38.06 - Rosin and resin acids, and derivatives thereof; rosin spirit and rosin oils; run gums.

3806.10 - Rosin and resin acids

3806.20 - Salts of rosin, of resin acids or of derivatives of rosin or resin acids, other than salts of rosin adducts

3806.30 - Ester gums

3806.90 - Other

(A) ROSIN AND RESIN ACIDS

Both **rosin and resin acids** consist essentially of complex mixtures of abietic acid and allied acids with small amounts of non-acidic components. They are solids, usually transparent and vitreous. Their colour may vary from pale yellow to dark brown according to the amount of the impurities present.

Rosin and resin acids are obtained by the following processes :

(1) Separation of volatile terpenic products (spirits of turpentine and similar terpenic solvents) during the distillation of oleoresinous matter obtained in the form of an exudate from pine or other coniferous trees (pine resin, galipot, barras resin, etc.).

(2) Solvent extraction from pine stump wood.

(3) Fractional distillation of tall oil, a by-product of the pulp and paper industry.

Rosin and resin acids are used in the manufacture of certain soaps, for sizing paper, in the preparation of varnishes, polishes, mastics, inks, sealing-wax, binders for foundry cores, brewers' pitch, etc., and as raw material for the preparation of the derivatives and rosin oils described in Parts (B) to (D).

(B) SALTS OF ROSIN, OF RESIN ACIDS OR OF DERIVATIVES OF ROSIN OR RESIN ACIDS, OTHER THAN SALTS OF ROSIN ADDUCTS

Salts of this group cover salts of rosin, of resin acids or of derivatives of rosin or resin acids, other than salts of rosin adducts. Sodium or potassium resinates are usually obtained by boiling powdered rosin or resin acids in a solution of sodium or potassium hydroxides. The other inorganic resinates are generally prepared by precipitating a solution of sodium or potassium resinates with a solution of a metal salt (precipitated resinates), or by fusing a mixture of rosin or resin acids and a metal oxide (fused resinates). Examples of these products are resinates of aluminium, calcium, cobalt, copper, manganese, lead and zinc.

Resinates are used to increase the drying properties of the oils used in the manufacture of varnishes or paints, and in the preparation of fungicides, disinfectants, etc.

This group also includes hardened rosin which is obtained by treating rosin or resin acids with, for example, calcium hydroxide (in a proportion of about 6 %) which hardens it and renders it more suitable for use in the preparation of varnishes.

The heading **excludes** :

(a) Precious metal resinates (**heading 28.43**) and the resinates of **headings 28.44 to 28.46**.

(b) Prepared driers based on resinates (**heading 32.11**).

(c) Resin soaps obtained by saponifying mixtures of higher fatty acids and rosin or resin acids (**heading 34.01**), and other washing preparations with a basis of resinates (**heading 34.02**).

(C) **ESTER GUMS**

Ester gums are obtained by esterification, with ethylene glycol, glycerol or other polyhydric alcohol, of rosin or resin acids or, of their oxidised, hydrogenated, disproportionated (dehydrogenated) or polymerised derivatives. These ester gums are more plastic than natural resins and this makes them suitable for mixing with pigments and other materials.

(D) **OTHER**

(I) **Derivatives of rosin and resin acids**

(1) **Oxidised rosin and resin acids** are usually obtained as a residual product of the distillation of extracts of the stumps of coniferous trees which have been left in the ground for a long time resulting in natural oxidation of their resin acid content. Rosin or resin acids may also be oxidised artificially. Oxidised rosin and resin acids are used in the preparation of glues, emulsions, varnishes, paints, inks and for electrical insulation, etc.

(2) **Hydrogenated rosin and resin acids** are obtained by treating rosin or resin acids with hydrogen in the presence of a catalyst. They are more resistant to oxidation than ordinary rosin and resin acids and discolour less readily under the action of light. They are used in the preparation of varnishes, soap, etc.

(3) **Disproportionated (dehydrogenated) rosin and resin acids** are prepared, for example, by heating rosin or resin acids to a moderate temperature or, at high temperature, by the use of acid catalysis; sulphur and selenium are also useful catalysts. They are used in the preparation of varnishes, etc.

(4) **Polymerised rosin and resin acids** are obtained by treating rosin or resin acids with sulphuric acid, and used, in particular, in the preparation of varnishes of high viscosity and stability. The degree of polymerisation is very low. Polymerised rosin and resin acids are generally composed of dimer and unpolymerised acids and may also be referred to as dimerised rosin.

(5) **Monohydric alcohol esters of rosin or resin acids.** The esters classified here include those known as " resinates " or " abietates ", e.g., the methyl, ethyl and benzyl esters and " methyl hydroabietate ", which are used, in particular, as plasticisers for cellulose lacquers.

(6) **Mixtures of dihydroabietyl, tetrahydroabietyl and dehydroabietyl alcohols (" abietyl alcohol ")**.

(7) **Rosin adducts and derivatives thereof.** Rosin or resin acids modified with fumaric acid, maleic acid or its anhydride, used in the preparation of alkyd resin, rosin size and inks. These adducts may be subsequently esterified with ethylene glycol, glycerol or other polyhydric alcohols. This group also includes salts of rosin adducts such as salts of rosin-maleic or of rosin-fumaric adducts.

(II) **Rosin spirit and rosin oils**

These products are obtained, usually from rosin or resin acids, by distillation with superheated steam and a catalyst, or by destructive distillation. They are essentially complex mixtures of hydrocarbons and may contain organic acids in quantities varying according to distilling conditions.

(1) **Rosin spirit,** which is the most volatile fraction, is a mobile, straw-coloured liquid with a pungent smell, used as a solvent for resins, in the manufacture of varnishes, paints, etc.

(2) **Rosin oils** are more or less thick, varying in colour and quality (golden oils, white, green or brown oils) and have a smoky odour. They are chiefly used for the preparation of lubricants, cutting oils, printing inks, ointments, varnishes, paints, etc.

The heading does not cover :

(a) Sulphonated rosin oils (**heading 34.02**).

(b) The volatile constituents of the distillation of the oleoresinous exudates of living pine trees or other living coniferous trees (**heading 38.05**).

(c) Rosin pitch (**heading 38.07**).

(III) **Run gums**

Run gums are obtained from the oleoresinous exudates of tropical forest trees by a process called " gum running " which involves heating the exudates to render them soluble in drying oils. The most common source of run gums is copal.