29.33

29.33 - Heterocyclic compounds with nitrogen hetero-atom(s) only (+)**.**

- Compounds containing an unfused pyrazole ring (whether or not hydrogenated) in the structure :

2933.11 - - Phenazone (antipyrin) and its derivatives

2933.19 - - Other

- Compounds containing an unfused imidazole ring (whether or not hydrogenated) in the structure :

2933.21 - - Hydantoin and its derivatives

2933.29 - - Other

- Compounds containing an unfused pyridine ring (whether or not hydrogenated) in the structure :

2933.31 - - Pyridine and its salts

2933.32 - - Piperidine and its salts

2933.33 - - Alfentanil (INN), anileridine (INN), bezitramide (INN), bromazepam (INN), difenoxin (INN), diphenoxylate (INN), dipipanone (INN), fentanyl (INN), ketobemidone (INN), methylphenidate (INN), pentazocine (INN), pethidine (INN), pethidine (INN) intermediate A, phencyclidine (INN) (PCP), phenoperidine (INN), pipradrol (INN), piritramide (INN), propiram (INN) and trimeperidine (INN); salts thereof

2933.39 - - Other

- Compounds containing in the structure a quinoline or isoquinoline ring-system (whether or not hydrogenated), not further fused :

2933.41 - - Levorphanol (INN) and its salts

2933.49 - - Other

- Compounds containing a pyrimidine ring (whether or not hydrogenated) or piperazine ring in the structure :

2933.52 - - Malonylurea (barbituric acid) and its salts

2933.53 - - Allobarbital (INN), amobarbital (INN), barbital (INN), butalbital (INN), butobarbital, cyclobarbital (INN), methylphenobarbital (INN), pentobarbital (INN), phenobarbital (INN), secbutabarbital (INN), secobarbital (INN) and vinylbital (INN); salts thereof

2933.54 - - Other derivatives of malonylurea (barbituric acid); salts thereof

2933.55 - - Loprazolam (INN), mecloqualone (INN), methaqualone (INN) and zipeprol (INN); salts thereof

2933.59 - - Other

- Compounds containing an unfused triazine ring (whether or not hydrogenated) in the structure :

2933.61 - - Melamine

2933.69 - - Other

- Lactams :

2933.71 - - 6-Hexanelactam (epsilon-caprolactam)

2933.72 - - Clobazam (INN) and methyprylon (INN)

2933.79 - - Other lactams

- Other :

2933.91 - - Alprazolam (INN), camazepam (INN), chlordiazepoxide (INN), clonazepam (INN), clorazepate, delorazepam (INN), diazepam (INN), estazolam (INN), ethyl loflazepate (INN), fludiazepam (INN), flunitrazepam (INN), flurazepam (INN), halazepam (INN), lorazepam (INN), lormetazepam (INN), mazindol (INN), medazepam (INN), midazolam (INN), nimetazepam (INN), nitrazepam (INN), nordazepam (INN), oxazepam (INN), pinazepam (INN), prazepam (INN), pyrovalerone (INN), temazepam (INN), tetrazepam (INN) and triazolam (INN); salts thereof

2933.99 - - Other

The **heterocyclic compounds** covered by this heading are :

(A) **Compounds containing an unfused pyrazole ring (whether or not hydrogenated) in the structure.**

This part includes, *inter alia* :

(1) **Phenazone (antipyrin, dimethylphenylpyrazolone)**. Crystalline powder or flakes, colourless, odourless. Used in medicine as an anti-pyretic and anti-neuralgic agent.

(2) **Aminophenazone (4-dimethylamino-2,3-dimethyl-1-phenyl-5-pyrazolone) (amidopyrin, dimethylaminoanalgesine)** and its salts. Colourless, leaf-shaped crystals. It has stronger anti-pyretic and anti-neuralgic properties than analgesine.

(3) **1-Phenyl-3-pyrazolidone**.

(B) **Compounds containing an unfused imidazole ring (whether or not hydrogenated) in the structure.**

This part includes, *inter alia* :

(1) **Hydantoin, and its substitution derivatives** (e.g., nitrohydantoin, methylhydantoin and phenylhydantoin). Obtained by the condensation of glycollic acid with urea.

(2) **Lysidine**. Hygroscopic white crystals; used in medicine as a solvent for uric acid.

(C) **Compounds containing an unfused pyridine ring (whether or not hydrogenated) in the structure**.

This part includes, *inter alia* :

(1) **Pyridine**. Contained in coal tar, in bone oil, etc. Colourless or faintly yellow liquid with a strong, disagreeable odour. Used in organic synthesis, in the rubber industry, in dyeing and printing textile fabrics, as a denaturant for alcohol, in medicine, etc.

To fall in this heading, pyridine must have a purity of 95 % or more by weight. Pyridine of lower purity is **excluded** (**heading 27.07**).

(2) **Pyridine derivatives** include, *inter alia* :

(a) **Methylpyridine (picoline), 5-ethyl-2-methylpyridine (5-ethyl-2-picoline)** and **2-vinylpyridine.**

To fall in this heading, these derivatives must have a purity of 90 % or more by weight (in the case of methylpyridine, all the methylpyridine isomers must be taken together). The derivatives of lower purity are **excluded** (**heading 27.07**).

(b) **Pyridine-carboxylic acids**.

These include **pyridine-γ-carboxylic acid** (**isonicotinic acid**). Colourless crystals, formed by oxidation of γ-picoline, or by synthesis. Its hydrazide is used in the treatment of tuberculosis.

Pyridine-*β*-carboxylic acid, known as nicotinic acid is, however, **excluded (heading 29.36)**.

(c) **Diethylamide of pyridine-*β*-carboxylic acid**. Oily liquid, almost colourless; used in medicine for stimulating the circulation and respiration.

(d) *meso***Inositol hexanicotinate**.

(3) **Piperidine derivatives** include :

(a) **1-Methyl-4-phenylpiperidine carboxylic acid**.

(b) **1-Methyl-3-phenylpiperidine-3-carboxylic acid ethyl ester**.

(c) **1-Methyl-4-phenylpiperidine-4-carboxylic acid ethyl ester (pethidine)**.

(d) **Ketobemidone** (INN)**(1-[4-(*m*-hydroxyphenyl)-1-methyl-4-piperidyl]propan-1-one).**

(D) **Compounds containing a quinoline or isoquinoline ring-system (whether or not hydrogenated), not further fused.**

Quinoline, isoquinoline and their derivatives, 2-ring systems comprising a benzene ring fused to a pyridine ring. Quinoline and isoquinoline are found in coal tar, but may also be prepared synthetically. Colourless liquids, highly refractive, with a characteristic disagreeable and penetrating odour. Used in organic synthesis (e.g., dyes, medicaments).

These derivatives include, *inter alia* :

(1) **Methylquinoline**.

(2) **Isobutylquinoline**.

(3) **Isopropylquinoline**.

(4) **Tetrahydromethylquinoline**.

(5) **3-, 4-, 5-, 6-, 7- and 8-Hydroxyquinolines and their salts**. Derived by introducing a hydroxyl group into either ring of the quinoline molecule.

This group includes **metal complex compounds of 8-hydroxyquinoline**.

(6) **Phenylquinolinecarboxylic acid** (phenylcinchoninic acid). Colourless needles or yellowish-white powder. An anti-gout and anti-rheumatism remedy.

(7) **Octaverine** (INN) (6,7-dimethoxy-1-(3,4,5-triethoxyphenyl)isoquinoline).

(8) **N-Methylmorphinan**.

(9) **3-Hydroxy-N-methylmorphinan**.

(E) **Compounds containing a pyrimidine ring (whether or not hydrogenated) or piperazine ring in the structure.**

This part includes, *inter alia* :

(1) **Malonylurea** (barbituric acid) **and its derivatives**. Barbituric derivatives. This is an important group of pyrimidine compounds. They form water-soluble sodium salts. Both the alkyl-substituted barbituric derivatives and their salts are used medicinally as hypnotics and sedatives. Compounds representative of this group include barbital (INN) (diethylmalonylurea), phenobarbital (INN) (ethylphenylmalonylurea), amobarbital (INN) (ethylisoamylmalonylurea), secobarbital (INN) (allyl-1-methylbutylmalonylurea) and cyclobarbital (INN) (5-cyclohex-1-enyl-5-ethylbarbituric acid).

(2) **Thiopentone sodium** (penthiobarbital sodium), a cyclic thioureide. A yellowish-white water-soluble hygroscopic powder with an unpleasant odour. Used in medicine as an anaesthetic.

(3) **Piperazine** (diethylenediamine). Crystalline white mass, hygroscopic, with an individual odour. Used in medicine as an anti-gout remedy.

(4) **2,5-Dimethylpiperazine**. Colourless oily liquid or paste, used as a solvent for uric acid.

(F) **Compounds containing an unfused triazine ring (whether or not hydrogenated) in the structure.**

This part includes, *inter alia* :

(1) **Melamine** (triaminotriazine). Sparkling white crystals used in the manufacture of plastics.

(2) **Trimethylenetrinitramine** (hexogen). An explosive, crystalline white powder, sensitive to shock.

(3) **Cyanuric acid** (enol and keto forms).

(4) **Methenamine** (INN) (hexamethylenetetramine), its salts and derivatives. Regular shaped white crystals, very soluble in water. Used in medicine as a solvent for uric acid (urinary antiseptic), for the manufacture of synthetic resins, as an accelerator in the vulcanisation of rubber, as an anti-fermentation agent, etc.

This heading **excludes** pastilles and tablets of methenamine (INN) for medical uses (**heading 30.04**) and methenamine put up in forms (for example, tablets, sticks or similar forms) for use as fuels (**heading 36.06**).

(G) **Lactams**.

These compounds may be regarded as internal amides analogous to lactones; obtained from amino-acids by elimination of water. The molecules may contain one or more amide functions in a ring. They are known as mono-, di-, trilactams, etc., according to the number of amide functions present.

This heading also includes lactims, which are the enolic tautomers of lactams (these being the ketonic isomers).

This part includes, *inter alia* :

(1) **6-Hexanelactam (*ε*-caprolactam)**. White crystals; soluble in water; gives off pungent fumes. Used in the manufacture of plastics and man-made fibres.

(2) **Isatin (lactam of isatic acid)**. Brilliant yellowish-brown crystals. Used for the preparation of dyestuffs and in medicine.

(3) **2-Hydroxyquinoline (carbostyrile)**, a lactam of *o*-aminocinnamic acid.

(4) **3,3-Di(*p*-acetoxyphenyl)oxindole** (diacetyldihydroxydiphenylisatin). White crystalline powder, insoluble in water. Used as a laxative.

(5) **1-Vinyl-2-pyrrolidone**. Yellowish crystalline powder with a pleasant odour. Used for the preparation of poly(vinyl pyrrolidone) (classified in **Chapter 39**), and in medicine.

(6) **Primidone** (INN) (5-ethyl-5-phenylperhydropyrimidine-4,6-dione). White crystals; soluble in water.

(7) **1,5,9-Triazacyclododecane-2,6,10-trione**.

The heading **does not include** betaine (trimethylglycine, trimethylglycocoll), an intramolecular quaternary ammonium salt (**heading 29.23**).

(H) **Other heterocyclic compounds with nitrogen hetero-atom(s) only.**

This part includes, *inter alia* :

(1) **Carbazole and its derivatives**. Derived from the fusion of two benzene rings with a pyrrole nucleus. Found in heavy fractions of coal tar oil, and also obtained synthetically. Sparkling crystalline flakes used in the manufacture of dyes and of plastics.

(2) **Acridine and its derivatives**. Acridine results from the condensation of two benzene rings with a pyridine ring. Small quantities are found in coal tar, but it may also be prepared by synthesis. Used for the preparation of dyestuffs and certain medicaments.

The heading covers the following **acridine derivatives** (**other than** those constituting dyestuffs) :

(a) **Proflavine** (3,6-diaminoacridinium hydrogen sulphate), reddish-brown crystalline powder.

(b) **Lactate of 2,5-diamino-7-ethoxyacridine**, yellow powder.

Both of these derivatives have antiseptic and germicidal properties.

(3) **Indole**. Found in coal tar, but usually obtained by synthesis. Small crystalline leaves; colourless or very faintly yellow, turning red on exposure to air or light. A pronounced faecal odour when impure, but smells strongly of flowers when purified. Used for the preparation of synthetic perfumes and in medicine.

(4) **β-Methylindole (skatole)**. Crystallises in colourless flakes; a faecal odour when impure.

(5) **Mercaptobenziminazole**.

(6) **Phthalhydrazide** (hydrazide of phthalic acid).

(7) **Ethyleneimine** (aziridine) and its *N*-substituted derivatives.

(8) **Porphyrins** (derivatives of porphine).

However, porphyrine (an alkaloid) is to be classified in **heading 29.39**.

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Certain substances of this heading, which are regarded as narcotic drugs or as psychotropic substances under international instruments, are indicated in the list appearing at the end of Chapter 29.

This heading **excludes** imides of polybasic acids.

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29.33

Subheading Explanatory Notes.

Subheadings 2933.11, 2933.21 and 2933.54

Phenazone (subheading 2933.11), hydantoin (subheading 2933.21) and barbituric acid (subheading 2933.52) are products characterized by their heterocyclic structure. Derivatives of these products classified in their respective subheadings should also retain the basic structure of the parent compound. Thus, when compared to the parent compound, these derivatives generally :

(a) have the functional groups (e.g., oxo-group) unmodified;

(b) retain the number and position of double bonds;

(c) retain the substituents (e.g., phenyl group and the two methyl groups of phenazone); and

(d) have further substitutions of hydrogen atoms only (e.g., a hydrogen atom in the pyrimidine ring of barbituric acid substituted by an alkyl group).

However, salts obtained from the enol form of a parent compound are to be regarded as derivatives of the keto form.

Subheading 2933.79

Lactams containing an additional hetero-atom, other than the nitrogen atom of a lactam group (e.g., dilactams), **in the same ring** should not be classified in the subheading for lactams. In such cases, the additional hetero-atom should be taken into account in determining the classification. Thus, for example, oxazepam (INN) should be classified in subheading 2933.91 and **not** in subheading 2933.79.

If the amide function forms part of two or more rings and if one of these rings does not contain an additional hetero-atom (other than the nitrogen of a lactam group), then the molecule should be considered as a lactam.

To be classified in subheading 2933.79, lactams must have the different lactam groups separated by at least one carbon atom at each end. However, this subheading **does not include** those products in which the carbon atoms separating and adjacent to the lactam groups form an oxo group (>C=O), an imino group (>C=NH) or a thioxo group (>C=S). Thus, for example, barbituric acid is **excluded** from subheading 2933.79 (**subheading 2933.52**).