergent? A A mixture of cleaning products B An emulsifying agent C A synthetic soap D A solvent	
332 03.0-08	Deleted	
332 03.0-09	Cleaning the cargo tanks	D
	~~The~~ If a vessel was loaded with non-water-soluble substances,~~.~~ what should attention be paid to ~~W~~when the cargo tanks are cleaned?~~, attention should be paid to:~~ A Use external water for the cleaning so as to minimize the harmful effect on the environment B Hermetically close the cargo tank during cleaning to minimize the harmful effect on the environment C The temperature of the deck on the cargo tanks. If the deck becomes too hot it can affect the coating of the cargo tanks D Ensure that the spray of the tank cleaning equipment reaches all parts of the cargo tank	
332 03.0-10	Deleted	

Practice

Examination objective 3: Cleaning of cargo tanks

Number	*Source*	*Correct answer*
332 03.0-11	Cleaning the cargo tanks	C
	What ~~is the only~~ type of hose ~~that may~~ should be used ~~for~~ to clean~~ing~~ a cargo tank~~s~~? A A reinforced pressure-resistant hose B A heat-resistant hose, because of the high temperatures C A special tank-cleaning hose, to eliminate electrostatic charges D A synthetic hose, to avoid corrosion	
332 03.0-12	Cleaning the cargo tanks	D
	After the cargo tank has been cleaned, it is ascertained that there are no more dangerous gases in the tank. Six hours later a new measurement is taken and a dangerous concentration is found. Why might this happen? A Very low boiling point of the substance B Very low melting point of the substance C Very low vapour density of the substance D Very low vapour pressure of the substance	
332 03.0-13	Cleaning the cargo tanks	C
	Why are gas evacuation systems fitted with heating devices? A Because they facilitate cleaning of the cargo tanks B Because they have been tested for the products for which they are used C To avoid crystallization of certain products D For the automatic cleaning of the vapour pipes	
332 03.0-14	Cleaning the cargo tanks	A
	Why should ~~In cleaning a cargo tank, the least possible~~ as little water as possible ~~should~~ be used when cleaning a cargo tank~~. Why~~? A To protect the environment B It is better for the cargo tank walls C Because some products react with water D So that the soap concentration is as high as possible	

Practice

Examination objective 3: Cleaning of cargo tanks

Number	*Source*	*Correct answer*
332 03.0-15	Cleaning the cargo tanks	B
	~~Before connecting the tank cleaning machine,~~Why should the supply hoses ~~should~~ be rinsed thoroughly with water before the tank cleaning machine~~. Why is this necessary~~ is connected? A To bring the hoses to the right temperature B To prevent detritus in the hoses from entering the tank cleaning machine C To ~~see if~~degas the hoses ~~are blocked~~ D To see if the hoses have leaks	
332 03.0-16	Cleaning the cargo tanks	A
	The cleaning method and duration depend on: A The product, and the material and design of the cargo tank B The authorization of the competent authority C The authorization of the cleaning company D The viscosity of the cleaning product used	
332 03.0-17	Deleted	
332 03.0-18	Cleaning the cargo tanks	A
	What should particular attention be paid to when ~~C~~cargo tanks that ~~were~~ have previously been loaded with substances that crystallize quickly have to be cleaned~~. To what should particular attention be paid~~? A If the gas evacuation systems and fittings systems are not insulated or heated they may clog B The tank cleaning machine's ~~operating~~ system may become damaged by the formation of small crystals C In winter the crystals evaporate quickly, which could thus result in an explosive mixture D Crystals are solids that should not be in the cleaning company's storage tank	
332 03.0-19	7.2.3.1.4, 7.2.3.1.6	D
	Under ADN, at what concentration of gas ~~is acceptable for~~ may a person ~~to~~ enter a cargo tank to clean it? A Not more than 50 % of the lower explosive limit B Not more than 40 % of the lower explosive limit C Not more than 20 % of the lower explosive limit D Not more than 10 % of the lower explosive limit	

Practice

Examination objective 3: Cleaning of cargo tanks

Number	*Source*	*Correct answer*
332 03.0-20	Cleaning the cargo tanks	B
	When a cargo tank is being steam cleaned, apart from the risk of electrostatic charge, what else requires attention? A That no cavitation should occur in the cargo tank B That no overpressure should occur in the cargo tank C That no cold water should enter the cargo tank D That no cleaning product should enter the steam	
332 03.0-21	Cleaning the cargo tanks	C
	The duration of steam treatment required to clean a cargo tank depends on: A The hardness of the water and the steam pressure B The cleaning products and the hardness of the water C The cleaning products and the state of the cargo tank D The substance that is later to be loaded	
332 03.0-22	7.2.3.1.6	C
	Is a rescue winch required when ~~a person~~ enterings ~~s~~ a cargo tank to clean it if the tank has an insufficient oxygen content or contains dangerous concentrations of harmful substances? A No, a rescue winch is never required B Yes, a rescue winch is always required C Yes, a rescue winch is required if there are just three persons on board D Yes, a rescue winch is required if there are just two persons on board	
332 03.0-23	Cleaning the cargo tanks	B
	If, ~~A~~after a cargo tank is degassed~~ing~~ and cleaned~~ing of a cargo tank~~, the slops not suitable for pumping ~~must~~have to be removed, what should attention be paid to~~. What requires your attention in this case~~? A Ensure there are enough pails available B Be aware that the slops may release gases C Ensure the tank cleaning device is kept at a distance D Be aware that the slops may be poured into a residual cargo tank	

Practice

Examination objective 3: Cleaning of cargo tanks

Number	*Source*	*Correct answer*
332 03.0-24	Cleaning the cargo tanks	A
	What devices may be used to remove Class 3 slops not suitable for pumping ~~have to be removed~~ from a cargo tank~~. What devices may be used~~? A Only devices that do not produce sparks B Only devices specifically designed for the task and authorized by the European Union C Any devices D Only devices specifically designed for the task and authorized by UNECE	
332 03.0-25	Cleaning the cargo tanks	A
	During the cleaning of a tank, an explosive mixture of gas or vapour with air is formed. What should you do? A Immediately suspend cleaning ~~and degas the tank~~ B Reduce the spray pressure to generate less gas C Increase the spray pressure so that the vapours can more quickly escape from the cargo tank D Open the tank lid so that the gas can better escape	
332 03.0-26	7.2.3.1.6	C
	~~The~~ If, while a vessel is sailing, cargo tanks that contained a Class 3 substance have been emptied but not entirely degassed, ~~of a Class 3 substance.~~ is it permissible~~While sailing,~~ to enter them in order to remove slops not suitable for pumping~~the cargo tanks~~ ?~~have to be cleaned.~~ There are two people on board. ~~Slops not suitable for pumping have to be removed from a cargo tank that has not been entirely degassed.~~ A rescue winch is available~~manned by a person keeping watch is prepared. Is it permissible to enter the cargo tank?~~. A Yes, if the appropriate protection measures are taken B No, during navigation no one may enter the cargo tanks C No, there are not enough people on board ~~at least one more person able to lend assistance in an emergency must be within calling distance~~ D No, at least two other people able to lend assistance in an emergency must be within calling distance	
332 03.0-27	Cleaning the cargo tanks	C
	~~The~~ Where may cargo tanks ~~have to~~ be cleaned~~. Where is cleaning allowed~~? A Only in port B Only on the river C The location does not matter D Only during navigation	

Practice

Examination objective 4: Working with cargo residues (slops), cargo remains and residual cargo tanks

Number	*Source*	*Correct answer*
332 04.0-01	9.3.2.26.2	A
	~~According to ADN, each cargo tank or group of cargo tanks must be fitted with a gas evacuation system for the safe return ashore of gases expelled during loading.~~ Does a residual cargo tank also have to be connected to a gas evacuation system? A No~~, the residual cargo tank must not be connected to the gas evacuation system~~ B Yes, always C Yes, but only if there is actually residue in the residual cargo tank D Yes, but only if the residual cargo tank has no ullage opening fitted with a flame arrester	
332 04.0-02	Working with cargo residues (slops)	B
	Why is it advisable to separate glycols and alcohols from other substances when storing them in residual cargo tanks? A Glycols and alcohols are too fatty. They cannot later be separated from the other substances B Glycols and alcohols are highly water soluble. They therefore have a high pollution load for the environment C Glycols and alcohols react with water. Dangerous reactions should be expected D Glycols and alcohols are not water soluble. They therefore have a high pollution load	
332 04.0-03	Working with cargo residues (slops)	D
	Two different products have to be pumped together into the same residual cargo tank. What should particular attention be paid to? A That the products have the same identification number B That the products have the same name C That the products neutralize one another D That the products do not react with one another	

Practice

Examination objective 4: Working with cargo residues (slops), cargo remains and residual cargo tanks

Number	*Source*	*Correct answer*
332 04.0-04	9.3.2.26.2	C
	What is the maximum capacity of the residual cargo tank? A 10 m^3 B 20 m^3 C 30 m^3 D 50 m^3	
332 04.0-05	1.2.1	D
	Is it necessary to be able to close slops tanks with lids? A No, but they must be fire resistant B No, but they must be marked and easy to handle C Yes, but only when the capacity is greater than 2 m^3 D Yes	
332 04.0-06	7.2.4.1.1, 9.3.2.26.1	C
	~~Intermediate bulk containers (IBCs), tank-containers or portable tanks may also be used instead of fixed residual cargo tanks.~~ What is the maximum total capacity authorized for all intermediate bulk containers (IBCs) used as receptacles for residual products or slops? A 20.00 m^3 B 10.00 m^3 C 12.00 m^3 D 30.00 m^3	
332 04.0-07	Deleted (2012)	
332 04.0-08	Cargo residues	C
	Where can cleaning waste water and slops be put? A Any unloading berth B Any loading berth C Only locations authorized by the competent authority D Any refuelling station	

Practice

Examination objective 4: Working with cargo residues (slops), cargo remains and residual cargo tanks

Number	*Source*	*Correct answer*
332 04.0-09	7.2.3.7.1.5, 7.2.3.7.2.5	D
	~~The master decides that the blue cone can be removed.~~ Should the residual cargo tank ~~too~~ also be free from gases for the blue cone or blue light to be removed? A Yes, as the residual cargo tank is one of the cargo tanks, and the cargo tanks must be free from gases (less than 10 % of the lower explosive limit) B Yes, as a residual cargo tank that is not free from gases is a hazard C No, as no gas can be expelled from a residual cargo tank D No, as according to ADN it is only in the cargo tanks that gases must be under 20 % of the lower explosive limit	
332 04.0-10	9.3.2.26.1	B
	Where should the receptacle for residual products be located on the deck of a tank vessel of type C? A Always below deck in the cargo area at a minimum distance from the hull equal to one quarter of the vessel's breadth B In the cargo area at a minimum distance from the hull equal to one quarter of the vessel's breadth C ~~Always below~~On deck anywhere in the cargo area D According to ADN, there is no requirement	

Practice

Examination objective 5: Degassing

Number	*Source*	*Correct answer*
332 05.0-01	7.2.3.7.1.1, 7.2.3.7.1.2	A
	Where is it always permitted to degas into the atmosphere ~~U~~unloaded tanks that have contained substances of Class 6.1~~ must be degassed into the atmosphere. Where is this always permitted~~? A At the locations where it is permitted by the competent authority B Always during navigation, but the tank lids should remain closed C Always during navigation, except within the area of locks and their lay-bys D Always during navigation, but degassing should be carried out using a ventilation device	
332 05.0-02	7.2.3.7.1.2	B
	Cargo tanks have contained UN No. 2054, MORPHOLINE. For degassing while under way, what is the maximum allowable concentration of flammable gases and vapours in the vented mixture at the outlet? A Less than 1 % of the lower explosive limit B Less than 10 % of the lower explosive limit C Not more than 20 % of the lower explosive limit D Less than 50 % of the lower explosive limit	
332 05.0-03	7.2.3.7.1.4	C
	When the concentration of flammable gases and vapours in front of the accommodation reaches what level should degassing operations of empty cargo tanks into the atmosphere be interrupted? A At a concentration of more than 1 % of the lower explosive limit B At a concentration of more than 10 % of the lower explosive limit C At a concentration of more than 20 % of the lower explosive limit D At a concentration of more than 50 % of the lower explosive limit	
332 05.0-04	7.2.3.7.1.2, 7.2.3.7.1.3	D
	May degassing into the atmosphere be carried out in the lay-by of a lock? A Yes, but all stipulations in respect of degassing should be respected B Yes, but only if the lay-by is not within a densely populated area C Yes, but only if there is no risk involved for the crew D No, degassing in this area is prohibited in all circumstances	

Practice

Examination objective 5: Degassing

Number	*Source*	*Correct answer*
332 05.0-05	7.2.3.7.1.2	B
	Cargo tanks have contained a substance of Class 6.1, secondary danger 3. It is not practicable to carry out degassing into the atmosphere at the location designated or approved for this purpose by the competent authority. During degassing while the vessel is under way in normal circumstances, what is the maximum allowable concentration of flammable gases and vapours in the vented mixture at the outlet? A Not more than 1 % of the lower explosive limit B Not more than 10 % of the lower explosive limit C Not more than 20 % of the lower explosive limit D Not more than 50 % of the lower explosive limit	
332 05.0-06	7.2.3.7.1.6, 7.2.3.7.2.6, 8.3.5	D
	~~Outside the cargo area, you wish~~ Is it permitted to carry out repair or maintenance work requiring the use of an open flame in service spaces outside the cargo area while degassing is being conducted~~. Is this permitted during degassing~~? A Yes, but only if the doors and openings of the service spaces in question are closed B Yes, this is permitted in the service spaces outside the cargo area in all circumstances C Yes, outside the cargo area there is no need for an authorization from the competent authority D No	
332 05.0-07	7.2.3.7.1.1	A
	Who is competent to designate locations where degassing into the atmosphere is permitted? A The competent authority B The vessel’s inspection body C The medical service D The river police	
332 05.0-08	8.3.5, 7.2.3.7.1.6, 7.2.3.7.2.6	C
	When is a certificate attesting to the totally gas-free condition of the vessel required on board? A Before the blue cone(s) or blue light(s) may be withdrawn after unloading B After unloading, before another substance may be loaded C ~~Before repairing the hull at a shipyard~~When work likely to involve the risks mentioned in 8.3.5 has to be carried out D Before entering a cargo tank	

Practice

Examination objective 5: Degassing

Number	*Source*	*Correct answer*
332 05.0-09	Deleted (19.09.2018)	
332 05.0-10	Deleted (19.09.2018)	
332 05.0-11	8.1.2.1 (g), 7.2.3.7.1.5, 7.2.3.7.2.5	C
	After ~~effecting~~ taking measurements, the master decides ~~of his own accord~~ to ~~withdraw~~ remove the blue cone(s) or blue light(s). What else should he do? A He need do nothing else B He must communicate the measurement results to the nearest competent authority C He must record the measurement results in the book D He must inform the river police of his decision	
332 05.0-12	7.2.3.7.1.5, 7.2.3.7.2.5	B
	What parts of the vessel should be degassed before the master may withdraw the blue cone(s) or blue light(s)? A All the cargo tanks, pipes for loading and unloading, residual cargo tanks and unloading pumps B All the cargo tanks C All the cargo tanks and pipes for loading and unloading D All the cargo tanks and residual cargo tanks	

Practice

Examination objective 6: Loading, unloading

Number	*Source*	*Correct answer*
332 06.0-01	9.3.2.21.1	B
	On ~~The cargo tanks of~~ a tank vessel of type C, ~~should be provided with~~ at what height should a mark be set inside the cargo tanks to indicate~~ing~~ the ~~degree~~ level ~~of~~ to which they may be fill~~ed~~ing. ~~At what degree of filling should it be set~~? A 90 % B 95 % C 97.5 % D 98 %	
332 06.0-02	9.3.2.21.1	C
	~~Each cargo tank of~~ On a tank vessel of type C, ~~should be provided with a high level sensor for actuating the facility against overflowing. A~~at what degree of filling should the overfill protection ~~sensor be set to actuate~~switch on at the latest? A 90 % B 95 % C 97.5 % D 98 %	
332 06.0-03	9.3.2.21.1	A
	~~Each cargo tank of~~On a tank vessel of type C, ~~should be provided with an alarm. at W~~what ~~is the~~ degree of filling ~~at which~~ should the filling level alarm ~~should activate~~switch on at the latest? A 90 % B 95 % C 97.5 % D 98 %	
332 06.0-04	1.2.1	D
	What is the function of a high-velocity venting device? A To enable cargo samples to be collected rapidly from a tank without having to open it B To protect a cargo tank against a possible explosion in the gas evacuation pipe C To activate an alarm at a degree of filling of 97.5 % and thus serve as a guarantee against overflowing D To prevent unacceptable overpressure in the cargo tanks and prevent the passage of flames	

Practice

Examination objective 6: Loading, unloading

Number	*Source*	*Correct answer*
332 06.0-05	1.2.1, 7.2.4.16.12	B
	What is the function of a flame arrester? A To remove gases during loading and regulate pressure variations in the cargo tanks B To protect a cargo tank against a possible detonation in the gas evacuation pipe C To control the pressure in the gas evacuation pipe during loading, unloading, cleaning and transport D To serve as a guarantee against overflowing, activating at 97.5 %	
332 06.0-06	3.2.3.2, Table C	C
	When UN No. 1098, ALLYL ALCOHOL has to be transported, ~~.~~ ~~W~~what is the minimum allowable setting of the high-velocity venting devices? A 10 kPa B 20 kPa C 40 kPa D 50 kPa	
332 06.0-07	1.2.1	A
	What is the advantage of a stripping system? A To ensure little cargo residue remains in the cargo tanks and in the pipes for loading and unloading B To avoid the need to clean the tanks between the unloading of one substance and the loading of another, different one C To ensure large quantities of residual cargo remain in the cargo tanks D To avoid the need to empty the pipes for loading and unloading	
332 06.0-08	9.3.2.25.2	C
	Are pipes for loading and unloading permitted below deck? A Yes, if they have the proper marking B Yes, if they are positioned a quarter of the vessel’s breadth from the hull C No, unless they are located inside the cargo tanks or inside the pump-room D No, this is never permitted	
332 06.0-09	Deleted (2007)	

Practice

Examination objective 6: Loading, unloading

Number	*Source*	*Correct answer*
332 06.0-10	3.2.3.2, Table C	B
	What is the maximum degree of filling permitted when UN No. 2218, ACRYLIC ACID, STABILIZED has to be transported~~. What is the maximum degree of filling permitted~~? A 91 % B 95 % C 97 % D 98 %	
332 06.0-11	3.2.3.2, Table C	C
	What is the maximum degree of filling permitted when UN No. 2218, ETHANOLAMINE has to be transported~~. What is the maximum degree of filling permitted~~? A 91 % B 95 % C 97 % D 98 %	
332 06.0-12	3.2.3.2, Table C	D
	What is the minimum allowable setting of the high-velocity vent valve when UN No. 1208, n-HEXANE has to be transported~~. What is the minimum allowable setting of the high-velocity vent valve~~? A 50 kPa B 35 kPa C 25 kPa D 10 kPa	
332 06.0-13	3.2.3.2, Table C	B
	When UN No. 2023, EPICHLOROHYDRIN has to be transported,~~.~~ ~~W~~what type of sampling device, at the very least, should be available for samples to be taken? A A closed sampling device B A partly closed sampling device C An open-type sampling opening D For this substance, the type of sampling device is not prescribed	

Practice

Examination objective 6: Loading, unloading

Number	*Source*		*Correct answer*
332 06.0-14	9.3.2.21.5		A
	Can the high-level sensor to prevent overflowing be connected to the level alarm device?		
	A	No, but it may be connected to the level gauge	
	B	Yes, and it may also be connected to the level gauge	
	C	Yes, it may be dependent on the level alarm	
	D	Yes, it should be dependent on the level alarm	
332 06.0-15	Basic general knowledge		C
	Why is the float of some level gauges equipped with a magnet?		
	A	To allow for two measurements to be taken simultaneously	
	B	To ensure that the float always remains on the cargo surface	
	C	To provide a separation between the cargo and the measuring device in order to protect against explosions	
	D	To enable lowering of the float during unloading	
332 06.0-16	1.2.1		B
	What is the function of a gas discharge pipe or gas return pipe or piping?		
	A	Such pipes collect the gas formed during transport	
	B	Such pipes evacuate to the shore facility the gases and vapours which form during loading	
	C	Such pipes evacuate to the cargo tank being loaded the gases and vapours which form during loading	
	D	Such pipes are only found on tank vessels of type G and are intended to carry certain gases	
332 06.0-17	Cubic expansion coefficient		B
	A cargo tank contains 20,000 litres of a substance at a temperature of 8 °C. The temperature of the cargo is brought to 50 °C. The expansion coefficient of the substance is 0.001 K^{-1}. What is the new volume?		
	A	19,160 litres	
	B	20,840 litres	
	C	21,000 litres	
	D	22,520 litres	

Practice

Examination objective 6: Loading, unloading

Number	*Source*	*Correct answer*
332 06.0-18	Cubic expansion coefficient	B
	3,000 litres of aniline are at a temperature of 2 °C. The expansion coefficient of aniline is 0.00084 $°K^{-1}$. What is the volume of this quantity of aniline at 20 °C? A 2,955 litres B 3,045 litres C 3,136 litres D 3,733 litres	
332 06.0-19	Deleted (2011)	
332 06.0-20	7.2.4.2.3, 7.2.4.2.4	B
	May the fuel tanks on a tank vessel be filled ~~while~~ during unloading of goods requiring explosion protection~~a tank vessel is being unloaded~~? A Yes, since unloading of cargo tanks and refuelling are not related B No, unless the competent authority has granted permission~~an exception~~ or the supply vessel complies with the provisions on protection against explosion applicable to the dangerous goods C No, since during loading and unloading, nothing else may be loaded D This is not permitted unless the supply vessel has a certificate of approval	
332 06.0-21	7.2.4.11.2	C
	May different dangerous goods be transported simultaneously in a tank vessel if the vessel meets the relevant technical requirements? A No B Yes, but only with the approval of the competent authority C Yes D Yes, but no more than two different dangerous goods may be loaded simultaneously	
332 06.0-22	7.2.4.21.3	A
	On what does the maximum degree of filling of a cargo tank depend? A On the relative density of the substance to be transported and the maximum allowable density indicated in the certificate of approval B On the type of tank vessel and the maximum allowable relative density indicated in the certificate of approval C On the opening pressure of the high-velocity vent valve and the relative density of the substance D On the type of tank vessel and the opening pressure of the high-velocity vent valve	

Practice

Examination objective 6: Loading, unloading

Number	*Source*	*Correct answer*
332 06.0-23	3.2.3.2, Table C	D
	If UN No. 1167, DIVINYL ETHER, STABILIZED ~~must~~ has to be loaded onto a tank vessel,~~.~~ ~~S~~should the air first be evacuated from the cargo tanks and loading and unloading pipes by means of inert gases? A No, this is not necessary for this substance B No, since it is a substance of Class 3, this operation is not necessary C Yes, since it is a substance of packing group I D Yes, since this is prescribed in Column (20) of Table C	
332 06.0-24	3.2.3.2, Table C	A
	If UN No. 1218, ISOPRENE, STABILIZED ~~must~~ has to be loaded onto a tank vessel,~~.~~ ~~S~~should the air first be evacuated from the cargo tanks and loading and unloading pipes by means of inert gases? A Yes, since this is prescribed in Column (20) of Table C B No, this is prescribed only for substances of Class 6.1 C Yes, since it is a substance of packing group I D No, this is not necessary for this substance	
332 06.0-25	3.2.3.2, Table C	D
	If UN No. 1307, XYLENES ~~must~~ has to be loaded onto a tank vessel,~~.~~ ~~S~~should the air first be evacuated from the cargo tanks and loading and unloading pipes by means of inert gases? A Yes, since this is prescribed in Column (20) of Table C B No, this is only prescribed for substances of Class 6.1 C No, this is only prescribed for substances of packing group I D No, this is not necessary for this substance	
332 06.0-26	7.2.4.21.3	A
	If UN No. 1593, DICHLOROMETHANE ~~must~~ has to be loaded onto a tank vessel~~.~~ and ~~The certificate of approval sets~~ the permissible relative density is set at 1.1 in the certificate of approval~~at 1.1.~~, ~~W~~what is the degree of filling ~~in this case~~? A 82.7 % B 95 % C 97 % D 97.5 %	

Practice

Examination objective 6: Loading, unloading

Number	*Source*	*Correct answer*
332 06.0-27	7.2.4.21.3	C
	If UN No. 1708, TOLUILIDINES, LIQUID ~~must~~ has to be loaded onto a tank vessel~~.~~ and the permissible relative density is set at 1.1in t~~T~~he certificate of approval ~~sets the permissible relative density at 1.1.~~, ~~W~~what is the degree of filling ~~in this case~~? A 90.9 % B 91 % C 95 % D 97 %	
332 06.0-28	7.2.4.21.3	C
	If UN No. 1848, PROPIONIC ACID ~~must~~ has to be loaded onto a tank vessel~~.~~ and ~~The certificate of approval sets~~ the permissible relative density is set at 1.0 in the certificate of approval~~.~~, ~~W~~what is the degree of filling ~~in this case~~? A 96 % B 95 % C 97 % D 99 %	
332 06.0-29	1.4.3.3 (m), 7.2.4.10	A
	May loading be started ~~Loading is about to start. So far the checklist has been signed only by the master.~~ if ~~T~~the person in charge of the loading installation has ~~assures you~~ undertaken to ~~that he will~~ sign ~~it~~ the checklist after ~~loading~~completion of the procedure~~. Is this permitted~~? A No, it is not permitted B No, only if the new cargo is not the same as the previous cargo C Yes, because the checklist has already been signed by the master D Yes, as the master knows what he is loading	
332 06.0-30	Deleted (2011)	
332 06.0-31	7.2.3.20.1, 9.3.2.11.5	D
	On a tank vessel of type C, may the double-hull spaces and double bottoms be used for ballasting purposes? A Yes, without any restrictions, during transport of substances for which type C is not prescribed B No, not even for empty journeys C No, double-hull spaces and double bottoms should in all circumstances be kept dry and may thus not contain any ballast installations D Yes, if this is taken into account in the stability calculations and is not prohibited by Table C	

Practice

Examination objective 6: Loading, unloading

Number	*Source*	*Correct answer*
332 06.0-32	9.3.2.25.8 (b)	D
	A tank vessel of type C is equipped with piping to collect water ballast in a cargo tank. With what should the junction between the loading and unloading pipes be fitted? A A high-velocity vent valve B An automatic shut-off valve C A flame-arrester D A non-return valve	
332 06.0-33	3.2.3.2, Table C	B
	Which of the following substances crystallizes at temperatures of around 6 °C? A UN No. 1090, ACETONE B UN No. 1114, BENZENE C UN No. 1125, n-BUTYLAMINE D UN No. 1282, PYRIDINE	
332 06.0-34	3.2.3.2, Table C	D
	Which of the following substances may be transported at temperatures below 4 °C when heating is not possible? A UN No. 1114, BENZENE B UN No. 1145, CYCLOHEXANE C UN No. 1307, XYLENES (p-XYLENE) D UN No. 2055, STYRENE MONOMER, STABILIZED	
332 06.0-35	Inerting	C
	~~During the transport of dangerous goods,~~ Why is a layer of nitrogen ~~is~~ sometimes ~~placed~~ added above the cargo during the transport of dangerous goods~~. Why is this~~? A To prevent movement of the cargo B To cool the cargo C To isolate the cargo from the external air D To maintain the temperature of the cargo at a constant level	

Practice

Examination objective 7: Heating

Number	*Source*	*Correct answer*
332 07.0-01	3.2.3.2, Table C	A
	Is it advisable to heat a cargo of UN No. 2348, n-BUTYL ACRYLATE, STABILIZED during transport? A No, since this could cause polymerization B Yes, as long as no gases form in the cargo C Yes, since the substance is stabilized D Yes, since this facilitates pumping of the substance	
332 07.0-02	Temperature action	B
	When is it advisable to heat certain substances? A If they polymerize readily B If they have a very high viscosity C If they are self-reactive D If they decompose readily	
332 07.0-03	Temperature action	C
	When is it advisable to heat certain substances? A If they are thermally unstable B If they emit a lot of gas C If they could solidify during loading D If they decompose readily	
332 07.0-04	3.2.3.2, Table C	D
	Is it advisable to heat UN No. 1999, TARS, LIQUID? A No, since it is highly explosive B No, since it has a very low solidification point C No, since this could result in polymerization D Yes, since it should not be allowed to solidify. The temperature during carriage should be kept above the melting point	
332 07.0-05	3.2.3.2, Table C	D
	If ~~A~~a cargo tank ~~is~~ loaded with UN No. 1831, SULPHURIC ACID, FUMING, ~~.~~ ~~C~~can the heating coils in th~~is~~e ~~cargo~~ tank contain water? A Yes, since fuming sulphuric acid does not react with water B Yes, the heating coils can always contain water C No, during transport of a substance that does not require heating, the heating coils should never contain water D No, this is prohibited during the transport of fuming sulphuric acid	

Practice

Examination objective 7: Heating

Number	*Source*	*Correct answer*
332 07.0-06	3.2.3.2, Table C	C
	~~A vessel is carrying UN No. 2448, SULPHUR, MOLTEN.~~ What is the maximum allowable temperature of the cargo during ~~transport~~carriage of UN No. 2448, SULPHUR, MOLTEN? A 100 ºC B 120 ºC C 150 ºC D 250 ºC	
332 07.0-07	3.2.3.2, Table C	C
	Where in ADN can information on a substance's relative density be found? A In section 3.2.1, Table A B In section 3.2.2, Table B C In section 3.2.3.2, Table C D ADN does not contain any information on the relative density of substances	
332 07.0-08	Temperature action	A
	The temperature correction factor allows the loaded tonnage to be calculated from the volume in m^3. From where can the correction factor obtained? A The loading installation B The instructions in writing C The traffic control authority D The certificate of approval	
332 07.0-09	7.2.4.21.2	A
	A cargo at elevated temperature, e.g. 75 °C, is loaded. The cargo should be kept at this temperature during transport. May the maximum degree of filling be exceeded in this case? A No, since space is required in the cargo tank in case the temperature should rise further B Yes, since the maximum degree of filling is prescribed for 15 °C C Yes, since the temperature will fall rather than rise D No, unless the relative density of the substance is lower than the density specified in the certificate of approval	

Practice

Examination objective 7: Heating

Number	*Source*	*Correct answer*
332 07.0-10	3.2.3.2, Table C	B
	~~A tank vessel is equipped with only one possibility of heating cargo.~~ May ~~it transport~~ UN No. 1764, DICHLOROACETIC ACID be transported at an external temperature of 12 °C if the tank vessel is equipped with only one possibility for heating cargo? A No, the vessel should be equipped with a heating installation on board B Yes, this is permitted C No, below this external temperature, the substance may not be transported in any circumstances D No, this is not permitted since the temperature of the substance should be kept at exactly 14 °C and this is not possible without a heating installation on board	
332 07.0-11	3.2.3.2, Table C	C
	If a~~A~~ cargo tank is loaded with UN No. 2796, BATTERY FLUID, ACID, ~~C~~can the heating coils be filled with water? A Yes, if the heating coils are properly closed B Yes, the heating coils should always be filled with water C No, this is prohibited during transport of this substance D No, during unheated transport, the coils should never contain water	
332 07.0-12	3.2.3.2, Table C	A
	If ~~A~~a cargo tank is loaded with UN No. 2683, AMMONIUM SULPHIDE SOLUTION, ~~C~~can the heating coils be filled with water? A Yes, if the heating coils are properly closed B Yes, since the cargo should be able to be heated C No, this is prohibited during transport of this substance D No, during unheated transport the coils should never contain water	

Emergency measures

Examination objective 1: Personal injury

Number	*Source*	*Correct answer*
333 01.0-01	First aid	A
	What should be done first if someone gets a chemical substance in their eye? A Rinse with water at length then see a doctor B See a doctor immediately C Rinse briefly D Rub with hands and then see a doctor	
333 01.0-02	First aid	B
	What do you need in order to be able to provide the best first aid? A ADN certificate B Valid first-aid certificate C ADN “chemicals” certificate D Certificate of attendance at a fire-fighting course	
333 01.0-03	First aid	D
	If ~~S~~someone has lost consciousness after swallowing a toxic substance,~~ C~~can the victim be given a drink? A Yes, as this will clean out the mouth and may dilute the substance in the stomach B Yes, but it must be done very slowly C Yes, but you must get the victim to sit up D No, you must never give a drink to a victim who has lost consciousness	
333 01.0-04	First aid	D
	If, ~~F~~following a burn, the victim’s clothes are stuck to the skin,~~ S~~should the clothes be pulled off? A Yes, as you will then be better able to cool the skin down B Yes, as the clothes may be dirty C Yes, but you must cool the victim at the same time D No, opening up burn blisters increases the risk of infection	
333 01.0-05	First aid	A
	Why is it often recommended that someone who has swallowed a toxic substance should drink water? A To dilute the contents of the stomach B To stay conscious C To induce vomiting D To rinse the mouth out	

Emergency measures

Examination objective 1: Personal injury

Number	*Source*	*Correct answer*
333 01.0-06	First aid	A
	Why must vomiting not be induced when the patient has swallowed certain toxic substances? A Because the substance then returns to the oesophagus, which will cause further injury B Because the substance is not causing any damage to the stomach C Because the substance is rapidly diluted by the gastric acid and, consequently, vomiting is unnecessary D Because during vomiting the contents of the stomach may reach the bronchial tubes	
333 01.0-07	First aid	B
	What must you never do if a~~A~~ crew member has lost consciousness because of a substance~~. What must you never do~~? A Move the patient B Attempt to get the patient to swallow water C Lie on top of the patient D Try to bring the patient round with cold water	

Emergency measures

Examination objective 2: Material damage

Number	*Source*	*Correct answer*
333 02.0-01	Measures in case of damage	A
	Where can the provisions on the “do not approach” signal be found? A In CEVNI B In ADN, part 1 C In ADN, part 2 D In the technical construction requirements	
333 02.0-02	Measures in case of damage	C
	Toxic gas has been released as a result of damage. How can the concentration of this gas be determined so as to ascertain whether the maximum permissible values in ppm have been exceeded? A With an oxygen meter B With a flammable gas detector C With a toximeter D With a Geiger counter	
333 02.0-03	Measures in case of damage	D
	~~During loading~~ If a leak ~~was~~ is noticed in one of the loading hoses during loading.~~.~~ ~~W~~what ~~should be done~~ is the first thing to do? A Move all unauthorized persons to a safe distance B Inform the competent authority C Measure the concentration of gas and toxicity D Stop loading immediately	
333 02.0-04	Measures in case of damage, 1.4.1.2	A
	Who should be informed first if ~~A~~a vessel sustains serious damage~~. Who should be informed first~~? A The competent authority B The client for whom the cargo is destined C The consignor D The producer of the substance loaded	

Emergency measures

Examination objective 2: Material damage

Number	*Source*	*Correct answer*
333 02.0-05	Measures in case of damage	C
	An accident occurs with the hazardous substance being transported. Who can provide further information on the substance? A The competent authority B The fire services C The consignor of the substance D The shipper	
333 02.0-06	First aid, 7.2.3.1.6	D
	A person equipped with the statutory protective clothing and equipment has entereds a cargo tank with an oxygen content of less than 20 % by volume. The person supervisor sees the person is seen lying unconscious in the cargo tank. What should be the supervisor done? A Someone should eEnter the tank as quickly as possible to rescue the person B Someone wWearing the relevant protective clothing and equipment, should go in enter the tank as quickly as possible to rescue the individual C Someone should pPrepare the rescue winch and then, wearing the relevant protective clothing, should go inenter the tank as quickly as possible to rescue the individual D Someone should fFirst summon the two other persons aboard and then, wearing the relevant protective clothing and equipment, should go inenter the tank to rescue the individual	

Emergency measures

Examination objective 3: Environmental damage

Number	*Source*	*Correct answer*
333 03.0-01	Emergency measures in case of a leak	A
	Gas escapes through a leak. What in particular will determine the behaviour of the cloud of gas? A The relative density of the gas B The conductivity of the gas C The boiling point of the gas D The maximum workplace concentration of the gas	
333 03.0-02	Emergency measures in case of a leak	D
	What will not determine the speed of evaporation of a liquid that escapes? A The size of the surface of the liquid B The temperature of the liquid C The speed at which the vapour is carried off by the wind D The maximum workplace concentration of the gas	
333 03.0-03	Emergency measures in case of a leak	C
	While the loading hose is being connected, a corrosive liquid runs out of the hose onto the deck. What should be done first? A The liquid should be removed by copiously flushing with water B The liquid should be removed by copiously flushing with water and the competent authority informed so that further measures can be taken C It should be attempted to confine the liquid and absorb it with the equipment designed for that purpose D The liquid should be removed by flushing and the deck cleaned with soap	
333 03.0-04	Basic general knowledge	D
	Where should drums containing residue (slops) be emptied? A At a lock, in a tank provided for the purpose B At a refuelling firm C At an appropriate loading berth D At a firm certified by the competent authority	
333 03.0-05	Basic general knowledge	A
	Where should used measurement test tubes be put? A In a container for chemical waste B In the dustbin C Back to the supplier of the test tubes only D They should be kept in order to prove that the measurements have been taken if the authorities carry out an inspection	

Emergency measures

Examination objective 4: Damage-control plans

Number	*Source*		*Correct answer*
333 04.0-01	Damage-control and alert plans		D
	When must a damage-control and alert plan be drawn up?		
	A	It is advisable to do this immediately after a disaster	
	B	At the moment the disaster occurs, so as to know what to do in that situation	
	C	Immediately before a disaster is expected, so as to be well prepared for the situation	
	D	It is advisable to have a damage-control and alert plan available so as to be always prepared for disasters	
333 04.0-02	Damage-control and alert plans		A
	What is not normally included in a damage-control and alert plan?		
	A	The substance being transported	
	B	The need to inform the competent authority	
	C	The possibility that it may be necessary to activate the “do not approach” signal	
	D	The need to keep unauthorized persons away	
333 04.0-03	Damage-control and alert plans		C
	What is not normally included in a damage-control and alert plan?		
	A	The need to keep personal protective equipment on hand ready for use	
	B	The need to have fire-fighting equipment available	
	C	The name of the product to be transported	
	D	The need to inform the competent authority	
333 04.0-04	Damage-control and alert plans		D
	What is it no longer obligatory to do if a vessel is involved in a serious collision?		
	A	Inform the competent authority	
	B	If necessary activate the “do not approach” signal	
	C	If necessary close all openings	
	D	Draw up a damage-control and alert plan	

Emergency measures

Examination objective 4: Damage-control plans

Number	*Source*	*Correct answer*
333 04.0-05	Basic general knowledge, Damage-control and alert plans	C
	What should be done first after a collision that has caused leakage of hazardous substances? A Inform the competent authority B Alert other vessels in the area by radio C Activate the “do not approach” signal D Anchor the vessel in order to assess the damage	
333 04.0-06	Damage-control and alert plans, 7.2.3.1.3, 7.2.3.1.6	B
	What should be done first when a leak is suspected in a wing tank and needs to be inspected? A The vessel should be immobilized and the tank entered for inspection B The vessel should be immobilized, measurements taken, the appropriate steps taken in the light of those measurements and the tank entered for inspection C The vessel should be immobilized, the competent authorities informed and waited for D The vessel should be immobilized, the competent authority informed, measurements taken, the appropriate steps taken in the light of those measurements and the tank entered for inspection	