Sub-Chapter IX

NITROGEN-FUNCTION COMPOUNDS

GENERAL

This sub-Chapter covers nitrogen-function compounds, for example, amines, amides, imides, but does not cover compounds containing nitro or nitroso groups as the only nitrogen function.

29.21 - Amine-function compounds (+)*.

- Acyclic monoamines and their derivatives; salts thereof :

2921.11 - - Methylamine, di- or trimethylamine and their salts

2921.12 - - 2-(N,N-Dimethylamino)ethylchloride hydrochloride

2921.13 - - 2-(N,N-Diethylamino)ethylchloride hydrochloride

2921.14 - - 2-(N,N-Diisopropylamino)ethylchloride hydrochloride

2921.19 - - Other

- Acyclic polyamines and their derivatives; salts thereof :

2921.21 - - Ethylenediamine and its salts

2921.22 - - Hexamethylenediamine and its salts

2921.29 - - Other

2921.30 - Cyclanic, cyclenic or cycloterpenic mono- or polyamines, and their derivatives; salts thereof

- Aromatic monoamines and their derivatives; salts thereof :

2921.41 - - Aniline and its salts

2921.42 - - Aniline derivatives and their salts

2921.43 - - Toluidines and their derivatives; salts thereof

2921.44 - - Diphenylamine and its derivatives; salts thereof

2921.45 - - 1-Naphthylamine (alpha-naphthylamine), 2-naphthylamine (beta-naphthylamine) and their derivatives; salts thereof

2921.46 - - Amfetamine (INN), benzfetamine (INN), dexamfetamine (INN), etilamfetamine (INN), fencamfamin (INN), lefetamine (INN), levamfetamine (INN), mefenorex (INN) and phentermine (INN); salts thereof

2921.49 - - Other

- Aromatic polyamines and their derivatives; salts thereof :

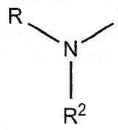
2921.51 - - *o*-, *m*-, *p*-Phenylenediamine, diaminotoluenes, and their derivatives; salts thereof

2921.59 - - Other

29.21

Amines are organic nitrogen compounds containing the amine function (i.e., a function derived from ammonia by replacing one, two or three hydrogen atoms by one, two or three alkyl or aryl radicals R (methyl, ethyl, phenyl, etc.), respectively).

If only one hydrogen atom in the ammonia has been replaced, the result is a primary amine (RNH_2); replacement of two hydrogen atoms gives a secondary amine ($R\text{-}NH\text{-}R^1$); and replacement of three hydrogen atoms results in a tertiary amine



Nitrosoamines, which may react in the tautomeric form of quinoneimine oximes, are included in this heading.

This heading covers also salts (for example, nitrates, acetates, citrates) and substitution derivatives of amines (for example, halogenated, sulphonated, nitrated or nitrosated derivatives); but it **excludes** substitution derivatives containing oxygen functions of **headings 29.05 to 29.20**, and salts thereof (**heading 29.22**). This heading also **excludes** substitution derivatives where one or more hydrogen atoms of the amine function have been replaced by one or more halogens, sulpho ($-SO_3H$), nitro ($-NO_2$) or nitroso ($-NO$) groups or by any combination thereof.

Diazotisable amines and their salts of this heading diluted to standard strengths for the production of azo-dyes are also included here.

(A) ACYCLIC MONOAMINES AND THEIR DERIVATIVES; SALTS THEREOF

(1) **Methylamine** (CH_3NH_2). Colourless, inflammable gas with a strong, ammoniacal odour; used for preparing organic dyes and in the tanning industry, etc.

(2) **Dimethylamine** ($(CH_3)_2NH$), similar to methylamine; used in organic synthesis, as a vulcanisation accelerator.

(3) **Trimethylamine** ($(CH_3)_3N$), similar to methylamine; used in organic synthesis.

(4) **Ethylamine***.

(5) **Diethylamine**.

(6) **Allylisopropylamine**.

(7) **2-(N,N-Dimethylamino)ethylchloride hydrochloride, 2-(N,N-diethylamino) ethylchloride hydrochloride and 2-(N,N-diisopropylamino)ethylchloride hydrochloride**.

(B) ACYCLIC POLYAMINES AND THEIR DERIVATIVES; SALTS THEREOF

(1) **Ethylenediamine** ($H_2NCH_2CH_2NH_2$). Caustic, colourless liquid with a faint ammoniacal odour; its salts.

(2) **Hexamethylenediamine** ($H_2N(CH_2)_6NH_2$) and its salts*. Crystals, needles, or elongated plates with a characteristic odour. Has a toxic action on the skin and causes lesions; used for the manufacture of man-made fibres (polyamides).

(C) CYCLANIC, CYCLENIC OR CYCLOTERPENIC MONO- OR POLYAMINES, AND THEIR DERIVATIVES; SALTS THEREOF

These include **cyclohexylamine**, **dimethylaminocyclohexane**, etc.

(D) AROMATIC MONOAMINES AND THEIR DERIVATIVES; SALTS THEREOF

(1) **Aniline** ($C_6H_5NH_2$) (phenylamine) and its salts*. Aniline is a colourless, oily liquid with a faint aromatic odour. It is extensively used in the preparation of dyes, pharmaceutical products, etc.

Aniline derivatives, largely used as intermediates for dyes, include :

(a) **Halogenated derivatives :** chloroanilines.

(b) **Sulphonated derivatives :** *m*- and *p*-aminobenzenesulphonic acids (e.g., sulphanilic acid).

(c) **Nitrated derivatives :** nitroanilines, etc.

(d) **Nitrosated derivatives** in which one or more hydrogen atoms (other than those of the amine function) have been replaced by one or more nitroso groups (e.g., nitrosoaniline, methyl nitrosoaniline).

(e) **Sulphohalogenated, nitrohalogenated and nitrosulphonated derivatives.**

(f) **Alkyl derivatives** (N-methylaniline and N,N-dimethylaniline; N-ethylaniline and N,N-diethylaniline).

(2) **Toluidines***.

(3) **Diphenylamine** ($(C_6H_5)_2NH$) a secondary amine. Crystallises in small colourless leaves; used in organic synthesis (dyes, etc.).

(4) **1-Naphthylamine** (α-naphthylamine) ($C_{10}H_7NH_2$)*. Crystallises in white needles, but may also occur as masses or crystalline flakes, white or brownish; has an agreeable and penetrating odour. Turns pale violet when exposed to light. Used in organic synthesis and for the flotation of copper ores, etc.

(5) **2-Naphthylamine** (β-naphthylamine) ($C_{10}H_7NH_2$). White powder or nacreous flakes, odourless; used in organic synthesis (dyes, etc.). This product is carcinogenic and should be handled with care.

(6) **Xylidines**.

(7) **Amfetamine** (INN) (Amphetamine).

(E) AROMATIC POLYAMINES AND THEIR DERIVATIVES; SALTS THEREOF

(1) *o*-, *m*-, *p*-**Phenylenediamine** ($C_6H_4(NH_2)_2$)*.

(a) *o*-**Phenylenediamine**. Colourless monoclinic crystals; darkens in air.

(b) *m*-**Phenylenediamine**. Colourless needles becoming red in air.

(c) *p*-**Phenylenediamine**. White to light purple crystals.

(2) **Diaminotoluenes** ($CH_3C_6H_3(NH_2)_2$).

(3) *N*-**Alkylphenylenediamines**, for example N,N-Dimethyl-p-phenylenediamine.

(4) *N*-**Alkyltolylenediamines**, for example N,N-Diethyl-3,4-tolylenediamine.

(5) **Benzidine** ($H_2NC_6H_4C_6H_4NH_2$). Shiny, white crystalline flakes with an agreeable odour. Used for preparing dyestuffs, and in analytical chemistry.

(6) **Polyamines**. Derived from di- and triphenylmethane and their homologues; their derivatives (tetramethyl- and tetraethyl-diaminodiphenylmethane, etc.).

(7) **Amino- and diaminodiphenylamines**.

(8) **Diaminostilbene**.

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

°
° °

Subheading Explanatory Note.

Subheadings 2921.42 to 2921.49

Hydrocarbon derivatives of an aromatic monoamine are derivatives obtained by the substitution of one or both hydrogens of the amine nitrogen only by an alkyl or cycloalkyl group. Substituents with one or more aromatic nuclei, whether or not linked to amine nitrogen by an alkyl chain, are therefore excluded.

Thus, for example, xylidine should be classified in subheading 2921.49 as "Other" aromatic monoamine and **not** as a derivative of aniline (subheading 2921.42) or of toluidine (subheading 2921.43).