

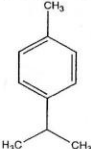
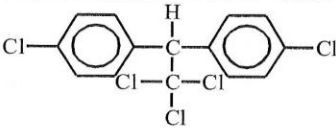
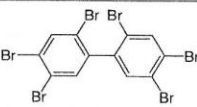
## CHEMICAL STRUCTURES OF CERTAIN PRODUCTS DESCRIBED IN THE EXPLANATORY NOTES TO CHAPTER 29



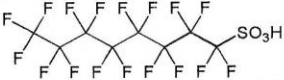
Page	Heading	Paragraph		Description in the Explanatory Notes	Chemical Structure
	General	(G)		Classification of esters, salts, co-ordination compounds and certain halides	
			(1)	Esters	
VI-29-7			(a)		$\begin{array}{c} \text{O} \\ \parallel \\ \text{CH}_3\text{C}\text{OH} \end{array} + \begin{array}{c} \text{HO}\cdot\text{CH}_2\cdot\text{CH}_2 \\ \text{HO}\cdot\text{CH}_2\cdot\text{CH}_2 \\ \text{(Diethylene glycol)} \end{array} \rightarrow \begin{array}{c} \text{O} \\ \parallel \\ \text{CH}_3\text{C}\cdot\text{O}\cdot\text{CH}_2\cdot\text{CH}_2 \\ \text{CH}_3\text{C}\cdot\text{O}\cdot\text{CH}_2\cdot\text{CH}_2 \\ \parallel \\ \text{O} \\ \text{(Diethylene glycol acetate)} \end{array}$ <p>(Acetic acid) 29.15      (Diethylene glycol) 29.09      (Diethylene glycol acetate) 29.15</p>
			(b)		$\begin{array}{c} \text{SO}_3\text{H} \\   \\ \text{C}_6\text{H}_5 \end{array} + \begin{array}{c} \text{CH}_3\text{OH} \\ \text{(Methyl alcohol)} \\ 29.05 \end{array} \rightarrow \begin{array}{c} \text{OCH}_3 \\   \\ \text{O}=\text{S}=\text{O} \\   \\ \text{C}_6\text{H}_5 \end{array}$ <p>(Benzenesulphonic acid) 29.04      (Methyl benzenesulphonate) 29.05</p>
			(c)		$\begin{array}{c} \text{COOH} \\   \\ \text{C}_6\text{H}_4 \\   \\ \text{COOC}_4\text{H}_9 \end{array}$ <p>(Butyl hydrogenphthalate) 29.17</p>

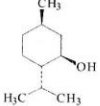
Page	Heading	Paragraph			Description in the Explanatory Notes	Chemical Structure
(VI-29-7)		(G)	(1)	(d)		<p> <chem>O=C(O)c1ccccc1C(=O)O</chem> + <chem>OC(=O)CO</chem> + <chem>CCCCO</chem>        (Phthalic acid) (Glycolic acid) (Butyl alcohol)        29.17 29.18 29.05     </p> <p>↓</p> <p> <chem>CCCCOC(=O)c1ccccc1C(=O)OCCCCOC(=O)C</chem>        (Butyl phthalyl butyl glycolate)        29.18     </p>
				(d)		$\text{CH}_3\text{COOH} + \text{HOCH}_2\text{CH}_3 \longrightarrow \text{CH}_3\text{COOCH}_2\text{CH}_3$ <p>       (Acetic acid) (Ethyl alcohol) (Ethyl acetate)        29.15 29.15     </p>
		(2)			Salts	
				(a)(i)		<p> <chem>COc1ccccc1C(=O)O</chem> + <chem>[Na]OH</chem> → <chem>COc1ccccc1C(=O)[O-][Na+]</chem>        (Methoxybenzoic acid) (Sodium hydroxide) (Sodium Methoxybenzoate)        29.18 29.18     </p>

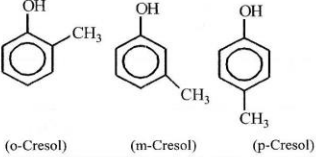
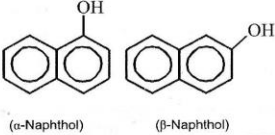
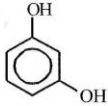
Page	Heading	Paragraph			Description in the Explanatory Notes	Chemical Structure
(VI-29-7)		(G)	(2)	(a)(i)		$\text{C}_4\text{H}_9\text{OC}_6\text{H}_4\text{COOH} + \text{Cu}(\text{OH})_2 \rightarrow (\text{C}_4\text{H}_9\text{OC}_6\text{H}_4\text{COO})_2\text{Cu}$ <p>(Butyl hydrogen phthalate) (Copper hydroxide) (Butyl copper phthalate)<sup>2</sup> 29.17 29.17</p>
VI-29-8				(ii)		$(\text{C}_2\text{H}_5)_2\text{NH} + \text{HCl} \rightarrow (\text{C}_2\text{H}_5)_2\text{NH}^+\text{Cl}^-$ <p>(Diethylamine) (Hydrochloric acid) (Diethylamine hydrochloride) 29.21 28.06 29.21</p>
				(b)(i)		$\text{CH}_3\text{C}(=\text{O})\text{OH} + \text{C}_6\text{H}_5\text{NH}_2 \rightarrow \text{C}_6\text{H}_5\text{NH}_3^+\text{CH}_3\text{COO}^-$ <p>(Acetic acid) (Aniline) (Aniline acetate) 29.15 29.21 29.21</p>
				(ii)		$\text{CH}_3\text{NH}_2 + \text{C}_6\text{H}_4(\text{OCH}_2\text{COOH}) \rightarrow \text{C}_6\text{H}_4(\text{OCH}_2\text{COO}^-)\text{NH}_3^+\text{CH}_3$ <p>(Methylamine) (Phenoxyacetic acid) (Methylamine phenoxyacetate) 29.21 29.18 29.18</p>

Page	Heading	Paragraph		Description in the Explanatory Notes	Chemical Structure
VI-29-9		(G)	(4)	Halides of carboxylic acids (Isobutyryl chloride : 29.15)	$\begin{array}{c} \text{O} \\ \parallel \\ (\text{CH}_3)_2\text{CH}\cdot\text{C}\cdot\text{Cl} \end{array}$
	<b>29.02</b>			<b>Cyclic hydrocarbons</b>	
		(B)		CYCLOTERPENES	
VI-2902-2			(3)	Limonene	
		(C)		AROMATIC HYDROCARBONS	
VI-2902-3			(l) (c)	o-xylene	
			(d)(1)	Styrene	

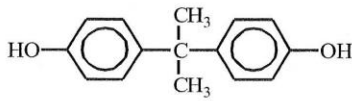
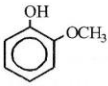
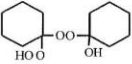
Page	Heading	Paragraph			Description in the Explanatory Notes	Chemical Structure
(VI-2902-3)	(29.02)	(C)	(I)	(d)(4)	<i>p</i> -Cymene	
	29.03				Halogenated derivatives of hydrocarbons	
		(F)			HALOGENATED DERIVATIVES OF AROMATIC HYDROCARBONS	
VI-2903-4			(6)		DDT (ISO) (clofenotane (INN), 1,1,1-trichloro-2,2-bis( <i>p</i> -chlorophenyl)ethane or dichlorodiphenyltrichloroethane)	
			(11)		2,2',4,4',5,5'-hexabromobiphenyl	


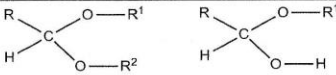
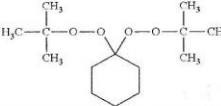
Page	Heading	Paragraph		Description in the Explanatory Notes	Chemical Structure
	29.04			Sulphonated, nitrated or nitrosated derivatives of hydrocarbons, whether or not halogenated	
		(A)		SULPHONATED DERIVATIVES	
VI-2904-1		(1)	(a)	Ethylenesulphonic acid	$\text{CH}_2=\text{CHSO}_3\text{H}$
		(B)		NITRATED DERIVATIVES	
		(1)	(d)	Trinitromethane	$\text{CH}(\text{NO}_2)_3$
		(C)		NITROSATED DERIVATIVES	
VI-2904-2		(2)		Nitrosotoluene	
		(D)		SULPHOHALOGENATED DERIVATIVES	
		(1)		Chlorobenzenesulphonic acid	
		(5)		Perfluorooctane sulphonic acid (PFOS)	

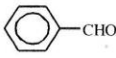
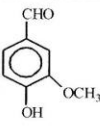

Page	Heading	Paragraph		Description in the Explanatory Notes	Chemical Structure
3	29.05			Ayclic alcohols and their halogenated, sulphonated, nitrated or nitrosated derivatives	
		(B)		UNSATURATED MONOHYDRIC ALCOHOLS	
VI-2905-3			(1)	Allyl alcohol	$H_2C=CHCH_2OH$
		(C)		DIOLS AND OTHER POLYHYDRIC ALCOHOLS	
		(II)	(4)	Mannitol	$  \begin{array}{c}  CH_2OH \\    \\  HOCH \\    \\  HOCH \\    \\  HCOH \\    \\  HCOH \\    \\  CH_2OH  \end{array}  $
	29.06			Cyclic alcohols and their halogenated, sulphonated, nitrated or nitrosated derivatives	
		(A)		CYCLANIC, CYCLENIC OR CYCLOTERPENIC ALCOHOLS AND THEIR HALOGENATED, SULPHONATED, NITRATED OR NITROSATED DERIVATIVES	
VI-2906-1			(1)	Menthol	

Page	Heading	Paragraph	Description in the Explanatory Notes	Chemical Structure
	29.07		Phenols; phenol-alcohols	
		(A)	MONONUCLEAR MONOPHENOLS	
VI-2907-2		(2)	Cresol(s)	 <p>(o-Cresol)      (m-Cresol)      (p-Cresol)</p>
		(B)	POLYNUCLEAR MONOPHENOLS	
		(1)	Naphthol(s)	 <p>(α-Naphthol)      (β-Naphthol)</p>
		(C)	POLYPHENOLS	
		(1)	Resorcinol	

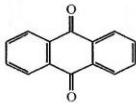
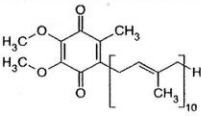
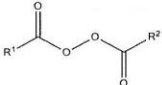


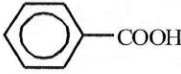
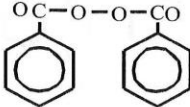
Page	Heading	Paragraph		Description in the Explanatory Notes	Chemical Structure
VI-2907-3	(29.07)	(C)	(3)	Bisphenol A	
	29.09			Ethers, ether-alcohols, ether-phenols, ether-alcohol-phenols, alcohol peroxides, ether peroxides, ketone peroxides (whether or not chemically defined), and their halogenated, sulphonated, nitrated or nitrosated derivatives	
		(C)		ETHER-PHENOLS AND ETHER-ALCOHOL-PHENOLS	
VI-2909-3			(1)	Guaiacol	
		(D)		ALCOHOL PEROXIDES, ETHER PEROXIDES AND KETONE PEROXIDES	
VI-2909-4				Ketone peroxides (Cyclohexanone peroxide)	

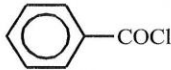
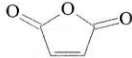
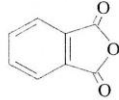
Page	Heading	Paragraph	Description in the Explanatory Notes	Chemical Structure
	29.10		Epoxides, epoxyalcohols, epoxyphenols and epoxyethers, with a three-membered ring, and their halogenated, sulphonated, nitrated or nitrosated derivatives	
VI-2910-1		(I)	Oxirane	
	29.11		Acetals and hemiacetals, whether or not with other oxygen function, and their halogenated, sulphonated, nitrated or nitrosated derivatives	
VI-2911-1		(A)	ACETALS AND HEMIACETALS	
			Peroxyketals 1,1-di(tert-butylperoxy)cyclohexane	

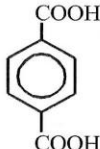
Page	Heading	Paragraph		Description in the Explanatory Notes	Chemical Structure
	29.12			Aldehydes, whether or not with other oxygen function; cyclic polymers of aldehydes; paraformaldehyde	
VI-2912-2		(A)		ALDEHYDES	$\begin{array}{c} \text{O} \\ \parallel \\ \text{R}-\text{C}-\text{H} \end{array}$
VI-2912-3			(IV) (1)	Benzaldehyde	
		(B)		ALDEHYDE-ETHERS, ALDEHYDE-PHENOLS AND ALDEHYDES WITH OTHER OXYGEN FUNCTION	
			(4)	Vanillin	
		(C)		CYCLIC POLYMERS OF ALDEHYDES	
VI-2912-4			(1)	Trioxan	

Page	Heading	Paragraph		Description in the Explanatory Notes	Chemical Structure
	29.14			Ketones and quinones, whether or not with other oxygen function, and their halogenated, sulphonated, nitrated or nitrosated derivatives	
VI-2914-2		(A)	(I)	KETONES	
			(8)	Diacetyl	
			(9)	Acetylacetone	
			(10)	Acetonylacetone	
		(II)	(1)	Camphor	

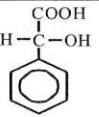
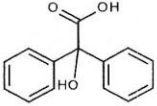

Page	Heading	Paragraph		Description in the Explanatory Notes	Chemical Structure
VI-2914-4	(29.14)	(E)		QUINONES	
			(1)	Anthraquinone	
		(F)			
VI-2914-5			(4)	Coenzyme Q10 (ubidecarenone (INN))	
	29.15			<b>Saturated acyclic monocarboxylic acids and their anhydrides, halides, peroxides and peroxyacids; their halogenated, sulphonated, nitrated or nitrosated derivatives</b>	
VI-2915-1		(C)		ACID PEROXIDES	
VI-2915-5		(V)	(a)	n-Butyric acid	CH <sub>3</sub> CH <sub>2</sub> CH <sub>2</sub> COOH

Page	Heading	Paragraph			Description in the Explanatory Notes	Chemical Structure
	29.16				Unsaturated acyclic monocarboxylic acids, cyclic monocarboxylic acids, their anhydrides, halides, peroxides and peroxyacids; their halogenated, sulphated, nitrated or nitrosated derivatives	
		(A)			UNSATURATED ACYCLIC MONOCARBOXYLIC ACIDS AND THEIR SALTS, ESTERS AND OTHER DERIVATIVES	
VI-2916-1			(1)		Acrylic acid	$\text{CH}_2=\text{CHCOOH}$
		(C)			AROMATIC SATURATED MONOCARBOXYLIC ACIDS AND THEIR SALTS, ESTERS AND OTHER DERIVATIVES	
VI-2916-2			(1)		Benzoic acid	
				(a)	Benzoyl peroxide	

Page	Heading	Paragraph			Description in the Explanatory Notes	Chemical Structure
(VI-2916-2)	(29.16)	(C)	(1)	(b)	Benzoyl chloride	
	29.17				Polycarboxylic acids, their anhydrides, halides, peroxides and peroxyacids; their halogenated, sulphonated, nitrated or nitrosated derivatives	
		(A)			ACYCLIC POLYCARBOXYLIC ACIDS AND THEIR ESTERS, SALTS AND DERIVATIVES	
VI-2917-1			(3)		Azelaic acid	$\text{HOOC}(\text{CH}_2)_7\text{COOH}$
VI-2917-2			(5)		Maleic anhydride	
		(C)			AROMATIC POLYCARBOXYLIC ACIDS AND THEIR ESTERS, SALTS AND OTHER DERIVATIVES	
			(1)		Phthalic anhydride	


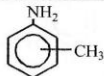
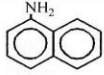
Page	Heading	Paragraph		Description in the Explanatory Notes	Chemical Structure
(VI-2917-2)	(29.17)	(C)	(2)	Terephthalic acid	
	29.18			Carboxylic acids with additional oxygen function and their anhydrides, halides, peroxides and peroxyacids; their halogenated, sulphonated, nitrated or nitrosated derivatives	
		(A)		CARBOXYLIC ACIDS WITH ALCOHOL FUNCTION AND THEIR ESTERS, SALTS AND OTHER DERIVATIVES	
VI-2918-2			(3)	Citric acid	$\begin{array}{c} \text{CH}_2\text{COOH} \\   \\ \text{C}(\text{OH})\text{COOH} \\   \\ \text{CH}_2\text{COOH} \end{array}$

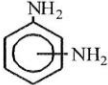
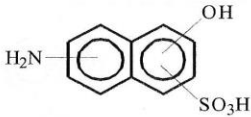


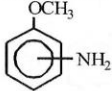
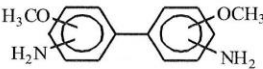
Page	Heading	Paragraph		Description in the Explanatory Notes	Chemical Structure
VI-2918-3	(29.18)	(A)	(6)	Phenylglycolic acid	 <chem>O=C(O)C(O)c1ccccc1</chem>
			(8)	2,2-Diphenyl-2-hydroxyacetic acid (benzilic acid)	 <chem>O=C(O)C(O)(c1ccccc1)c2ccccc2</chem>
		(B)		CARBOXYLIC ACIDS WITH PHENOL FUNCTION AND THEIR ESTERS, SALTS AND OTHER DERIVATIVES	
(VI-2918-3)	(29.18)	(B)	(I)	Salicylic acid	 <chem>O=C(O)c1ccccc1O</chem>

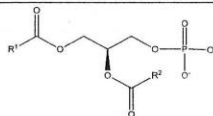
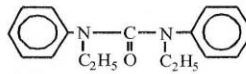
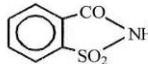
Page	Heading	Paragraph			Description in the Explanatory Notes	Chemical Structure
VI-2919-1	29.19				Phosphoric esters and their salts, including lactophosphates; their halogenated, sulphonated, nitrated or nitrosated derivatives	$\begin{array}{c} \text{OR} \\   \\ \text{R}^1\text{O}-\text{P}=\text{O} \\   \\ \text{OR}^2 \end{array}$
VI-2919-2		(3)			Tributyl phosphate	$\begin{array}{c} \text{C}_4\text{H}_9\text{O} \\   \\ \text{C}_4\text{H}_9\text{O}-\text{P}=\text{O} \\   \\ \text{C}_4\text{H}_9\text{O} \end{array}$
	29.20				Esters of other inorganic acids of non-metals (excluding esters of hydrogen halides) and their salts; their halogenated, sulphonated, nitrated or nitrosated derivatives	
		(A)			Thiophosphoric esters	
VI-2920-1					Sodium O,O-dibutyldithiophosphates	$\begin{array}{c} \text{S} \\    \\ \text{NaS}-\text{P} \\ / \quad \backslash \\ \text{O}-\text{C}_4\text{H}_9 \\ \text{O}-\text{C}_4\text{H}_9 \end{array}$
		(B)			Dimethyl phosphite	$\begin{array}{c} \text{CH}_3\text{O} \\   \\ \text{CH}_3\text{O}-\text{P} \\ / \quad \backslash \\ \text{O} \quad \text{H} \end{array}$
VI-2920-2		(D)			Nitrous and nitric esters	
					Methyl nitrite	$\text{CH}_3\text{ONO}$

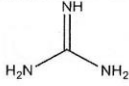
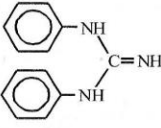
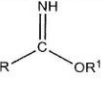
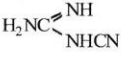
Page	Heading	Paragraph		Description in the Explanatory Notes	Chemical Structure
(VI-2920-2)	(29.20)	(D)		Nitroglycerol	$\begin{array}{c} \text{CH}_2\text{ONO}_2 \\   \\ \text{CHONO}_2 \\   \\ \text{CH}_2\text{ONO}_2 \end{array}$
		(E)		Carbonic or peroxocarbonic esters and their salts	
		(1)		Diguaiacyl carbonate	
		(F)		Silicic acid esters and their salts	
				Tetraethyl silicate	$\begin{array}{c} \text{C}_2\text{H}_5\text{O} \\ \diagdown \\ \text{Si} \\ \diagup \\ \text{C}_2\text{H}_5\text{O} \end{array} \begin{array}{c} \text{OC}_2\text{H}_5 \\ \diagdown \\ \text{OC}_2\text{H}_5 \end{array}$
VI-2921-1	29.21			<b>Amine-function compounds</b>	$\text{R}-\text{NH}_2 \quad \text{R}-\overset{\text{R}^1}{\underset{\text{H}}{\text{N}}} \quad \text{R}-\overset{\text{R}^1}{\underset{\text{R}^2}{\text{N}}}$
		(A)		ACYCLIC MONOAMINES AND THEIR DERIVATIVES; SALTS THEREOF	
VI-2921-2		(4)		Ethylamine	$\text{CH}_3\text{-CH}_2\text{-NH}_2$

Page	Heading	Paragraph		Description in the Explanatory Notes	Chemical Structure
(VI-2921-2)	(29.21)	(B)		ACYCLIC POLYAMINES AND THEIR DERIVATIVES; SALTS THEREOF	
VI-2921-3			(2)	Hexamethylenediamine	$\text{H}_2\text{N}-\text{CH}_2-\text{CH}_2-\text{CH}_2-\text{CH}_2-\text{CH}_2-\text{CH}_2-\text{NH}_2$
		(D)		AROMATIC MONOAMINES AND THEIR DERIVATIVES; SALTS THEREOF	
			(1)	Aniline	
			(2)	Toluidine(s)	
			(4)	1-Naphthylamine	

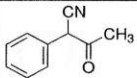

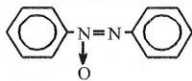
Page	Heading	Paragraph		Description in the Explanatory Notes	Chemical Structure
(VI-2921-4)	(29.21)	(E)		AROMATIC POLYAMINES AND THEIR DERIVATIVES; SALTS THEREOF	
			(1)	Phenylenediamine(s)	
	29.22			Oxygen-function amino-compounds	
		(A)		AMINO-ALCOHOLS, THEIR ETHERS AND ESTERS; SALTS THEREOF	
VI-2922-2			(1)	Monoethanolamine	$\text{H}_2\text{N}-\text{CH}_2\text{CH}_2\text{OH}$
		(B)		AMINO-NAPHTHOLS AND OTHER AMINO-PHENOLS, THEIR ETHERS AND ESTERS; SALTS THEREOF	
			(1)	Aminohydroxynaphthalenesulphonic acids	


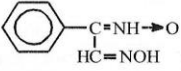

Page	Heading	Paragraph		Description in the Explanatory Notes	Chemical Structure
VI-2922-3	(29.22)	(B)	(a)	Anisidine(s)	
			(b)	Dianisidine(s)	
		(D)		AMINO-ACIDS AND THEIR ESTERS; SALTS THEREOF	
			(1)	Lysine	$\text{H}_2\text{N}(\text{CH}_2)_4\overset{\text{NH}_2}{\underset{\text{H}}{\text{C}}}-\text{COOH}$
	29.23			Quaternary ammonium salts and hydroxides; lecithins and other phosphoaminolipids, whether or not chemically defined	
VI-2923-1		(1)		Choline (Choline hydroxide)	$[(\text{CH}_3)_3\text{N}^+\text{CH}_2\text{CH}_2\text{OH}]\text{OH}^-$






Page	Heading	Paragraph		Description in the Explanatory Notes	Chemical Structure
(VI-2923-1)	(29.23)	(2)		Lecithin	
	29.24			Carboxamide-function compounds; amide-function compounds of carbonic acid	
		(B)		CYCLIC AMIDES	
VI-2924-2		(1)	(ii)	Diethyldiphenylurea	
	29.25			Carboximide-function compounds (including saccharin and its salts) and imine-function compounds	
		(A)		IMIDES	
VI-2925-1		(1)		Saccharin	






Page	Heading	Paragraph		Description in the Explanatory Notes	Chemical Structure
(VI-2925-1)	(29.25)	(B)		IMINES	
			(1)	guanidine	
VI-2925-2			(a)	Diphenylguanidine	
			(3)	Imino ethers	
	<b>29.26</b>			<b>Nitrile-function compounds</b>	
VI-2926-1		(1)		Acrylonitrile	$\text{CH}_2=\text{CHCN}$
		(2)		1-Cyanoguanidine	




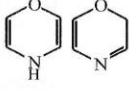
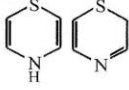






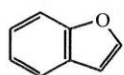
Page	Heading	Paragraph		Description in the Explanatory Notes	Chemical Structure
(VI-2926-1)	(29.26)	(19)		alpha-Phenylacetoacetonitrile (APAAN)	
	29.27			<b>Diazo-, azo- or azoxy-compounds</b>	
		(A)		DIAZO-COMPOUNDS	
VI-2927-1		(1)	(a)	Benzenediazonium chloride	
		(B)		AZO-COMPOUNDS	$R^1N = NR^2$
VI-2927-2		(C)		AZOXY-COMPOUNDS	$R^1-N_2O-R^2$
		(1)		Azoxybenzene	

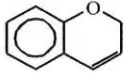
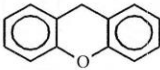
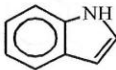
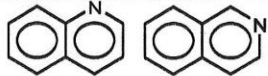
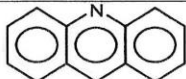
Page	Heading	Paragraph		Description in the Explanatory Notes	Chemical Structure
	29.28			Organic derivatives of hydrazine or of hydroxylamine	
VI-2928-1		(1)		Phenylhydrazine	
		(11)		Phenylglyoxime	
	29.29			Compounds with other nitrogen function	
VI-2929-1		(1)		Isocyanates	$R-N=C=O$
	S-Ch. X General			ORGANO-INORGANIC COMPOUNDS, HETEROCYCLIC COMPOUNDS, NUCLEIC ACIDS AND THEIR SALTS, AND SULPHONAMIDES	
		(A)		FIVE-MEMBERED RINGS	
VI-2930-1		(1)	(a)	Furan	

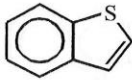
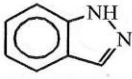
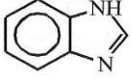
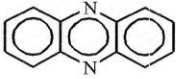
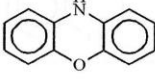
Page	Heading	Paragraph			Description in the Explanatory Notes	Chemical Structure
(VI-2930-1)	(General)	(A)	(1)	(b)	Thiophen	
				(c)	Pyrrole	
		(2)	(a)		Oxazole	
			(a)		Isoxazole	
			(b)		Thiazole	

Page	Heading	Paragraph			Description in the Explanatory Notes	Chemical Structure
(VI-2930-1)	(General)	(A)	(2)	(c)	Imidazole	
				(c)	Pyrazole	
		(3)	(a)		Furazan	
				(b)	Triazole (1,2,4-Triazole)	
				(c)	Tetrazole	

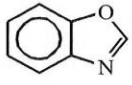
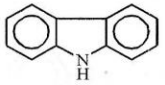
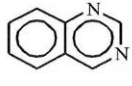
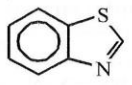
Page	Heading	Paragraph		Description in the Explanatory Notes	Chemical Structure
VI-2930-2	(General)	(B)		SIX-MEMBERED RINGS	
			(1)	(a) Pyran (2H-Pyran)	
				(b) Thiin	
				(c) Pyridine	
			(2)	(a) Oxazine (1,4-Oxazine)	
				(b) Thiazine (1,4-Thiazine)	

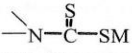
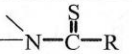
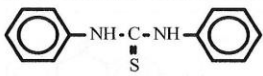
Page	Heading	Paragraph			Description in the Explanatory Notes	Chemical Structure
(VI-2930-2)	(General)	(B)	(2)	(c)	Pyridazine	
				(c)	Pyrimidine	
				(c)	Pyrazine	
				(c)	Piperazine	
		(C)			OTHER MORE COMPLEX HETEROCYCLIC COMPOUNDS	
			(a)		Coumarone	

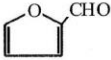
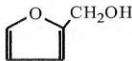
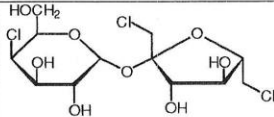
Page	Heading	Paragraph		Description in the Explanatory Notes	Chemical Structure
(VI-2930-2)	(General)	(C)	(b)	Benzopyran	
			(c)	Xanthene	
			(d)	Indole	
			(e)	Quinoline and isoquinoline	
			(f)	Acridine	


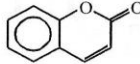
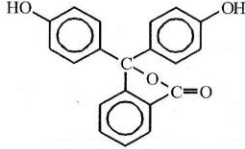
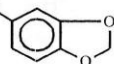
Page	Heading	Paragraph			Description in the Explanatory Notes	Chemical Structure
(VI-2930-2)	(General)	(C)	(g)		Benzothiophene (Thionaphthene)	
			(h)		Indazole	
			(ij)		Benzimidazole	
			(k)		Phenazine	
			(l)		Phenoxazine	

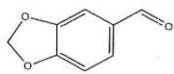
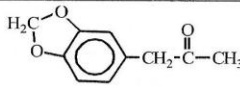
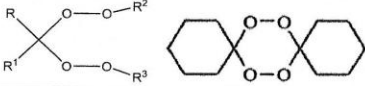
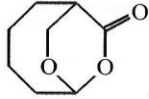
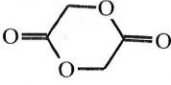


Page	Heading	Paragraph			Description in the Explanatory Notes	Chemical Structure
(VI-2930-2)	(General)	(C)	(m)		Benzoxazole	
			(n)		Carbazole	
			(o)		Quinazoline	
			(p)		Benzothiazole	
	<b>29.30</b>				<b>Organo-sulphur compounds</b>	Compounds with C-S bond
VI-2930-3		(A)			DITHIOCARBONATES (XANTHATES)	$\text{ROC(S)SR}^1$ R1 = Metal or an organic radical
			(I)		Sodium ethyldithiocarbonate	$\text{C}_2\text{H}_5\text{O}-\text{CS}_2\text{Na}$
(VI-2930-3)	(29.30)	(B)			THIOCARBAMATES,	

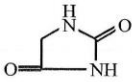
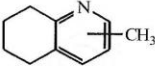
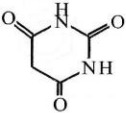
Page	Heading	Paragraph	Description in the Explanatory Notes	Chemical Structure
			DITHIOCARBAMATES AND THIURAM SULPHIDES	
		(2)	Dithiocarbamates	
VI-2930-4		(C)	SULPHIDES (OR THIOETHERS)	RSR <sup>1</sup>
		(1)	Methionine	$\text{CH}_3\text{SCH}_2\text{CH}_2\underset{\text{NH}_2}{\text{CH}}\text{COOH}$
		(D)	THIOAMIDES	
		(2)	Thiocarbamide	
	29.31		<b>Other organo-inorganic compounds</b>	
VI-2931-1		(3)	Dimethyl methylphosphonate	$\text{H}_3\text{C}-\underset{\text{OCH}_3}{\overset{\text{O}}{\text{P}}}-\text{OCH}_3$

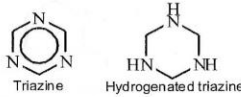
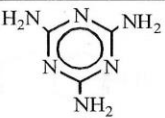

Page	Heading	Paragraph	Description in the Explanatory Notes	Chemical Structure
(VI-2931-1)	(29.31)	(4)	Organo-silicon compounds	Compounds with C-Si bond
			Hexamethyldisiloxane	$\begin{array}{c} \text{CH}_3 \quad \text{CH}_3 \\   \quad   \\ \text{CH}_3-\text{Si}-\text{O}-\text{Si}-\text{CH}_3 \\   \quad   \\ \text{CH}_3 \quad \text{CH}_3 \end{array}$
	29.32		<b>Heterocyclic compounds with oxygen hetero-atom(s) only</b>	
VI-2932-1		(A)	Compounds containing an unfused furan ring (whether or not hydrogenated) in the structure	(See structure of furan against page VI-2930-1 for Sub-Chapter X (A) (1) (a))
		(2)	2-Furaldehyde	
		(3)	Furfuryl alcohol	
		(5)	Sucralose	

Page	Heading	Paragraph	Description in the Explanatory Notes	Chemical Structure
VI-2932-2	(29.32)	(B)	Lactones	
		(a)	Coumarin	
VI-2932-3		(p)	Phenolphthalein	
		(C)	Other heterocyclic compounds with oxygen hetero-atom(s) only	
		(5)	Safrole	$\text{CH}_2=\text{CH}-\text{CH}_2$ 

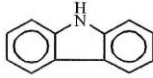
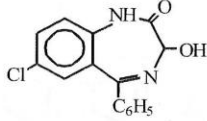
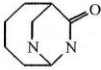
Page	Heading	Paragraph		Description in the Explanatory Notes	Chemical Structure
(VI-2932-3)	(29.32)	(C)	(8)	Piperonal	
VI-2932-4			(10)	1-(1,3-Benzodioxol-5-yl)propan-2-one	
				Ketone peroxides (exclusion) – see 29.09	
				Example for esters (lactone) forming part of two rings (Subheading Explanatory Notes)	
				Example for dilactone (Subheading Explanatory Notes)	

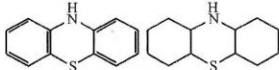

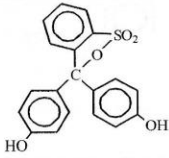
Page	Heading	Paragraph		Description in the Explanatory Notes	Chemical Structure
(VI-2932-4)	(29.32)			Internal Hemiacetals	
	29.33			<b>Heterocyclic compounds with nitrogen hetero-atom(s) only</b>	
VI-2933-2		(A)		Compounds containing an unfused pyrazole ring (whether or not hydrogenated) in the structure	(See structure of pyrazole against page VI-2930-1 for Sub-Chapter X (A) (2) (c))
			(1)	Phenazone	

Page	Heading	Paragraph		Description in the Explanatory Notes	Chemical Structure
(VI-2933-2)	(29.33)	(B)		Compounds containing an unfused imidazole ring (whether or not hydrogenated) in the structure	(See structure of imidazole against page VI-2930-1 for Sub-Chapter X (A) (2) (c))
			(1)	Hydantoin	
VI-2933-3		(C)		Compounds containing an unfused pyridine ring (whether or not hydrogenated) in the structure	(See structure of pyridine against page VI-2930-2 for Sub-Chapter X (B) (1) (c))
VI-2933-4		(D)		Compounds containing a quinoline or isoquinoline ring-system (whether or not hydrogenated), not further fused	(See structures of quinoline and isoquinoline against page VI-2930-2 for Sub-Chapter X (C) (e))
			(4)	Tetrahydromethylquinoline (5,6,7,8-Tetrahydromethylquinoline)	
		(E)		Compounds containing a pyrimidine ring (whether or not hydrogenated) or piperazine ring in the structure	(See structure of pyrimidine against page VI-2930-2 for Sub-Chapter X (B) (2) (c))
			(1)	Malonylurea (Barbituric acid)	

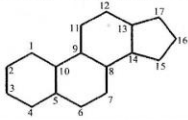
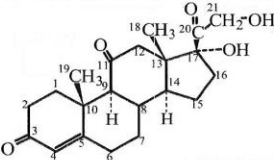
Page	Heading	Paragraph	Description in the Explanatory Notes	Chemical Structure
VI-2933-5	(29.33)	(F)	Compounds containing an unfused triazine ring (whether or not hydrogenated) in the structure	 Triazine      Hydrogenated triazine
		(I)	Melamine	
		(G)	Lactams	



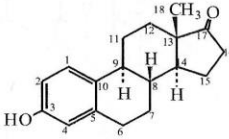
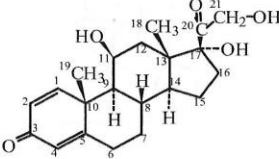
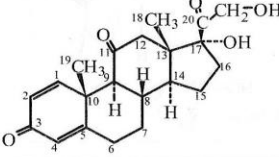
Page	Heading	Paragraph		Description in the Explanatory Notes	Chemical Structure
VI-2933-6	(29.33)	(H)		Other heterocyclic compounds with nitrogen hetero-atom(s) only	
			(1)	Carbazole	
			(2)	Acridine	(See structure of acridine against page VI-2930-2 for Sub-Chapter X (C) (f))
VI-2933-7				Oxazepam (Subheading Explanatory Notes)	
				Example for amide (lactam) forming part of two rings (Subheading Explanatory Notes)	

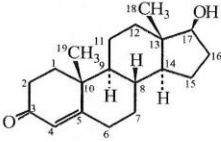
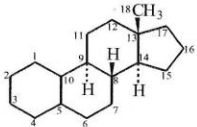
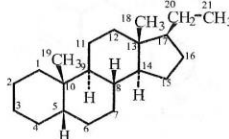
Page	Heading	Paragraph		Description in the Explanatory Notes	Chemical Structure
	29.34			Nucleic acids and their salts, whether or not chemically defined; other heterocyclic compounds	
VI-2934-1		(A)		Compounds containing an unfused thiazole ring (whether or not hydrogenated) in the structure	(See structure of thiazole against page VI-2930-1 for Sub-Chapter X (A) (2) (b))
		(B)		Compounds containing a benzothiazole ring-system (whether or not hydrogenated), not further fused	(See structure of benzothiazole against page VI-2930-2 for Sub-Chapter X (C) (p))
VI-2934-2		(C)		Compounds containing a phenothiazine ring-system (whether or not hydrogenated), not further fused	
		(D)		Other heterocyclic compounds	
		(1)		Sulfones	
		(a)		Phenolsulfonephthalein	

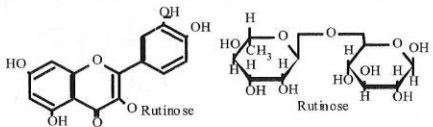
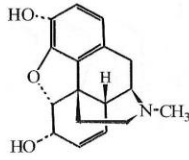
Page	Heading	Paragraph		Description in the Explanatory Notes	Chemical Structure
(VI-2934-2)	(29.34)	(D)	(2)	Sultams	
			(4)	Furazolidone (INN)	
VI-2935-1	29.35			Sulphonamides	
		(1)		Perfluorooctane sulphonamide	
		(5)		p-Aminobenzenesulphonamide	

Page	Heading	Paragraph	Description in the Explanatory Notes	Chemical Structure
	29.37		<b>Hormones, prostaglandins, thromboxanes and leukotrienes, natural or reproduced by synthesis; derivatives and structural analogues thereof, including chain modified polypeptides, used primarily as hormones</b>	
		(V)	Analogues of hormones, prostaglandins, thromboxanes and leukotrienes	
VI-2937-2		(b)	Gonane	
		(B)	STEROIDAL HORMONES, THEIR DERIVATIVES AND STRUCTURAL ANALOGUES	
		(1)	Corticosteroid hormones	
VI-2937-5		(a)	Cortisone (INN)	

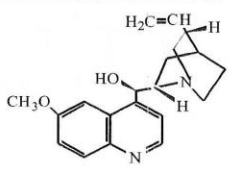
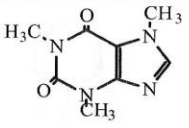
Page	Heading	Paragraph			Description in the Explanatory Notes	Chemical Structure
(VI-2937-5)	(29.37)	(B)	(1)	(b)	Hydrocortisone (INN)	
VI-2937-6			(3)	(a)	Oestrogens and progestogens Progesterone (INN)	
VI-2937-8		List			Androstane	

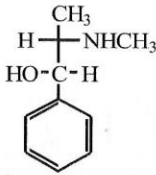
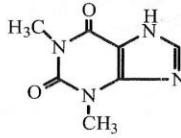
Page	Heading	Paragraph	Description in the Explanatory Notes	Chemical Structure
VI-2937-9	(29.37)	List	Estrone (INN)	
VI-2937-12			Prednisolone (INN)	
			Prednisone (INN)	

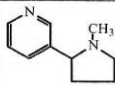
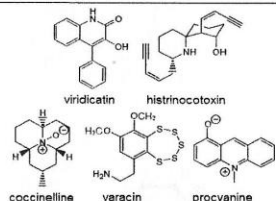
Page	Heading	Paragraph	Description in the Explanatory Notes	Chemical Structure
VI-2937-13	(29.37)	List	Testosterone (INN)	
			Estrane	
			Pregnane	


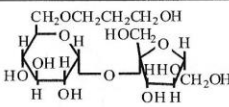
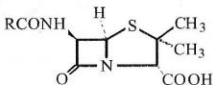
Page	Heading	Paragraph	Description in the Explanatory Notes	Chemical Structure
	29.38		Glycosides, natural or reproduced by synthesis, and their salts, ethers, esters and other derivatives	
VI-2938-1		(1)	Rutoside	 <p>The structure shows a flavonoid core (quercetin) with a rutinoside sugar moiety attached. The flavonoid core consists of a benzopyrone ring system with hydroxyl groups at positions 5 and 7, and a dihydroxyphenyl group at position 3. The rutinoside sugar is a disaccharide composed of rhamnose and glucose units linked by an alpha-1,6-glycosidic bond.</p>
	29.39		Vegetable alkaloids, natural or reproduced by synthesis, and their salts, ethers, esters and other derivatives	
		(A)	ALKALOIDS OF OPIUM AND THEIR DERIVATIVES; SALTS THEREOF	
VI-2939-2		(1)	Morphine	 <p>The structure shows the pentacyclic morphinan skeleton of morphine, featuring a nitrogen atom with a methyl group (N-CH<sub>3</sub>) and two hydroxyl groups (HO) at positions 3 and 6.</p>

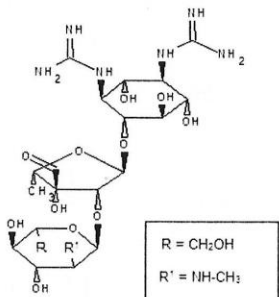
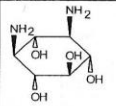


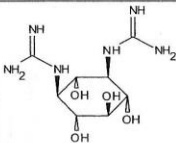
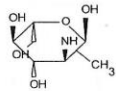

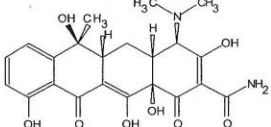
Page	Heading	Paragraph		Description in the Explanatory Notes	Chemical Structure
(VI-2939-3)	(29.39)	(B)		ALKALOIDS OF CINCHONA AND THEIR DERIVATIVES; SALTS THEREOF	
			(1)	Quinine	 <p>The chemical structure of Quinine is shown. It consists of a quinoline ring system with a methoxy group (CH<sub>3</sub>O) at the 8-position and a hydroxyl group (HO) at the 6-position. Attached to the 4-position of the quinoline ring is a quinuclidine bicyclic system, which is a bicyclo[2.2.1]heptane ring system with a nitrogen atom at the bridgehead position. The quinuclidine system has a vinyl group (H<sub>2</sub>C=CH) and a hydrogen atom (H) attached to the bridgehead carbon.</p>
		(C)		CAFFEINE AND ITS SALTS	
				Caffeine	 <p>The chemical structure of Caffeine is shown. It is a purine ring system with two methyl groups (CH<sub>3</sub>) attached to the nitrogen atoms at the 1 and 3 positions. The purine ring has a carbonyl group (C=O) at the 2-position and another carbonyl group (C=O) at the 6-position.</p>

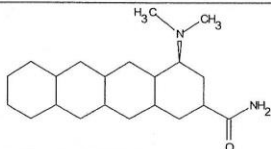
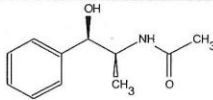
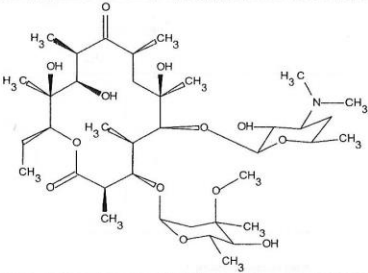
Page	Heading	Paragraph		Description in the Explanatory Notes	Chemical Structure
(VI-2939-3)	(29.39)	(D)	(1)	EPHEDRINES AND THEIR SALTS	
				Ephedrine	
		(E)		THEOPHYLLINE AND AMINOPHYLLINE (THEOPHYLLINE-ETHYLENEDIAMINE) AND THEIR DERIVATIVES; SALTS THEREOF	
		(E)		Theophylline	

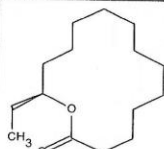
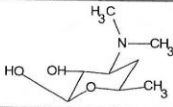
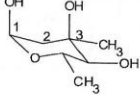
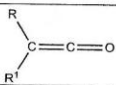
Page	Heading	Paragraph	Description in the Explanatory Notes	Chemical Structure
(VI-2939-3)	(29.39)	(G)	NICOTINE AND ITS SALTS	
			Nicotine	
VI-2939-6		(H)	Alkaloids of non-vegetal origin : viridicatin (fungal), histrinocotoxin (animal), coccinelline (insect), varacin (marine) and procyanine (bacterial)	 <p>viridicatin      histrinocotoxin</p> <p>coccinelline      varacin      procyanine</p>

Page	Heading	Paragraph		Description in the Explanatory Notes	Chemical Structure
	29.40			Sugars, chemically pure, other than sucrose, lactose, maltose, glucose and fructose; sugar ethers, sugar acetals and sugar esters, and their salts, other than products of heading 29.37, 29.38 or 29.39	
		(A)		SUGARS, CHEMICALLY PURE	
			(1)	Galactose	$\begin{array}{c} \text{CHO} \\ \text{HCOH} \\ \text{HOCH} \\ \text{HOCH} \\ \text{HCOH} \\ \text{CH}_2\text{OH} \end{array}$ 
		(B)		SUGAR ETHERS, SUGAR ACETALS AND SUGAR ESTERS, AND THEIR SALTS	
VI-2940-2			(1)	Hydroxypropyl sucrose	$\text{CH}_2\text{OCH}_2\text{CH}_2\text{CH}_2\text{OH}$ 
	29.41			Antibiotics	
VI-2941-1		(1)		Penicillins	

Page	Heading	Paragraph	Description in the Explanatory Notes	Chemical Structure
(VI-2941-1)	(29.41)	(2)	Streptomycin	 <p>The chemical structure of Streptomycin consists of a streptamine core linked to a 2-deoxystreptose sugar. The streptamine core is a bicyclic system with two amino groups. The 2-deoxystreptose sugar has a hydroxyl group at the 2-position and a 2-deoxy group at the 3-position. The structure is shown in a chair conformation. A legend indicates: R = CH<sub>2</sub>OH and R' = NH-CH<sub>3</sub>.</p>
VI-2941-2			Streptamine (constituent of the streptomycin skeleton) (Subheading Explanatory Notes)	 <p>The chemical structure of Streptamine is a bicyclic system consisting of two fused rings, each with an amino group attached to the ring carbons.</p>

Page	Heading	Paragraph	Description in the Explanatory Notes	Chemical Structure
(VI-2941-2)	(29.41)		Streptidine (constituent of the streptomycin skeleton) (Subheading Explanatory Notes)	
			Methylglucosamine (constituent of the streptomycin skeleton) (Subheading Explanatory Notes)	
			5-deoxyxylose (constituent of the streptomycin skeleton) (Subheading Explanatory Notes)	
VI-2941-1		(3)	Tetracycline	

Page	Heading	Paragraph	Description in the Explanatory Notes	Chemical Structure
VI-2941-3	(29.41)	(3)	4-dimethylamino-naphthacene-2-carboxamide (fully hydrogenated) (constituent of the tetracycline skeleton) (Subheading Explanatory Notes)	
		(4)	N-(2-hydroxy-1-methyl-2-phenethyl)acetamide (constituent of the chloramphenicol skeleton) (Subheading Explanatory Notes)	
VI-2941-1		(5)	Erythromycin	

Page	Heading	Paragraph	Description in the Explanatory Notes	Chemical Structure
(VI-2941-3)	(29.41)	(5)	13-ethyl-13-tridecanolide (constituent of the erythromycin skeleton) (Subheading Explanatory Notes)	
			Desosamine (constituent of the erythromycin skeleton) (Subheading Explanatory Notes)	
			Mycarose (constituent of the erythromycin skeleton) (Subheading Explanatory Notes)	
	<b>29.42</b>		<b>Other organic compounds</b>	
VI-2942-1		(1)	Ketenes	
		(2)	Boron trifluoride complexes with diethyl ether	$(C_2H_5)_2O \cdot BF_3$