Chapter 39

Plastics and articles thereof

Notes.

1.- Throughout the Nomenclature the expression " plastics " means those materials of headings 39.01 to 39.14 which are or have been capable, either at the moment of polymerisation or at some subsequent stage, of being formed under external influence (usually heat and pressure, if necessary with a solvent or plasticiser) by moulding, casting, extruding, rolling or other process into shapes which are retained on the removal of the external influence.

Throughout the Nomenclature any reference to " plastics " also includes vulcanised fibre. The expression, however, does not apply to materials regarded as textile materials of Section XI.

2.- This Chapter does not cover :

(a) Lubricating preparations of heading 27.10 or 34.03;

(b) Waxes of heading 27.12 or 34.04;

(c) Separate chemically defined organic compounds (Chapter 29);

(d) Heparin or its salts (heading 30.01);

(e) Solutions (other than collodions) consisting of any of the products specified in headings 39.01 to 39.13 in volatile organic solvents when the weight of the solvent exceeds 50 % of the weight of the solution (heading 32.08); stamping foils of heading 32.12;

(f) Organic surface-active agents or preparations of heading 34.02;

(g) Run gums or ester gums (heading 38.06);

(h) Prepared additives for mineral oils (including gasoline) or for other liquids used for the same purposes as mineral oils (heading 38.11);

(ij) Prepared hydraulic fluids based on polyglycols, silicones or other polymers of Chapter 39 (heading 38.19);

(k) Diagnostic or laboratory reagents on a backing of plastics (heading 38.22);

(l) Synthetic rubber, as defined for the purposes of Chapter 40, or articles thereof;

(m) Saddlery or harness (heading 42.01) or trunks, suitcases, handbags or other containers of heading 42.02;

(n) Plaits, wickerwork or other articles of Chapter 46;

(o) Wall coverings of heading 48.14;

(p) Goods of Section XI (textiles and textile articles);

(q) Articles of Section XII (for example, footwear, headgear, umbrellas, sun umbrellas, walking-sticks, whips, riding-crops or parts thereof);

(r) Imitation jewellery of heading 71.17;

(s) Articles of Section XVI (machines and mechanical or electrical appliances);

(t) Parts of aircraft or vehicles of Section XVII;

(u) Articles of Chapter 90 (for example, optical elements, spectacle frames, drawing instruments);

(v) Articles of Chapter 91 (for example, clock or watch cases);

(w) Articles of Chapter 92 (for example, musical instruments or parts thereof);

(x) Articles of Chapter 94 (for example, furniture, lamps and lighting fittings, illuminated signs, prefabricated buildings);

(y) Articles of Chapter 95 (for example, toys, games, sports requisites); or

(z) Articles of Chapter 96 (for example, brushes, buttons, slide fasteners, combs, mouthpieces or stems for smoking pipes, cigarette-holders or the like, parts of vacuum flasks or the like, pens, propelling pencils).

3.- Headings 39.01 to 39.11 apply only to goods of a kind produced by chemical synthesis, falling in the following categories :

(a) Liquid synthetic polyolefins of which less than 60 % by volume distils at 300 ºC, after conversion to 1,013 milibars when a reduced-pressure distillation method is used (headings 39.01 and 39.02);

(b) Resins, not highly polymerised, of the coumarone-indene type (heading 39.11);

(c) Other synthetic polymers with an average of at least 5 monomer units;

(d) Silicones (heading 39.10);

(e) Resols (heading 39.09) and other prepolymers.

4.- The expression " copolymers " covers all polymers in which no single monomer unit contributes 95 % or more by weight to the total polymer content.

For the purposes of this Chapter, except where the context otherwise requires, copolymers (including co-polycondensates, co-polyaddition products, block copolymers and graft copolymers) and polymer blends are to be classified in the heading covering polymers of that comonomer unit which predominates by weight over every other single comonomer unit. For the purposes of this Note, constituent comonomer units of polymers falling in the same heading shall be taken together.

If no single comonomer unit predominates, copolymers or polymer blends, as the case may be, are to be classified in the heading which occurs last in numerical order among those which equally merit consideration.

5.- Chemically modified polymers, that is those in which only appendages to the main polymer chain have been changed by chemical reaction, are to be classified in the heading appropriate to the unmodified polymer. This provision does not apply to graft copolymers.

6.- In headings 39.01 to 39.14, the expression " primary forms " applies only to the following forms :

(a) Liquids and pastes, including dispersions (emulsions and suspensions) and solutions;

(b) Blocks of irregular shape, lumps, powders (including moulding powders), granules, flakes and similar bulk forms.

7.- Heading 39.15 does not apply to waste, parings and scrap of a single thermoplastic material, transformed into primary forms (headings 39.01 to 39.14).

8.- For the purposes of heading 39.17, the expression " tubes, pipes and hoses " means hollow products, whether semi-manufactures or finished products, of a kind generally used for conveying, conducting or distributing gases or liquids (for example, ribbed garden hose, perforated tubes). This expression also includes sausage casings and other lay-flat tubing. However, except for the last-mentioned, those having an internal cross-section other than round, oval, rectangular (in which the length does not exceed 1.5 times the width) or in the shape of a regular polygon are not to be regarded as tubes, pipes and hoses but as profile shapes.

9.- For the purposes of heading 39.18, the expression " wall or ceiling coverings of plastics " applies to products in rolls, of a width not less than 45 cm, suitable for wall or ceiling decoration, consisting of plastics fixed permanently on a backing of any material other than paper, the layer of plastics (on the face side) being grained, embossed, coloured, design-printed or otherwise decorated.

10. -In headings 39.20 and 39.21, the expression " plates, sheets, film, foil and strip " applies only to plates, sheets, film, foil and strip (other than those of Chapter 54) and to blocks of regular geometric shape, whether or not printed or otherwise surface-worked, uncut or cut into rectangles (including squares) but not further worked (even if when so cut they become articles ready for use).

11.- Heading 39.25 applies only to the following articles, not being products covered by any of the earlier headings of sub-Chapter II :

(a) Reservoirs, tanks (including septic tanks), vats and similar containers, of a capacity exceeding 300 l;

(b) Structural elements used, for example, in floors, walls or partitions, ceilings or roofs;

(c) Gutters and fittings thereof;

(d) Doors, windows and their frames and thresholds for doors;

(e) Balconies, balustrades, fencing, gates and similar barriers;

(f) Shutters, blinds (including Venetian blinds) and similar articles and parts and fittings thereof;

(g) Large-scale shelving for assembly and permanent installation, for example, in shops, workshops, warehouses;

(h) Ornamental architectural features, for example, flutings, cupolas, dovecotes; and

(ij) Fittings and mountings intended for permanent installation in or on doors, windows, staircases, walls or other parts of buildings, for example, knobs, handles, hooks, brackets, towel rails, switch-plates and other protective plates.

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Subheading Notes.

1.- Within any one heading of this Chapter, polymers (including copolymers) and chemically modified polymers are to be classified according to the following provisions :

(a) Where there is a subheading named " Other " in the same series :

(1) The designation in a subheading of a polymer by the prefix " poly " (for example, polyethylene and polyamide-6,6) means that the constituent monomer unit or monomer units of the named polymer taken together must contribute 95 % or more by weight of the total polymer content.

(2) The copolymers named in subheadings 3901.30, 3903.20, 3903.30 and 3904.30 are to be classified in those subheadings, provided that the comonomer units of the named copolymers contribute 95 % or more by weight of the total polymer content.

(3) Chemically modified polymers are to be classified in the subheading named " Other ", provided that the chemically modified polymers are not more specifically covered by another subheading.

(4) Polymers not meeting (1), (2) or (3) above, are to be classified in the subheading, among the remaining subheadings in the series, covering polymers of that monomer unit which predominates by weight over every other single comonomer unit. For this purpose, constituent monomer units of polymers falling in the same subheading shall be taken together. Only the constituent comonomer units of the polymers in the series of subheadings under consideration are to be compared.

(b) Where there is no subheading named " Other " in the same series :

(1) Polymers are to be classified in the subheading covering polymers of that monomer unit which predominates by weight over every other single comonomer unit. For this purpose, constituent monomer units of polymers falling in the same subheading shall be taken together. Only the constituent comonomer units of the polymers in the series under consideration are to be compared.

(2) Chemically modified polymers are to be classified in the subheading appropriate to the unmodified polymer.

Polymer blends are to be classified in the same subheading as polymers of the same monomer units in the same proportions.

2.- For the purposes of subheading 3920.43, the term "plasticisers" includes secondary plasticisers.

GENERAL

In general, this Chapter covers substances called polymers and semi-manufactures and articles thereof, **provided** they are not excluded by Note 2 to the Chapter.

Polymers

Polymers consist of molecules which are characterised by the repetition of one or more types of monomer units.

Polymers may be formed by reaction between several molecules of the same or of different chemical constitution. The process by which polymers are formed is termed polymerisation. In its broad sense, this term includes the following principal types of reactions:

(1) **Addition polymerisation**, in which single molecules with ethylenic unsaturation react with each other by simple addition, without the formation of water or other by-products, to form a polymer chain containing only carbon-carbon bonds, e.g., production of polyethylene from ethylene or of ethylene-vinyl acetate copolymers from ethylene and vinyl acetate. This type of polymerisation is sometimes called simple polymerisation or copolymerisation, i.e., polymerisation or copolymerisation in the strict sense.

(2) **Rearrangement polymerisation**, in which molecules with functional groups containing atoms such as oxygen, nitrogen or sulphur react with each other by intramolecular rearrangement and addition, without the formation of water or other by-products, to form a polymer chain in which the monomer units are held together by ether, amide, urethane or other linkages, e.g., production of poly(oxymethylene) (polyformaldehyde) from formaldehyde, of polyamide-6 from caprolactam, or of polyurethanes from a polyol and a di-isocyanate. This type of polymerisation is also called polyaddition.

(3) **Condensation polymerisation**, in which molecules with functional groups containing atoms such as oxygen, nitrogen or sulphur react with each other by a condensation reaction, with the formation of water or other by-products, to form a polymer chain in which the monomer units are held together by ether, ester amide or other linkages, e.g., production of poly(ethylene terephthalate) from ethylene glycol and terephthalic acid, or of polyamide-6,6 from hexamethylenediamine and adipic acid. This type of polymerisation is also called condensation or polycondensation.

Polymers may be chemically modified as, for example, in the chlorination of polyethylene or poly(vinyl chloride), the chlorosulphonation of polyethylene, the acetylation or nitration of cellulose, or the hydrolysis of poly(vinyl acetate).

Abbreviations for polymers

Many polymers described in this Chapter are also known by their abbreviations. The following is a list of some of the more commonly used abbreviations :

ABS	Acrylonitrile-butadiene-styrene copolymer
CA	Cellulose acetate
CAB	Cellulose acetate butyrate
CP	Cellulose propionate
CMC	Carboxymethyl cellulose
CPE	Chlorinated polyethylene
EVA	Ethylene-vinyl acetate copolymer
HDPE	High-density polyethylene
LDPE	Low-density polyethylene
LLDPE	Linear low-density polyethylene
PBT	Poly(butylene terephthalate)
PDMS	Polydimethylsiloxane
PE	Polyethylene
PEOX	Poly(ethylene oxide) (polyoxyethylene)
PET	Poly(ethylene terephthalate)

PIB	Polyisobutylene
PMMA	Poly(methyl methacrylate)
PP	Polypropylene
PPO	Poly(phenylene oxide)
PPOX	Polypropylene oxide (polyoxypropylene)
PPS	Poly(phenylene sulphide)
PS	Polystyrene
PTFE	Polytetrafluoroethylene
PVAC	Poly(vinyl acetate)
PVAL	Poly(vinyl alcohol)
PVB	Poly(vinyl butyral)
PVC	Poly(vinyl chloride)
PVDF	Poly(vinylidene fluoride)
PVP	Poly(vinyl pyrrolidone)
SAN	Styrene-acrylonitrile copolymer

It should be noted that commercial polymers sometimes contain more monomer units than those represented by their abbreviations (e.g., linear low-density polyethylene (LLDPE), which is essentially a polymer of ethylene, containing small amounts (often more than 5 %) of alpha-olefin monomer units). Furthermore, the relative amounts of monomer units in a polymer need not be in the same order as that represented by its abbreviation (e.g., acrylonitrile-butadiene-styrene (ABS) copolymer containing styrene as the predominant monomer unit).

Polymer abbreviations should therefore be used only as a guide. Classification, in all cases, should be by application of the relevant Chapter Note and Subheading Note and on the basis of the relative composition of the monomer units in a polymer (see Note 4 and Subheading Note 1 to this Chapter).

Plastics

The expression " plastics " is defined in Note 1 to this Chapter as meaning those materials of headings 39.01 to 39.14 which are or have been capable, either at the moment of polymerisation or at some subsequent stage, of being formed under external influence (usually heat and pressure, if necessary with a solvent or plasticiser) by moulding, casting, extruding, rolling or other process into shapes which are retained on the removal of the external influence. Throughout the Nomenclature, the expression " plastics " also includes vulcanised fibre.

The expression, however, does not apply to materials regarded as textile materials of Section XI. It should be noted that this definition of " plastics " is applicable throughout the Nomenclature.

The term " polymerisation " is used in this definition in a wide sense and denotes any method of forming a polymer, including addition polymerisation, rearrangement polymerisation (polyaddition) and condensation polymerisation (polycondensation).

If material of this Chapter can be softened repeatedly by heat treatment and shaped into articles, e.g., by moulding, and then hardened by cooling, it is termed " thermoplastic ". If it can be or has already been transformed into an infusible product by chemical or physical means (e.g., by heat), it is termed " thermosetting ".

Plastics have almost unlimited applications but many articles made therefrom are classified elsewhere (see Note 2 to this Chapter).

General arrangement of the Chapter

The Chapter is divided into two sub-Chapters. Sub-Chapter I covers polymers in primary forms and sub-Chapter II covers waste, parings and scrap, and semi-manufactures and articles.

In sub-Chapter I, relating to primary forms, the products of headings 39.01 to 39.11 are obtained by chemical synthesis and those of headings 39.12 and 39.13 are either natural polymers or are obtained therefrom by chemical treatment. Heading 39.14 covers ion-exchangers based on polymers of headings 39.01 to 39.13.

In sub-Chapter II, heading 39.15 relates to waste, parings and scrap of plastics. Headings 39.16 to 39.25 cover semi-manufactures or specified articles of plastics. Heading 39.26 is a residual heading which covers articles, not elsewhere specified or included, of plastics or of other materials of headings 39.01 to 39.14.

Scope of headings 39.01 to 39.11

The scope of these headings is governed by Note 3 to this Chapter. These headings apply only to goods of a kind produced by chemical synthesis, falling in the following categories :

(a) **Liquid synthetic polyolefins**, which are polymers obtained from ethylene, propene, butenes or other olefins. They are classified in heading 39.01 or 39.02 **provided** that less than 60 % by volume distils at 300 ºC, after conversion to 1,013 millibars when a reduced-pressure distillation method is used.

(b) **Resins**, not highly polymerised, of the **coumarone-indene type** obtained by the copolymerisation of mixed monomers (including coumarone or indene) derived from coal tar (heading 39.11).

(c) **Other synthetic polymers with an average of at least 5 monomer units** which are structured in an uninterrupted sequence. These include plastics as defined in Note 1 to this Chapter.

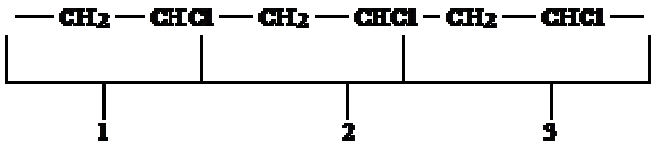
For the purpose of calculating the average number of monomer units under Chapter Note 3 (c), polycondensates and certain rearrangement polymers may have more than one monomer unit, each having a different chemical constitution. A monomer unit is the largest constitutional unit contributed by a single monomer molecule in a polymerisation process. It should not be confused with the constitutional repeating unit, which is the smallest constitutional unit which, by repetition, describes the polymer, nor with the term monomer which is a single molecule from which polymers may be formed.

39

Examples :

(a) Poly(vinyl chloride)

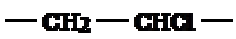
The following chain represents three monomer units :

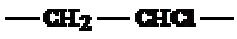


monomer
vinyl chloride

monomer unit

constitutional repeating unit

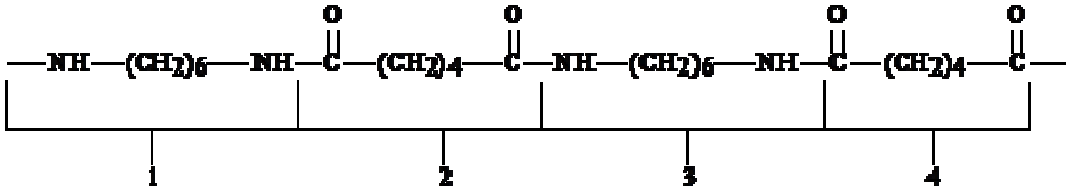




(In this case the monomer unit and the constitutional repeating unit are the same).

(b) Polyamide-6,6

The following chain represents four monomer units:



monomers

monomer units

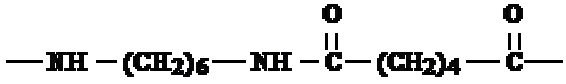
hexamethylenediamine

and

and

adipic acid

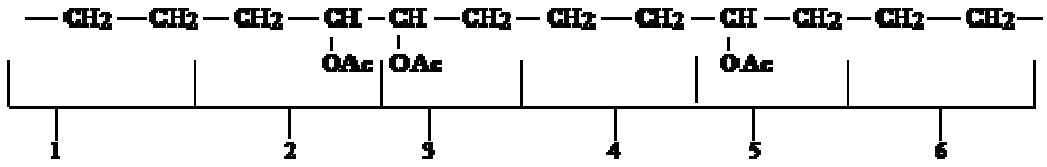
constitutional repeating unit

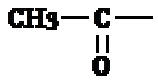


(In this case there are two different monomer units and the constitutional repeating unit is made up of one of each).

(c) Ethylene-vinyl acetate copolymer

The following chain represents six monomer units :



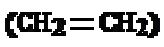


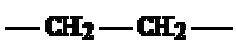
)

(where Ac is equal to

monomers monomer units constitutional repeating unit

ethylene





and and (*)

vinyl acetate

(d) **Silicones** which are non-chemically defined products containing in the molecule more than one silicon-oxygen-silicon linkage, and containing organic groups connected to the silicon atoms by direct silicon-carbon bonds (heading 39.10).

(e) **Resols** (heading 39.09) **and other prepolymers**. Prepolymers are products which are characterised by some repetition of monomer units altough they may contain unreacted monomers. Prepolymers are not normally used as such but are intended to be transformed into higher molecular weight polymers by further polymerisation. Therefore the term **does not cover** finished products, such as di-isobutylenes (**heading 27.10**) or poly(oxyethylene) (polyethylene glycol) with very low molecular weight (**heading 38.24**). Examples of prepolymers are epoxides based on bisphenol-A or phenol-formaldehyde, epoxidised with epichlorohydrin, and polymeric isocyanates.

Copolymers and polymer blends

The term " copolymers " is defined in Note 4 to the Chapter as polymers in which no single monomer unit contributes 95 % or more by weight to the total polymer content.

(*) In this case, the monomer units are randomly oriented and the constitutional repeating unit concept does not apply.

Thus, for example, a polymer consisting of 96 % of the propylene monomer unit and 4 % other olefin monomer units is not regarded as a copolymer.

Copolymers include co-polycondensation products, co-polyaddition products, block copolymers and graft copolymers.

Block copolymers are copolymers composed of at least two connected polymeric sequence having different monomer unit compositions (e.g., a copolymer of ethylene and propylene containing alternating segments of polyethylene and polypropylene).

Graft copolymers are copolymers composed of main polymer chains which have side polymer chains with a different monomer unit composition. Examples are styrene-butadiene copolymer-*graft*-polystyrene (a polystyrene grafted to a styrene-butadiene copolymer) and polybutadiene-*graft*-styrene-acrylonitrile copolymer.

The classification of copolymers (including co-polycondensates, co-polyaddition products, block copolymers and graft copolymers) and polymer blends is governed by Note 4 to the Chapter. Unless the context otherwise requires, these products are to be classified in the heading covering polymers of that comonomer unit which predominates by weight over every other single comonomer unit. For this purpose, constituent comonomer units of polymers falling in the same heading are to be taken together, as if they were a single comonomer unit.

If no single comonomer unit (or group of constituent comonomer units whose polymers fall in the same heading) predominates, copolymers or polymer blends, as the case may be, are to be classified in the heading which occurs last in numerical order among those which equally merit consideration.

Thus, for example, a vinyl chloride-vinyl acetate copolymer containing 55 % of the vinyl chloride monomer unit falls in heading 39.04, but one which contains 55 % of the vinyl acetate monomer unit falls in heading 39.05.

Similarly, a copolymer consisting of 45 % ethylene, 35 % propylene and 20 % isobutylene monomer units is classified in heading 39.02 since the propylene and isobutylene monomer units, whose polymers fall in heading 39.02, constitute 55 % of the copolymer and, when taken together, predominate over the ethylene monomer unit.

A polymer blend composed of 55 % polyurethane based on toluene diisocyanate and a polyether polyol, and 45 % poly(oxyxylylene) is to be classified in heading 39.09 since the monomer units of polyurethane predominate over those of the poly(oxyxylylene) polyether. In the context of the definition of polyurethanes, all of the monomer units of a polyurethane, including those of the polyether polyol that form part of the polyurethane, are to be taken together as monomer units falling in heading 39.09.

Chemically modified polymers

Chemically modified polymers, that is those in which only appendages to the main polymer chain have been changed by chemical reaction, are to be classified in the heading appropriate to the unmodified polymer (see Note 5 to this Chapter). This provision does not apply to graft copolymers.

Thus, for example, chlorinated polyethylene and chlorosulphonated polyethylene are classified in heading 39.01.

Polymers that are chemically modified to form reactive epoxide groups such that they become epoxide resins (see the Explanatory Note to heading 39.07) are to be classified under heading 39.07. For example, phenolic resins chemically modified by epichlorohydrin would be classified as epoxide resins and not as chemically modified phenolic resins in heading 39.09.

A polymer blend in which any one of the constituent polymers has been chemically modified is considered to be chemically modified in its entirety.

Primary forms

Headings 39.01 to 39.14 cover goods in primary forms only. The expression " primary forms " is defined in Note 6 to this Chapter. It applies only to the following forms :

(1) **Liquids and pastes.** These may be the basic polymer which requires " curing " by heat or otherwise to form the finished material, or may be dispersions (emulsions and suspensions) or solutions of the uncured or partly cured materials. In addition to substances necessary for " curing " (such as hardeners (cross-linking agents) or other co-reactants and accelerators), these liquids or pastes may contain other materials such as plasticisers, stabilisers, fillers and colouring matter, chiefly intended to give the finished products special physical properties or other desirable characteristics. The liquids and pastes are used for casting, extrusion, etc., and also as impregnating materials, surface coatings, bases for varnishes and paints, or as glues, thickeners, flocculants, etc.

When as a result of the addition of certain substances, the resultant products answer to the description in a more specific heading elsewhere in the Nomenclature, they are **excluded** from Chapter 39; this is, for example, the case with :

(a) Prepared glues - see exclusion (b) at the end of this General Explanatory Note.

(b) Prepared additives for mineral oils (**heading 38.11**).

It should also be noted that solutions (other than collodions) consisting of any of the products specified in headings 39.01 to 39.13 in volatile organic solvents, when the weight of the solvent exceeds 50 % of the weight of the solution, are **excluded** from this Chapter and fall in **heading 32.08** (see Note 2 (e) to this Chapter).

Liquid polymers without solvent, clearly identifiable as being intended for use solely as varnishes, (in which the formation of the film depends on heat, atmospheric humidity or oxygen and not on the addition of a hardener), are classified in **heading 32.10**. When not so identifiable, they fall in this Chapter.

Polymers in primary forms further formulated with additives, which make the products suitable for their expressed use as mastics, are to be classified in heading 32.14.

(2) **Powder, granules and flakes.** In these forms they are employed for moulding, for the manufacture of varnishes, glues, etc. and as thickeners, flocculants, etc. They may consist of the unplasticised materials which become plastic in the moulding and curing process, or of materials to which plasticisers have been added; these materials may incorporate fillers (e.g., wood flour, cellulose, textile fibres, mineral substances, starch), colouring matter or other substances cited in Item (1) above. Powders may be used, for example, to coat objects by the application of heat with or without static electricity.

(3) **Blocks of irregular shape, lumps and similar bulk forms**, whether or not containing fillers, colouring matter or other substances cited in Item (1) above. Blocks of regular geometric shape are not primary forms and are covered by the expression " plates, sheets, film, foil and strip " (see Note 10 to this Chapter).

Waste, parings and scrap of a single thermoplastic material transformed into primary forms are classified in headings 39.01 to 39.14 (according to the material) and **not** in heading 39.15 (see Note 7 to this Chapter).

Tubes, pipes and hoses

The expression " tubes, pipes and hoses ", used in heading 39.17, is defined in Note 8 to this Chapter.

Plates, sheets, film, foil and strip of heading 39.20 or 39.21

The expression " plates, sheets, film, foil and strip ", used in headings 39.20 and 39.21 is defined in Note 10 to the Chapter.

Such plates, sheets, etc., whether or not surface-worked (including squares and other rectangles cut therefrom), with ground edges, drilled, milled, hemmed, twisted, framed or otherwise worked or cut into shapes other than rectangular (including square), are generally classified in **headings 39.18, 39.19** or **39.22 to 39.26**.

Cellular plastics

Cellular plastics are plastics having many cells (either open, closed or both), dispersed throughout their mass. They include foam plastics, expanded plastics and microporous or microcellular plastics. They may be either flexible or rigid.

Cellular plastics are produced by a variety of methods. These include incorporating a gas into plastics (e.g., by mechanical mixing, evaporation of a low boiling point solvent, degradation of a gas producing material), mixing plastics with hollow micro-spheres (e.g., of glass or phenolic resin), sintering granules of plastics and mixing plastics with water or solvent-soluble material which are leached out of plastics leaving voids.

Plastics and textile combinations

Wall or ceiling coverings which comply with Note 9 to this Chapter are classified in heading 39.18. Otherwise, the classification of plastics and textile combinations is essentially governed by Note 1 (h) to Section XI, Note 3 to Chapter 56 and Note 2 to Chapter 59. The following products are also covered by this Chapter :

(a) Felt impregnated, coated, covered or laminated with plastics, containing 50 % or less by weight of textile material or felt completely embedded in plastics;

(b) Textile fabrics and nonwovens, either completely embedded in plastics or entirely coated or covered on both sides with such material, provided that such coating or covering can be seen with the naked eye with no account being taken of any resulting change of colour;

(c) Textile fabrics, impregnated, coated, covered or laminated with plastics, which cannot, without fracturing, be bent manually around a cylinder of a diameter of 7 mm, at a temperature between 15 ºC and 30 ºC;

(d) Plates, sheets and strip of cellular plastics combined with textile fabrics (as defined in Note 1 to Chapter 59), felt or nonwovens, where the textile is present merely for reinforcing purposes.

In this respect, unfigured, unbleached, bleached or uniformly dyed textile fabrics, felt or nonwovens, when applied to one face only of these plates, sheets or strip, are regarded as serving merely for reinforcing purposes. Figured, printed or more elaborately worked textiles (e.g., by raising) and special products, such as pile fabrics, tulle and lace and textile products of heading 58.11, are regarded as having a function beyond that of mere reinforcement.

Plates, sheets and strip of cellular plastics combined with textile fabric on both faces, whatever the nature of the fabric, are **excluded** from this Chapter (generally **heading 56.02, 56.03** or **59.03**).

Combinations of plastics and materials other than textiles

This Chapter also covers the following products, whether they have been obtained by a single operation or by a number of successive operations **provided** that they retain the essential character of articles of plastics :

(a) Plates, sheets, etc., incorporating a reinforcement or a supporting mesh of another material (wire, glass fibres, etc.) embedded in the body of the plastics.

(b) Plates, sheets, etc., of plastics, separated by a layer of another material such as metal foil, paper, paperboard.

Products consisting of paper or paperboard covered with a thin protective sheet of plastics on both faces are **excluded** from this Chapter **provided** they retain the essential character of paper or paperboard (generally **heading 48.11**).

(c) Paper-reinforced stratified plastic sheeting, and products consisting of one layer of paper or paperboard coated or covered with a layer of plastics, the latter constituting more than half the total thickness, **other than** wall coverings of **heading 48.14**.

(d) Products consisting of glass fibres or sheets of paper, impregnated with plastics and compressed together, **provided** they have a hard, rigid character. (If having more the character of paper or of articles of glass fibres they are classified in **Chapter 48** or **70**, as the case may be.)

The provisions of the preceding paragraph also apply, *mutatis mutandis*, to monofilaments, rods, sticks, profile shapes, tubes, pipes and hoses and articles.

It should be noted that gauze and netting of base metal simply dipped in plastics are **excluded** (**Section XV**), even if the meshes are filled in by the dipping process.

In the case of plates or sheets composed of plies of wood and plastics, those in which the wood constitutes only a support or reinforcement of the plastics are classified in the present Chapter; those in which the plastics have a merely **subsidiary** function (e.g., when they form the foundation for a fine veneer) are **excluded** (**Chapter 44**). It should be noted in this regard that building panels composed of layers of wood and plastics are classified, as a general rule, in Chapter 44 (see the General Explanatory Note to that Chapter).

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In addition to the exclusions mentioned in Note 2, the Chapter **excludes** :

(a) Concentrated dispersions of colouring matter in plastics having the character of products of **Chapter 32**; see, for example, the Explanatory Notes to **heading 32.04** (paragraph (I) (C) regarding concentrated dispersions of colouring matter in plastics, and paragraph (II) (2) concerning organic luminophores, e.g., rhodamine B in plastics), **heading 32.05** (seventh paragraph concerning concentrated dispersions of colour lakes in plastics) and **heading 32.06** (Part A), sixth paragraph, subparagraph (I) concerning concentrated dispersions of other colouring matter in plastics).

(b) Preparations specially formulated for use as adhesives, consisting of polymers or blends thereof of headings 39.01 to 39.13 which, apart from any permitted additions to the products of this Chapter (fillers, plasticisers, solvents, pigments, etc.), contain other added substances not falling in this Chapter (e.g., waxes) and products of headings 39.01 to 39.13 put up for retail sale as glues or adhesives, not exceeding a net weight of 1 kg (**heading 35.06**).

(c) Plastics and articles thereof (**other than** the goods of heading 39.18 or 39.19), printed with motifs, characters or pictorial representations, which are not merely incidental to the primary use of the goods (**Chapter 49**).

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Subheading Explanatory Note.

Subheading Note 1

This Note governs the classification of polymers (including copolymers), chemically modified polymers and polymer blends at subheading level. Before these products can be classified at subheading level, however, they must first be classified in the proper heading under the provisions of Notes 4 and 5 to this Chapter (see the General Explanatory Note to this Chapter).

Classification of polymers (including copolymers) and chemically modified polymers

According to Subheading Note 1, polymers (including copolymers) and chemically modified polymers are to be classified in accordance with the provisions of **subparagraph (a)** of the Note or **subparagraph (b)** of the Note, depending upon whether or not there is a subheading named " Other " in the same series of subheadings.

A subheading named " Other " does not include subheadings such as " Other polyesters " and " Of other plastics ".

The expression " in the same series " applies to subheadings of the same level, namely, one-dash subheadings (level 1) or two-dash subheadings (level 2) (see the Explanatory Note to General Interpretative Rule 6).

It should be noted that some headings (e.g., heading 39.07) contain both types of series of subheadings.

(A) **Classification when there is a subheading named " Other " in the same series**

(1) **Subparagraph (a) (1)** of Subheading Note 1 defines polymers with the prefix " poly " (e.g., polyethylene and polyamide-6,6) as being those in which the constituent monomer unit or monomer units of the named polymer taken together contribute 95 % or more by weight of the total polymer content. In the case of named classes of polymers designated with the prefix " poly " (e.g., polyterpenes of subheading 3911.10), all of the monomer units falling in the same class (e.g., different terpene monomer units in the case of polyterpenes) must comprise 95 % or more by weight of the polymer.

It should be stressed that this definition applies **only** to polymers of subheadings which have a subheading named " Other " in the same series.

Thus, for example, a polymer consisting of 96 % of the ethylene monomer unit and 4 % of the propylene monomer unit and having a specific gravity of 0.94 or more (being a polymer of heading 39.01 by application of Note 4 to this Chapter), should be classified as polyethylene in subheading 3901.20 because the ethylene monomer unit contributes more than 95 % of the total polymer content and there is a subheading named " Other " in the same series.

The above definition of polymers with the prefix " poly ", when applied to poly(vinyl alcohol), does not require that 95 % or more by weight of the monomer units are the named " vinyl alcohol ". However, it does require that the vinyl acetate and vinyl alcohol monomer units taken together represent 95 % or more by weight of the polymer.

(2) **Subparagraph (a) (2)** of Subheading Note 1 deals with the classification of the products of subheadings 3901.30, 3903.20, 3903.30 and 3904.30.

Copolymers classified in these four subheadings must have 95 % or more by weight of the constituent monomer units of the polymers named in the subheading.

Thus, for example, a copolymer consisting of 61 % vinyl chloride, 35 % vinyl acetate and 4 % maleic anhydride monomer units (being a polymer of heading 39.04) should be classified as a vinyl chloride-vinyl acetate copolymer of subheading 3904.30 because vinyl chloride and vinyl acetate monomer units taken together contribute 96 % of the total polymer content.

On the other hand, a copolymer consisting of 60 % styrene, 30 % acrylonitrile and 10 % vinyl toluene monomer units (being a polymer of heading 39.03) should be classified in subheading 3903.90 (named " Other ") and **not** in subheading 3903.20 because the styrene and acrylonitrile monomer units taken together contribute only 90 % of the total polymer content.

(3) **Subparagraph (a) (3)** of Subheading Note 1 deals with the classification of chemically modified polymers. These polymers are to be classified in the subheading named " Other ", provided that the chemically modified polymers are not more specifically covered by another subheading. The consequence of this Note is that chemically modified polymers are not classified in the same subheading as unmodified polymer, unless the unmodified polymer itself is classifiable in a subheading named " Other ".

Thus, for example, chlorinated or chlorosulphonated polyethylene, being chemically modified polyethylene of heading 39.01, should be classified in subheading 3901.90 (" Other ").

On the other hand, poly(vinyl alcohol), which is obtained by the hydrolysis of poly(vinyl acetate), should be classified in subheading 3905.30 which specifically covers it.

(4) **Subparagraph (a) (4)** : Polymers which cannot be classified according to the provisions of paragraphs (a) (1), (a) (2) or (a) (3) are classified in the subheading named " Other ", unless there is a **more specific subheading** in the series under consideration, which covers polymers of that monomer unit which predominates by weight over every other monomer unit. For this purpose, constituent monomer units of polymers falling in the same subheading shall be taken together. Only the constituent monomer units of the polymers in the same series of subheadings under consideration are to be compared.

The texts of **such specific subheadings** have the format " polymers of x ", " x copolymers " or " x polymers " (e.g., propylene copolymers (**subheading 3902.30**), fluoro-polymers (**subheadings 3904.61 and 3904.69**).

To be classified in these subheadings it is only necessary for the monomer unit named in the subheading to predominate over every other single monomer unit in the series under consideration. That is, the monomer unit named in the subheading does not have to represent more than 50 % of the total polymer content of the series under consideration.

Thus, for example, an ethylene-propylene copolymer consisting of 40 % ethylene and 60 % propylene monomer units (being a polymer of heading 39.02) should be classified in subheading 3902.30 as a propylene copolymer because propylene is the only constituent monomer unit to be taken into consideration.

Likewise, a copolymer consisting of 45 % ethylene, 35 % propylene and 20 % isobutylene monomer units (being a polymer of heading 39.02) is to be classified in subheading 3902.30 because only the propylene and isobutylene monomer units are to be compared (the ethylene monomer unit being ignored) and the propylene monomer unit predominates over the isobutylene monomer unit.

On the other hand, a copolymer consisting of 45 % ethylene, 35 % isobutylene and 20 % propylene monomer units (being a polymer of heading 39.02) is to be classified in subheading 3902.90 because only the isobutylene and propylene monomer units are to be compared and the isobutylene monomer unit predominates over the propylene monomer unit.

(B) **Classification when there is no subheading named " Other " in the same series**

(1) **Subparagraph (b) (1)** of Subheading Note 1 directs classification of polymers to the subheading covering polymers of that monomer unit which predominates by weight over every other single comonomer unit, when there is no subheading named " Other " in the same series. For this purpose, constituent monomer units of polymers falling in the same subheading are to be taken together.

This is similar to the method of classification specified in Note 4 to this Chapter for the classification of polymers at heading level.

The concept of predominance of one monomer unit applies, except when polymers contain monomer units falling outside the series of subheadings under consideration. In such circumstances, only the monomer units relating to the polymers in the series of subheadings under consideration are to be compared.

Thus, for example, copolycondensates of urea and phenol with formaldehyde (being polymers of heading 39.09) are to be classified in subheading 3909.10 if the urea monomer unit predominates over the phenol monomer unit, and in subheading 3909.40 if the phenol monomer unit predominates, since there is no subheading named " Other " in the same series of subheadings.

It should be remembered that the definition of polymers with the prefix " poly " under paragraph (a) (1) of Subheading Note 1 **does not** apply to the subheadings falling in this category.

Thus, for example, copolymers having constituent monomer units of both polycarbonate and poly(ethylene terephthalate) are to be classified in subheading 3907.40 if the former predominates and in subheading 3907.60 if the latter predominates, since there is no subheading named " Other " in the same series of subheadings.

(2) **Subparagraph (b) (2)** of Subheading Note 1 deals with the classification of chemically modified polymers. These are to be classified in the same subheading as the unmodified polymer when there is no subheading named " Other " in the same series of subheadings under consideration.

Thus, for example, acetylated phenolic resins (being polymers of heading 39.09) are to be classified in subheading 3909.40 as phenolic resins, since there is no subheading named " Other " in the same series.

Classification of polymer blends

The last paragraph of Subheading Note 1 directs the classification of polymer blends. These are to be classified in the same subheading as if they were polymers of the same monomer units in the same proportions.

The following examples illustrate the classification of polymer blends :

- A polymer blend with a specific gravity of more than 0.94 consisting of 96 % polyethylene and 4 % polypropylene is to be classified in subheading 3901.20 as polyethylene because the ethylene monomer unit contributes more than 95 % of the polymer content.

- A polymer blend consisting of 60 % polyamide-6 and 40 % polyamide-6,6 is to be classified in subheading 3908.90 (" Other ") since the constituent monomer units of neither of the polymers contribute 95 % or more by weight of the total polymer content.

- A blend of polypropylene (45 %), poly(butylene terephthalate) (42 %) and poly(ethylene isophthalate) (13 %) is to be classified in heading 39.07 since the constituent monomer units of the two polyesters together predominate over the propylene monomer unit. The monomer units of poly(butylene terephthalate) and poly(ethylene isophthalate).are to be considered without regard to how they may have been combined in individual polymers in the blend. In this example, one of the monomer units of poly(ethylene isophthalate) and another of poly(butylene terephthalate) are the **same** monomer units as the constituent monomer units of poly(ethylene terephthalate). However, the blend is to be classified in subheading 3907.99 since, considering the polyester monomer units only, the constituent monomer units of " other polyester ", **in the correct stoichiometric ratio**, predominate over the monomer units of poly(ethylene terephthalate).