

## C08J

**WORKING-UP; GENERAL PROCESSES OF COMPOUNDING; AFTER-TREATMENT NOT COVERED BY SUBCLASSES [C08B](#), [C08C](#), [C08F](#), [C08G](#) or [C08H](#) (working, e.g. shaping, of plastics [B29](#))**

### Definition statement

*This place covers:*

- Chemical aspects of processes for treating, compounding, working-up or recovery of macromolecular substances unless the treatment, compounding, working-up or recovery is provided for elsewhere as indicated below in the relationship section.
- Chemical features of manufacture, treatment or coating of articles or shaped materials containing macromolecular substances unless the manufacture, treatment or coating is provided for elsewhere as indicated below in the relationship section.
- Chemical aspects of working-up of macromolecular substances to porous or cellular articles or materials and after-treatment thereof unless provided for elsewhere as indicated below in the relationship section.
- Chemical aspects of recovery or working-up of waste materials, i.e. macromolecular materials (e.g. polymers), solvents and unreacted monomers, unless provided for elsewhere as indicated below in the relationship section.

### Relationships with other classification places

[C08J](#) covers general processes or treatments that are not already covered by subclasses [C08B](#), [C08C](#), [C08F](#), [C08G](#) and [C08H](#).

[C08J](#) is residual to subclasses [C08B](#), [C08C](#), [C08F](#), [C08G](#) and [C08H](#) in relation to after-treatment of macromolecular substances or polymers, and therefore does not cover:

- Processes specially adapted for treating macromolecular substances or polymers for which after-treatments are specifically mentioned in [C08B](#), [C08C](#), [C08F](#), [C08G](#) and [C08H](#) (e.g. [C08F 6/00](#)).
- Polymerisation processes involving purification or recycling of waste polymers or depolymerisation products of specified macromolecular substances.
- Foamed polymeric products of isocyanates or isothiocyanates characterised by the monomers or catalysts used ([C08G 18/00](#)).

[B29](#) covers mechanical aspects of working up, after-treatment and compounding of plastics or materials in a plastic state. If a process for working up, after-treatment and compounding of plastics contains both chemical and mechanical aspects, it should be classified in both [B29](#) and [C08J](#).

When classifying in this subclass, additional classification(s) are made from subclass [C08L](#), relating to essential or characterising materials used.

### References

#### Informative references

Attention is drawn to the following places, which may be of interest for search:

Mechanical aspects of working-up	<a href="#">B29C</a>
Layered products, manufacture thereof	<a href="#">B32B</a>
Working-up of compositions comprising more than 50% of mineral filler	<a href="#">C04B</a>
Adhesive processes in general	<a href="#">C09J 5/00</a>
Treatment of textiles	<a href="#">D06</a>

## Special rules of classification

Reference [B29](#) is non-limiting in the subclass [C08J](#). CPC will be updated/corrected once this inconsistency is resolved in IPC.

- In this subclass, at each hierarchical level, in the absence of an indication to the contrary, classification is made in the last appropriate place.
- In this subclass, the polymer involved in the working-up is specified using Indexing symbols of the group [C08J 2300/00-C08J 2399/00](#).
- When the presence of one or several additional polymers, present in minority, is of relevance, this additional polymer is specified using Indexing symbols of the group [C08J 2400/00-C08J 2499/00](#).

## C08J 3/00

### Processes of treating or compounding macromolecular substances

#### Definition statement

*This place covers:*

The chemical aspect of making solutions, dispersions or lattices, powdering or granulating, plasticising, compounding with additives, cross-linking, vulcanising and treatment by wave energy or particle radiation.

#### Relationships with other classification places

##### Multiple classification

The way of preparing solutions, emulsions, classified in [C08J 3/02](#), can be part of the preparation and characterisation of paints and should also be classified in [C09D 7/00](#).

The use of a specific emulsifying agent classified in [B01F 17/00](#) could apply to the emulsification of polymers and also be classified in [C08J 3/02](#).

#### References

##### Application-oriented references

*Examples of places where the subject matter of this place is covered when specially adapted, used for a particular purpose, or incorporated in a larger system:*

Medicinal preparations characterised by the non-active ingredient, e.g. characterisation by their physical form	<a href="#">A61K 47/50</a>
Treatment of inorganic materials other than fibrous filler in order to enhance their filling or pigmenting properties	<a href="#">C09C</a>
Pigment paste	<a href="#">C09D 17/00</a>
Preparation method of toner particles	<a href="#">G03G 9/08</a>

##### Informative references

*Attention is drawn to the following places, which may be of interest for search:*

Treatment by wave energy or irradiation of shaped articles	<a href="#">C08J 7/123</a> , <a href="#">C08J 7/18</a>
Cosmetic or similar preparations characterised by their physical form	<a href="#">A61K 8/00</a>
Chemical aspects of, or use of materials for, bandages, dressings or absorbent pads	<a href="#">A61L 15/00</a>
Mechanical aspects of mixing, emulsifying and dispersing	<a href="#">B01F</a>
Protection of catalysts, e.g. by coating	<a href="#">B01J 33/00</a>

Making granules	<a href="#">B29B 9/00</a>
Mechanical aspects of cross-linking or vulcanising	<a href="#">B29C 35/00</a>
Treatment or chemical modification of rubbers	<a href="#">C08C</a>
Making solution dispersion or lattices by solution, emulsion or suspension polymerisation	<a href="#">C08F 2/00</a>
Post-polymerisation treatment of polymer emulsions or solutions	<a href="#">C08F 6/00</a>
Crosslinking aspects not classifiable in these groups	<a href="#">C08G</a> , <a href="#">C08F</a> , <a href="#">C08K</a>
Plasticising macromolecules or compounding with additives characterised by the plasticiser or additive	<a href="#">C08K 5/00</a> , <a href="#">C08K 3/00</a>
Encapsulation or pre-treatment of additives	<a href="#">C08K 9/00</a>

### Special rules of classification

- [C08J 3/122](#) takes precedence over [C08J 3/124](#), [C08J 3/126](#), and [C08J 3/128](#).
- This subgroup could also be associated with [C08J 3/02](#), as it is relevant for the process of making a solution or emulsion.
- In [C08J 3/22](#), the additive added as master batch could also be a polymer.
- This subgroup could also be associated with [C08J 3/20](#), i.e. compounding polymer with additive.

## C08J 3/12

### Powdering or granulating

#### References

##### Informative references

Attention is drawn to the following places, which may be of interest for search:

Nanocapsules for medical purposes	<a href="#">A61K 9/51</a>
Making granules	<a href="#">B29B 9/00</a>

## C08J 3/124

### {Treatment for improving the free-flowing characteristics}

#### References

##### Informative references

Attention is drawn to the following places, which may be of interest for search:

Agglomerates, granulates or microbeadlets for medical purposes	<a href="#">A61K 9/16</a>
Process or devices for granulating using non-sticking agents	<a href="#">B01J 2/30</a>
Auxiliary treatment of particles	<a href="#">B29B 9/16</a>

**C08J 3/126****{Polymer particles coated by polymer, e.g. core shell structures}****References****Informative references***Attention is drawn to the following places, which may be of interest for search:*

Process or devices for granulating material followed by coating of the granules	<a href="#">B01J 2/003</a>
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**C08J 3/16****by coagulating dispersions {([C08J 3/122](#) takes precedence)}****References****Limiting references***This place does not cover:*

Pulverisation by spraying	<a href="#">C08J 3/122</a>
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**Informative references***Attention is drawn to the following places, which may be of interest for search:*

Coagulation of polymer emulsions	<a href="#">C08F 6/22</a>
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**C08J 3/18****Plasticising macromolecular compounds (plasticisers [C08K](#))****Definition statement***This place covers:*

This group covers the process of treating polymers with plasticisers in order to modify thermal and mechanical properties of the polymer.

**Relationships with other classification places**

Plasticisers are classified in [C08K](#).

**Special rules of classification**

Reference [C08K](#) is non-limiting in the main group [C08J 3/18](#). CPC will be updated/corrected once this inconsistency is resolved in IPC.

## C08J 3/24

**Crosslinking, e.g. vulcanising, of macromolecules (mechanical aspects [B29C 35/00](#); crosslinking agents [C08K](#))**

### References

#### Limiting references

*This place does not cover:*

Crosslinking agents	<a href="#">C08K</a>
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#### Informative references

*Attention is drawn to the following places, which may be of interest for search:*

Compounding polymers with additives	<a href="#">C08J 3/20</a>
Mechanical aspects of crosslinking	<a href="#">B29C 35/00</a>

### Special rules of classification

Reference [B29C 35/00](#) is non-limiting in the subgroup [C08J 3/24](#). CPC will be updated/corrected once this inconsistency is resolved in IPC.

## C08J 3/241

**{Preventing premature crosslinking by physical separation of components, e.g. encapsulation}**

### References

#### Informative references

*Attention is drawn to the following places, which may be of interest for search:*

Use of pretreated ingredients	<a href="#">C08K 9/00</a>
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## C08J 5/00

**Manufacture of articles or shaped materials containing macromolecular substances (manufacture of semi-permeable membranes [B01D 67/00](#) - [B01D 71/00](#))**

### Definition statement

*This place covers:*

- Direct processing of dispersions, e.g. latex, to articles.
- Reinforcing macromolecular compounds with fibrous and/or nanosized materials.
- Bonding of a preformed macromolecular material to the same or other solid material.
- Manufacturing of films and sheets.
- Manufacture of shaped structures of ion- exchange resin, e.g. membranes.
- Impregnating materials with prepolymers, e.g. manufacturing of prepregs.

## References

### Limiting references

*This place does not cover:*

Membranes for dialysis, osmosis or filtration, e.g. semi-permeable membranes	<a href="#">B01D 67/00</a> - <a href="#">B01D 71/00</a>
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### Application-oriented references

*Examples of places where the subject matter of this place is covered when specially adapted, used for a particular purpose, or incorporated in a larger system:*

Medicinal preparations characterised by the non-active ingredient being chemically bound to the active ingredient	<a href="#">A61K 47/50</a>
Treatment of inorganic materials other than fibrous filler in order to enhance their filling or pigmenting properties	<a href="#">C09C</a>
Pigment paste	<a href="#">C09D 17/00</a>
Adhesive processes	<a href="#">C09J 5/00</a>
Fuel cells with polymeric electrolyte material	<a href="#">H01M 8/1018</a>

### Informative references

*Attention is drawn to the following places, which may be of interest for search:*

Shaping of foodstuffs	<a href="#">A23P</a>
Cation exchange	<a href="#">B01J 39/18</a> - <a href="#">B01J 39/22</a>
Anion-exchange	<a href="#">B01J 41/12</a> - <a href="#">B01J 41/16</a>
Amphoteric ion-exchange	<a href="#">B01J 43/00</a>
Regeneration of ion-exchangers	<a href="#">B01J 49/00</a>
Layered products comprising a layer of synthetic resin	<a href="#">B32B 27/00</a>
Microstructural technology	<a href="#">B81</a>
Treatment of rubber latex	<a href="#">C08C 1/00</a>
Treatment of polymer emulsions	<a href="#">C08F 6/14</a>
Use of ingredients characterised by shape	<a href="#">C08K 7/00</a>
Surface modified additives	<a href="#">C08K 9/00</a>
After treatment of threads during manufacturing	<a href="#">D01F 11/00</a>
Other nonwoven fabrics	<a href="#">D04H 13/00</a>
Finishing of textiles	<a href="#">D06M</a>

## C08J 5/005

**{Reinforced macromolecular compounds with nanosized materials, e.g. nanoparticles, nanofibres, nanotubes, nanowires, nanorods or nanolayered materials}**

### Definition statement

*This place covers:*

The reinforcement of polymers with nanofillers as a structuring agent.

### Relationships with other classification places

Polymers comprising nanoadditives without reinforcing structure are classified in [C08K](#).

### References

#### Informative references

Attention is drawn to the following places, which may be of interest for search:

Nanotechnology for materials and surface science	<a href="#">B82Y 30/00</a>
Use of ingredients characterised by shape	<a href="#">C08K 7/00</a>
Nanostructured additives	<a href="#">C08K 2201/011</a>

## C08J 5/02

**Direct processing of dispersions, e.g. latex, to articles**

### Definition statement

*This place covers:*

The direct processing of latex, e.g. for hand gloves.

### Relationships with other classification places

The treatment of latexes in general is to be classified in [C08F 6/14](#), for rubber latex it should be classified in [C08C 1/00](#).

## C08J 5/04

**Reinforcing macromolecular compounds with loose or coherent fibrous material**

### Definition statement

*This place covers:*

The reinforcement of macromolecular compounds (thermoplastic) with loose or coherent fibrous material (no continuous fibres).

### Relationships with other classification places

- Mechanical aspect of making such composites in a specific process for making composites are classified in [B29C 70/00](#).
- Compounded polymer compositions or reinforced plastics characterised by the fibrous material are classified in [C08K 7/00](#) or [C08K 9/00](#) (e.g. reinforcement of plastics like polyamide with glass fibres in an amount generally lower than 50% (volume or weight) is classified in [C08K 7/00](#)).

## References

### Informative references

Attention is drawn to the following places, which may be of interest for search:

Chemical after-treatment of artificial filaments during manufacture	<a href="#">D01F 11/00</a>
Finishing of textiles	<a href="#">D06M</a>

## C08J 5/12

**Bonding of a preformed macromolecular material to the same or other solid material such as metal, glass, leather, e.g. using adhesives**

## References

### Informative references

Attention is drawn to the following places, which may be of interest for search:

Joining or sealing of preformed parts	<a href="#">B29C 65/00</a>
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## C08J 5/124

**{using adhesives based on a macromolecular component}**

## References

### Informative references

Attention is drawn to the following places, which may be of interest for search:

Adhesive compositions	<a href="#">C09J 4/00</a> , <a href="#">C09J 101/00</a> - <a href="#">C09J 201/00</a>
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## C08J 5/18

**Manufacture of films or sheets**

### Definition statement

*This place covers:*

The manufacture of self-standing monolayers, films or sheets characterised by chemical features or parameters; the films per se and the manufactured products thereof.

Self-standing films are films that are different from films made by coating on a substrate.

Porous or microporous films when the pores are obtained mechanically.

### Relationships with other classification places

- Adhesive sheets are classified in [C09J 7/00](#).
- Optical sheets are classified in [G02B](#).
- Prepregs are classified in [C08J 5/24](#).
- Mechanical aspects of the formation of films, e.g. extrusion, blow-moulding, are classified in [B29C](#).



## References

### Informative references

Attention is drawn to the following places, which may be of interest for search:

Coating of shaped articles made of polymers with polymeric layers	<a href="#">C08J 7/04</a>
Process for making films only characterised by the use of specific apparatus, e.g. extruding, blow moulding or thermoforming	<a href="#">B29C</a>
Shaping by stretching, e.g. drawing through a die, characterised by the choice of materials	<a href="#">B29C 55/005</a>
Producing flat articles, e.g. films or sheets	<a href="#">B29D 7/01</a>
Layered products comprising a layer of synthetic resin	<a href="#">B32B 27/00</a>
Wrappers or flexible covers; Packaging materials of special type or form	<a href="#">B65D 65/00</a>
Films which are only coated layers	<a href="#">C09D</a>

### Special rules of classification

- The type of polymer used to make the film is indicated using an Indexing symbol of groups [C08J 2300/00](#) - [C08J 2399/00](#).
- When the presence of one or several additional polymers, present in minority, is of relevance, this additional polymer is specified using an Indexing symbol of groups [C08J 2400/00](#) - [C08J 2499/00](#).

Example:

- Polypropylene films are classified in [C08J 5/18](#) and [C08J 2323/12](#).

## C08J 5/20

### Manufacture of shaped structures of ion-exchange resins

#### Definition statement

*This place covers:*

The product of manufacture of ion-exchange membranes based on inorganic and/or organic macromolecules and processes of making polyelectrolytes.

This group covers the manufacturing process as well as the obtained products.

## References

### Informative references

Attention is drawn to the following places, which may be of interest for search:

Use of macromolecular compounds as cation exchangers	<a href="#">B01J 39/20</a>
Use of macromolecular compounds as anion exchangers	<a href="#">B01J 41/14</a>

### Special rules of classification

Please see the Rules under [C08J 5/18](#).

## C08J 5/22

### Films, membranes or diaphragms

#### Definition statement

*This place covers:*

Membranes of which at least the ion exchanging parts are inorganic, i.e. mixtures of non-polymeric ion-exchange compounds, e.g. inorganic salts and at least one polymer.

#### References

##### Informative references

*Attention is drawn to the following places, which may be of interest for search:*

Processes of separation using semi-permeable membranes, e.g. reverse osmosis, microfiltration or ultrafiltration	<a href="#">B01D 61/00</a>
Semi-permeable membranes of macromolecular compounds	<a href="#">B01D 71/08</a> - <a href="#">B01D 71/82</a>
Ion-exchange in general	<a href="#">B01J 39/18</a> - <a href="#">B01J 39/22</a> , <a href="#">B01J 41/12</a> - <a href="#">B01J 41/16</a> , <a href="#">B01J 43/00</a> , <a href="#">B01J 45/00</a> , <a href="#">B01J 47/12</a> - <a href="#">B01J 47/15</a> , <a href="#">B01J 49/00</a>
Electrolyte membranes which are characterised only by the construction, e.g. porosity or presence of specific electrolytes, the polymer not being specific	<a href="#">H01M 8/00</a>
Fuel cells with polymeric electrolyte material	<a href="#">H01M 8/1018</a>

#### Special rules of classification

- Groups e.g.  $-\text{SO}_2\text{F}$ , that do not have ion-exchanging properties, but may, by simple hydrolysis in an alkaline, neutral or acid medium, be transformed into ion-exchanging groups, e.g.  $-\text{SO}_2\text{H}$ , are considered as ion-exchanging groups.
- Membranes obtained by homogeneous melting or from a solution are considered as homogeneous, even if the membrane contains (after solidification of the melt or the solution) heterogeneous elements, e.g. filling bodies, supports in the form of fabrics, or the like.
- Quaternising reactions are not considered as after-treatments.
- Membranes based on cellulose are classified in [C08J 5/2212](#).
- Methods for incorporating reinforcement supports or filling bodies where the support or filling body has no ion-exchange activity are classified in [C08J 5/2206](#).
- Ion-exchanging fibrous fabrics are considered as heterogeneous membranes and are classified in [C08J 5/2275](#); they include composite membranes and mixtures of two or more (ion exchange) polymers.
- Reactions that change the nature of the ion-exchanging groups, introduction of ion-exchanging groups, and after-treatment of a membrane that has already been formed are classified in [C08J 5/2287](#).

See also the Rules under [C08J 5/18](#).

## C08J 5/2206

{based on organic and/or inorganic macromolecular compounds}

### Definition statement

*This place covers:*

Ion-exchange membranes based on organic and/or inorganic polymers.

Methods for incorporating reinforcement supports or filling bodies, the support or filling body having no ion exchange activity.

### References

#### *Informative references*

*Attention is drawn to the following places, which may be of interest for search:*

Fuel cells with solid polymeric electrolyte materials	<a href="#">H01M 8/10</a>
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### Special rules of classification

Please see the Rules under [C08J 5/18](#).

## C08J 5/2212

{Natural macromolecular compounds}

### Definition statement

*This place covers:*

Ion-exchange membranes based on natural polymers, e.g. cellulose.

### Special rules of classification

Please see the Rules under [C08J 5/18](#).

## C08J 5/2218

{Synthetic macromolecular compounds}

### Definition statement

*This place covers:*

Ion-exchange membranes based on synthetic organic polymers.

### Special rules of classification

Please see the Rules under [C08J 5/18](#).

## C08J 5/2225

{containing fluorine}

### Definition statement

*This place covers:*

Ion-exchange membranes based on synthetic organic polymers containing fluorine.

**Special rules of classification**

Please see the Rules under [C08J 5/18](#).

**C08J 5/2231**

**{based on macromolecular compounds obtained by reactions involving unsaturated carbon-to-carbon bonds}**

**Definition statement**

*This place covers:*

Ion-exchange membranes based on synthetic polymers obtained by addition polymerization ([C08F](#)) reactions.

**C08J 5/2237**

**{containing fluorine}**

**Definition statement**

*This place covers:*

Ion-exchange membranes based on synthetic polymers obtained by addition polymerization ([C08F](#)) reactions and containing fluorine.

**Special rules of classification**

Please see the Rules under [C08J 5/18](#).

**C08J 5/2243**

**{obtained by introduction of active groups capable of ion-exchange into compounds of the type [C08J 5/2231](#)}**

**Definition statement**

*This place covers:*

Ion-exchange membranes obtained by introduction of active groups of ion-exchange groups into compounds of the type [C08J 5/2231](#).

**Special rules of classification**

Please see the Rules under [C08J 5/18](#).

Groups, e.g.  $\text{SO}_2\text{F}$ , which do not have ion-exchanging properties, but which may, by simple hydrolysis in an alkaline, neutral or acid medium, be transformed into ion-exchanging groups, e.g.  $\text{SO}_2\text{H}$ , are considered as such.

**C08J 5/225**

**{containing fluorine}**

**Definition statement**

*This place covers:*

Ion-exchange membranes obtained by introduction of active groups of ion-exchange groups into compounds of the type [C08J 5/2231](#) containing fluorine.

**Special rules of classification**

Please see the Rules under [C08J 5/18](#).

**C08J 5/2256**

**{based on macromolecular compounds obtained by reactions other than those involving carbon-to-carbon bonds, e.g. obtained by polycondensation}**

**Definition statement**

*This place covers:*

Ion-exchange membranes based on polymers obtained by step polymerization ([C08G](#)) reactions (condensation or polyaddition polymerization).

**Special rules of classification**

Please see the Rules under [C08J 5/18](#).

**C08J 5/2262**

**{containing fluorine}**

**Definition statement**

*This place covers:*

Ion-exchange membranes based on polymers obtained by step polymerization ([C08G](#)) reactions (condensation or polyaddition polymerisation) and containing fluorine.

**Special rules of classification**

Please see the Rules under [C08J 5/18](#).

**C08J 5/2268**

**{based on macromolecular compounds obtained by reactions involving unsaturated carbon-to-carbon bonds, and by reactions not involving this type of bond}**

**Definition statement**

*This place covers:*

Ion-exchange membranes obtained by step polymerization ([C08G](#)) and addition polymerization ([C08F](#)) reactions (both types of reaction are present)

**References****Informative references**

*Attention is drawn to the following places, which may be of interest for search:*

Please see the Rules under [C08J 5/18](#).

**C08J 5/2275****{Heterogeneous membranes}****Definition statement**

*This place covers:*

- Heterogeneous or composite ion-exchange membranes.
- Ion-exchanging fibrous fabrics, which are considered as heterogeneous membranes; they include composite membranes, mixtures of two or more (ion exchange) polymers.
- Membranes obtained by homogeneous melting or from a solution, which are considered as homogeneous, even if the membrane contains (after solidification of the melt or the solution) heterogeneous elements, e.g. filling bodies, supports e.g. in the form of fabrics, or the like, i.e. the ion exchange resin forms the membrane.

**References****Informative references**

*Attention is drawn to the following places, which may be of interest for search:*

Composite membranes; Ultra-thin membranes	<a href="#">B01D 69/12</a> - <a href="#">B01D 69/14</a>
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**Special rules of classification**

Please see the Rules under [C08J 5/18](#).

**C08J 5/2281****{fluorine containing heterogeneous membranes}****Definition statement**

*This place covers:*

Heterogeneous or composite ion-exchange membranes containing fluorine

**References****Informative references**

*Attention is drawn to the following places, which may be of interest for search:*

Composite membranes; Ultra-thin membranes	<a href="#">B01D 69/12</a> - <a href="#">B01D 69/148</a>
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**Special rules of classification**

Please see the Rules under [C08J 5/18](#).

**C08J 5/2287****{After-treatment}****Definition statement**

*This place covers:*

- After-treatment of already formed ion-exchange membranes.

## Definition statement

- Reactions which change the nature of the ion-exchanging groups, introduction of ion-exchanging groups
- After-treatment, the membrane having been already formed

**References****Informative references**

Attention is drawn to the following places, which may be of interest for search:

Processes specially adapted for manufacturing semi-permeable membranes for separation processes or apparatus	<a href="#">B01D 67/00</a>
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**Special rules of classification**

Please see the Rules under [C08J 5/18](#).

Quaternising reactions are not considered as after-treatments.

**C08J 5/2293****{After-treatment of fluorine-containing membranes}****Definition statement**

*This place covers:*

After-treatment of already formed fluorine containing ion-exchange membranes.

**References****Informative references**

Attention is drawn to the following places, which may be of interest for search:

Processes specially adapted for manufacturing semi-permeable membranes for separation processes or apparatus	<a href="#">B01D67/0087</a> , <a href="#">B01D 71/00</a>
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**Special rules of classification**

Please see the Rules under [C08J 5/18](#).

Reactions which change the nature of the ion-exchanging groups, introduction of ion-exchanging groups, after-treatment (where the membrane has already been formed) are classified in [C08J 5/2287](#) or in [C08J 5/2293](#).

Quaternising reactions are not considered as after-treatments.

**C08J 5/24****Impregnating materials with prepolymers which can be polymerised in situ, e.g. manufacture of preregs****Definition statement**

*This place covers:*

Preregs, i.e. reinforcement material pre-impregnated with a resin matrix.

## References

### Informative references

Attention is drawn to the following places, which may be of interest for search:

Layered products characterised by the presence of two or more fibrous or filamentary layers next to each other	<a href="#">B32B 5/26</a>
Layered products comprising at least one impregnated fibrous or filamentary layer	<a href="#">B32B 2260/021</a>

### Special rules of classification

In this group and its indented subgroups, the last place priority rule is not applied, i.e. the common rule is applied.

See also the Rules under [C08J 5/18](#).

## C08J 7/00

**Chemical treatment or coating of shaped articles made of macromolecular substances (coating with metallic material [C23C](#); electrolytic deposition of metals [C25](#))**

### Definition statement

*This place covers:*

All types of treatments of shaped articles comprising polymeric surfaces. The treatments include chemical or physical treatments and coating of continuous polymeric surfaces.

### Relationships with other classification places

- [C09D](#) relates to coating compositions.
- [B05D](#) relates to processes for applying liquids or other fluent materials to surfaces in general.
- Adhesive sheets are classified in [C09J 7/00](#).
- [D06M 15/00](#) relates to the coating of polymer fibres.
- [D01F](#) relates to the chemical treatment of fibres.

## References

### Limiting references

*This place does not cover:*

Coating with metallic material	<a href="#">C23C</a>
Electrolytic deposition of metals	<a href="#">C25</a>

### Informative references

Attention is drawn to the following places, which may be of interest for search:

Processes for applying liquids or other fluent materials to surfaces in general	<a href="#">B05D</a>
Coating compositions	<a href="#">C09D</a>
Treating textile materials	<a href="#">D06</a>



### Special rules of classification

- The treatment of specific polymers is indicated using Indexing symbols of the group [C08J 2300/00](#) -[C08J 2399/00](#).
- When the presence of one or several additional polymers, present in minority, is of relevance, this additional polymer is specified using Indexing symbols of the group [C08J 2400/00](#)-[C08J 2499/00](#).

Example:

- Surface treatment of a polypropylene film is classified in [C08J 7/00](#) and [C08J 2323/12](#).

## C08J 7/02

### with solvents, e.g. swelling agents

#### Definition statement

*This place covers:*

Treatment of polymeric substrates with solvents or swelling agents.

#### References

##### Informative references

Attention is drawn to the following places, which may be of interest for search:

Recovery or working-up of waste materials using selective solvents for polymer components.	<a href="#">C08J 11/08</a>
After-treatment of articles without altering their shape; using liquids, e.g. solvents, swelling agents.	<a href="#">B29C 71/0009</a>

### Special rules of classification

Please see the Rules under [C08J 7/00](#).

## C08J 7/04

### Coating

#### Definition statement

*This place covers:*

Coating of polymeric substrates in general.

#### Relationships with other classification places

See the Relationships section of [C08J 7/00](#).

#### References

##### Informative references

Attention is drawn to the following places, which may be of interest for search:

Coating compositions based on organic non-macromolecular compounds having at least one polymerisable carbon-to-carbon unsaturated bond	<a href="#">C09D 4/00</a>
Coating compositions per se	<a href="#">C09D 101/00</a> - <a href="#">C09D 201/00</a>

### Special rules of classification

See the Special rules section of [C08J 7/00](#).

## C08J 7/042

**{with two or more layers, where at least one layer of a composition contains a polymer binder}**

### Definition statement

*This place covers:*

Multiple coatings on a polymeric substrate, where at least one layer of a composition contains a polymer binder.

### Relationships with other classification places

See the Relationships section of [C08J 7/00](#).

### References

#### Informative references

Attention is drawn to the following places, which may be of interest for search:

Layered products essentially comprising synthetic resin	<a href="#">B32B 27/00</a>
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### Special rules of classification

The treatment of specific polymers is indicated using Indexing Codes of the groups [C08J 2300/00](#) - [C08J 2399/00](#).

When the presence of one or several additional polymers, present in minority, is of relevance, this additional polymer is specified using Indexing Codes of the groups [C08J 2400/00](#) - [C08J 2499/00](#).

Example - Coating of a polypropylene film with a polyurethane layer and a polyepoxy layer is classified in [C08J 7/00](#) and [C08J 2323/12](#) and [C08J 2475/04](#) and [C08J 2463/00](#).

## C08J 7/0423

**{with at least one layer of inorganic material and at least one layer of a composition containing a polymer binder}**

### Definition statement

*This place covers:*

Multiple coatings on a polymeric substrate with at least one layer of inorganic material and at least one layer of a composition containing a polymer binder.

### Relationships with other classification places

See the Relationships section of [C08J 7/00](#).

### Special rules of classification

See the Special Rules section of [C08J 7/00](#).

## C08J 7/0427

{with only one layer of a composition containing a polymer binder (with more layers [C08J 7/042](#))}

### Definition statement

*This place covers:*

Coating a polymeric substrate with a single layer containing a polymer binder.

### References

#### Limiting references

*This place does not cover:*

Multiple coatings on a polymeric substrate	<a href="#">C08J 7/042</a>
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#### Informative references

*Attention is drawn to the following places, which may be of interest for search:*

Coating compositions based on unspecified macromolecular compounds	<a href="#">C09D 201/00</a> - <a href="#">C09D 201/10</a>
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### Special rules of classification

The coating of a specific polymeric substrate with a layer of an unspecified polymer binder is using Indexing Codes of the groups [C08J 2300/00](#) - [C08J 2399/00](#).

When the presence of one or several additional polymers, present in minority, is of relevance, this additional polymer is specified using Indexing Codes of the groups [C08J 2400/00](#) - [C08J 2499/00](#).

Example -1: Coating of a polycarbonate substrate with a protective polymeric layer is classified in [C08J 7/0427](#) and [C08J 2369/00](#).

When both the substrate and the coating are unspecified the classification [C08J 7/0427](#) alone is used.

Example -2: Coating a polycarbonate substrate with a polyurethane layer is classified in [C08J 7/0427](#) and [C08J 2369/00](#) and [C08J 2475/04](#).

## C08J 7/06

**with compositions not containing macromolecular substances**

### Definition statement

*This place covers:*

Coating or impregnating of a polymeric substrate with a low-molecular weight organic or inorganic compound. Adsorbing or absorbing of low-molecular weight compounds or inorganic compounds on a polymeric substrate.

### Relationships with other classification places

Coating of a polymeric substrate with a metallic material e.g. metallisation is classified in [C23C](#).

## References

### Informative references

Attention is drawn to the following places, which may be of interest for search:

Coating compositions based on inorganic substances.	<a href="#">C09D 1/00- C09D 1/12</a>
Coating with metallic material	<a href="#">C23C</a>

### Special rules of classification

Please see the Rules under [C08J 7/00](#).

## C08J 7/065

{Low-molecular-weight organic substances, e.g. absorption of additives in the surface of the article}

### Definition statement

*This place covers:*

Coating, impregnating, adsorbing or absorbing of a polymeric substrate with low-molecular weight organic substances e.g. absorption of dyes in the surface of the article;

Treatment of a polymer substrate with antimicrobial agent.

## References

### Informative references

Attention is drawn to the following places, which may be of interest for search:

Features of coating compositions; non-macromolecular additives	<a href="#">C09D 7/63</a>
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### Special rules of classification

Please see the Rules under [C08J 7/00](#).

## C08J 7/08

{Heat treatment}

### Definition statement

*This place covers:*

Thermal treatment of polymer substrates with heat, e.g. flame.

## References

### Informative references

Attention is drawn to the following places, which may be of interest for search:

Surface shaping by flame treatment e.g. hot gases	<a href="#">B29C 59/08</a> , <a href="#">B29C 59/085</a>
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### Special rules of classification

Please see the Rules under [C08J 7/00](#).

## C08J 7/12

### Chemical modification

#### Definition statement

*This place covers:*

Chemical modification of a polymeric surface.

#### References

##### Informative references

*Attention is drawn to the following places, which may be of interest for search:*

Chemical modification of membranes	<a href="#">B01D 67/0093</a>
Chemical modification by after-treatment	<a href="#">C08F 8/00</a> - <a href="#">C08F 8/50</a> , <a href="#">C08G 2/30</a> , <a href="#">C08G 59/14</a> , <a href="#">C08G 63/46</a> , <a href="#">C08G 63/91</a> , <a href="#">C08G 64/42</a> , <a href="#">C08G 65/32</a> , <a href="#">C08G 65/48</a> , <a href="#">C08G 69/48</a> , <a href="#">C08G 75/0286</a> , <a href="#">C08G 77/38</a> , <a href="#">C08G 85/004</a>

#### Special rules of classification

Please see the Rules under [C08J 7/00](#).

#### Glossary of terms

*In this place, the following terms or expressions are used with the meaning indicated:*

Chemical etching	Chemical modification of a polymeric surface
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## C08J 7/123

{Treatment by wave energy or particle radiation ([C08J 7/18](#) takes precedence)}

#### Definition statement

*This place covers:*

Treatment of polymeric substrates with electromagnetic radiation, e.g. corona, plasma, X-rays or  $\gamma$ -rays, UV, laser, etc., wherein the treated substrate may be coated during the treatment or at a later stage or not at all.

#### Relationships with other classification places

- Treatment of the bulk of a polymer with electromagnetic radiation is classified in [C08J 3/28](#). Treatment of a polymeric surface with electromagnetic radiation is classified in [C08J 7/123](#).
- A coating process comprising plasma pre-treatment of polymeric substrates is classified in [B05D 3/144](#). If the coating process is more directed to the chemistry of the coated layers, it is classified in [C08J 7/123](#).

## References

### Limiting references

*This place does not cover:*

Treatment with polymerisable compounds using wave energy or particle radiation	<a href="#">C08J 7/18</a>
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### Informative references

*Attention is drawn to the following places, which may be of interest for search:*

Treatment of a macromolecular compound by wave energy or radiation	<a href="#">C08J 3/28</a>
Pre-treatment of polymeric substrates with plasma	<a href="#">B05D 3/144</a>
Surface shaping of articles by plasma treatment	<a href="#">B29C 59/14</a>
Surface shaping of articles by wave energy or particle radiation	<a href="#">B29C 59/16</a>

## Special rules of classification

Please see the Rules under [C08J 7/00](#).

## Synonyms and Keywords

*In patent documents, the following words/expressions are often used as synonyms:*

- "Particle radiation treatment", "Plasma treatment", "Electron beam treatment", and/or "Electronic irradiation"
- "Wave energy treatment", "Corona discharge", "Glow discharge", and/or "Ultraviolet treatment"

## C08J 7/126

### {Halogenation}

#### Definition statement

*This place covers:*

Halogenation (e.g. chlorination or fluorination) of polymeric surfaces.

## References

### Informative references

*Attention is drawn to the following places, which may be of interest for search:*

Chemical modification by after-treatment halogenation	<a href="#">C08F 8/20</a>
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## Special rules of classification

See corresponding note under [C08J 7/00](#).

## Synonyms and Keywords

Chlorination	Chloration
Fluorination	Fluoration

## C08J 7/14

**with acids, their salts or anhydrides**

### Definition statement

*This place covers:*

Chemical modification of a polymeric surface with acids, their salts or anhydrides to apply functional groups onto the surface of the treated article.

### References

#### Informative references

*Attention is drawn to the following places, which may be of interest for search:*

Please see the References under [C08J 7/00](#).

### Special rules of classification

Please see the Rules under [C08J 7/00](#).

## C08J 7/16

**with polymerisable compounds**

### Definition statement

*This place covers:*

Polymerization of monomer(s) on top of a polymeric surface.

### References

#### Informative references

*Attention is drawn to the following places, which may be of interest for search:*

Coating compositions, e.g. paints, varnishes or lacquers, based on organic non-macromolecular compounds having at least one polymerisable carbon-to-carbon unsaturated bond	<a href="#">C09D 4/00</a> - <a href="#">C09D 4/06</a>
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### Special rules of classification

Please see the Rules under [C08J 7/00](#).

## C08J 7/18

**using wave energy or particle radiation**

### Definition statement

*This place covers:*

Polymerization of monomer(s) on top of a polymeric surface using wave energy or particle radiation.

### References

#### Informative references

*Attention is drawn to the following places, which may be of interest for search:*

Plasma-deposition of organic layers	<a href="#">B05D 1/62</a>
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## Special rules of classification

Please see the Rules under [C08J 7/00](#).

## Synonyms and Keywords

*In patent documents, the following words/expressions are often used as synonyms:*

- "Particle radiation treatment", "Plasma treatment", "Electron beam treatment", and/or "Electronic irradiation"
- "Wave energy treatment", "Corona discharge", "Glow discharge", and/or "Ultraviolet treatment"

## C08J 9/00

**Working-up of macromolecular substances to porous or cellular articles or materials; After-treatment thereof (mechanical aspects of shaping of plastics or substances in a plastic state for the production of porous or cellular articles [B29C](#))**

## Relationships with other classification places

### Classification guidance:

- Mechanical aspects of shaping of plastics or substances in a plastic state for the production of porous or cellular articles are classified in [B29C](#).
- Porous or cellular articles or materials for medical applications are classified in [A61L](#).

## References

### Application-oriented references

*Examples of places where the subject matter of this place is covered when specially adapted, used for a particular purpose, or incorporated in a larger system:*

Porous films	<a href="#">C08J 5/18</a>
Use of foams for bandages, dressings or absorbent pads	<a href="#">A61L 15/00</a>
Materials for prostheses	<a href="#">A61L 27/00</a>
Membranes	<a href="#">B01D 67/00</a> - <a href="#">B01D 71/00</a>

### Informative references

*Attention is drawn to the following places, which may be of interest for search:*

Sponges for cleaning purposes	<a href="#">A47L 13/16</a>
Manufacture of microcapsules or microballoons	<a href="#">B01J 13/02</a>
Mechanical aspects of foaming	<a href="#">B29C 44/00</a>
Foams containing more than 50% inorganic filler	<a href="#">C04B</a>
Synthesis and blends of organic blowing agents	<a href="#">C07C</a>
Foamed polymeric products of isocyanates or isothiocyanates characterised by the monomers or catalysts used	<a href="#">C08G 18/00</a>
Use of a filler in a non-foamed polymer composition	<a href="#">C08K</a>
Polymer blends	<a href="#">C08L</a>
Propellants for aerosols	<a href="#">C09K 3/30</a>



## Special rules of classification

Reference [B29C](#) is non-limiting in the main group [C08J 9/00](#). CPC will be updated/corrected once this inconsistency is resolved in IPC.

Classification guidance:

In the absence of an indication to the contrary, classification is made in the last appropriate place.

- Example: Halogenated phosphoric compound as additive is classified in [C08J 9/0038](#).

The blowing or foaming agents involved are classified in groups [C08J 9/02](#) - [C08J 9/149](#).

- The foaming processes are classified in groups [C08J 9/16](#) - [C08J 9/35](#).

Documents belonging to several subgroups are also classified in the "one dot less" subgroup.

- Example: The combination of brominated flame retardant and phosphoric compound is classified in groups [C08J 9/0019](#), [C08J 9/0038](#) and [C08J 9/0014](#).

The use of water as the sole blowing agent for (poly)isocyanate-containing foams is regarded as trivial. It is not classified in [C08J](#).

Mixtures of organic and inorganic blowing agents are classified in [C08J 9/127](#) and each blowing agent of the mixture is also classified according to its nature.

Foams are subdivided according to the involved polymer(s) using the [C08L](#) scheme:

- When a foam is characterised by the involved polymer(s), then Indexing symbols of groups [C08J 2300/00-C08J 2399/00](#) are given, in order to specify said polymer(s).
- The structure of the [C08J 2300/00](#) classification is mainly based on the classification of [C08L](#).
- Example: [C08J 2325/06](#) corresponds to [C08L 25/06](#) (polystyrene). Additionally, groups [C08J 2300/00](#) - [C08J 2300/30](#) specify polymers that are broadly defined.

When a document deals with one single polymer or several alternative polymers, but no polymer blend, then an Indexing symbol of the [C08J 2300/00](#) range is used.

Examples:

- The use of an alkane blowing agent for expanding polystyrene is classified in [C08J 9/141](#) and [C08J 2325/06](#).
- The use of an alkane blowing agent for expanding polystyrene or polyethylene is classified in [C08J 9/141](#), and [C08J 2325/06](#) and [C08J 2323/06](#).

Further subdivisions:

This subgroup is only allocated when, in addition to a "main" polymer, a second or third polymer is present in the foamable blend. This second or third polymer is always in minority, compared to the main polymer.

- Please see the rules above.

As above, the "main" polymer is indexed using groups [C08J 2300/00-C08J 2399/00](#).

- The polymeric component in minority is indexed using groups [C08J 2400/00-C08J 2499/00](#).

Example:

- A foam from a blend of 80% polystyrene and 20% PMMA is classified in [C08J 9/0061](#), [C08J 2325/06](#) and [C08J 2433/12](#).

When overlapping ranges of two polymers are claimed or exclusively exemplified, then a combination of both classification symbols must be given.

See example below.

Example:

## Special rules of classification

- A foamable blend of 80-20% polystyrene and 20-80% polyethylene is classified in [C08J 9/0061](#) and [C08J 2425/06](#) and [C08J 2323/06](#), and [C08J 2423/06](#) and [C08J 2325/06](#).

General practice specifies that any of groups [C08J 2300/00-C08J 2399/00](#) can be used in combination with any of groups [C08J 2400/00-C08J 2499/00](#) to define the invention.

- Second and/or third polymers, only present in very low proportions may be ignored, provided their presence is not the key of the invention.
- Foam compositions wherein only the polymer in minority is defined are classified in [C08J 9/0061](#) and [C08J 2400/00-C08J 2499/00](#).

Example:

- Foam comprising 10% polystyrene in 90% of another polymer is classified in [C08J 9/0061](#) and [C08J 2425/06](#).

[C08J 9/224](#)

In these subgroups, Indexing symbols of [C08J 2400/00-C08J 2499/00](#) are used to designate the polymer used for coating, binding or impregnating the foam (particle). The foam itself receives a [C08J 2300/00-C08J 2399/00](#) symbol.

[C08J 9/33](#)

In these subgroups, Indexing symbols of [C08J 2400/00-C08J 2499/00](#) are used to designate the foam fragments. The foamable ([C08J 9/35](#)) or unfoamable matrix ([C08J 9/33](#)) is specified using [C08J 2300/00-C08J 2399/00](#).

[C08J 9/26](#)

Indexing symbols [C08J 2201/04](#) - [C08J 2201/0484](#) are used in [C08J 9/26](#), for specifying the solid to be extracted.

[C08J 9/28](#)

Indexing symbols [C08J 2201/05](#) - [C08J 2201/0545](#) are used in [C08J 9/28](#), for specifying the first step of the separation process (cooling, evaporation, precipitation).

Expandable compositions and expanded products are often regarded as similar and thus classified in the same subgroup. A foam composition is expandable or foamable. A foam (p)article can be porous cellular, expanded, foamed, pre- or post-foamed, pre- or post-expanded.

A foam contains pores, cavities or cells, which can be closed, open or interconnected.

A foam is porous, macroporous, microporous (1-100 microns diameter) or nanoporous (1-100 nanometers).

The pores distribution can be for unimodal, bimodal or trimodal.

Porous polymeric aerogels, organogels or xerogels can be regarded as foams.

## Glossary of terms

*In this place, the following terms or expressions are used with the meaning indicated:*

Blowing agent	Substance which is either gaseous at ambient temperature or capable of reversibly becoming gaseous upon heating ( <a href="#">C08J 9/12</a> or subgroups). This strict distinction is however not always respected in patents.
Expandable	Expandable includes expanding, pre-expanded or expanded.

Foaming agent	Material that will decompose to release a gas under certain conditions ( <a href="#">C08J 9/06</a> or subgroups).
Integral foams	Foams characterized by a dense or slightly expanded skin on a foamed core.
Open cells foam or foam with open pores	Foam where more than 50% of the pores are open.
Porogen	Compound which is removed after solidification of the polymer composition ( <a href="#">C08J 9/26</a> , <a href="#">C08J 9/28</a> ).
Syntactic foams	Foams containing expandable and/or non expandable hollow particles ( <a href="#">C08J 9/32</a> ).

## C08J 9/127

### {Mixtures of organic and inorganic blowing agents}

#### Special rules of classification

Mixtures of organic and inorganic blowing agents are classified in [C08J 9/127](#) and each blowing agent of the mixture is also classified according to its nature

## C08J 9/16

### Making expandable particles

#### Glossary of terms

*In this place, the following terms or expressions are used with the meaning indicated:*

The term "Expandable particles" covers also expanding, pre-expanded or expanded particles

## C08J 9/22

### After-treatment of expandable particles; Forming foamed products

#### Glossary of terms

*In this place, the following terms or expressions are used with the meaning indicated:*

The term "Expandable particles" concerns also expanding, pre-expanded or expanded particles

## C08J 9/236

### using binding agents

#### Definition statement

*This place covers:*

Expandable or expanded particles coated by a thin binding agent.

**C08J 9/26**

by elimination of a solid phase from a macromolecular composition or article, e.g. leaching out

**References****Informative references**

Attention is drawn to the following places, which may be of interest for search:

Lithographic processes	<a href="#">G03F 7/00</a>
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**C08J 9/32**

from compositions containing microballoons, e.g. syntactic foams

**Definition statement**

*This place covers:*

Foams containing expandable microspheres, as well as inorganic microspheres, microballoons or cenospheres.

**References****Informative references**

Attention is drawn to the following places, which may be of interest for search:

Foams dealing with expandable particles like expandable polystyrene	<a href="#">C08J 9/16 - C08J 9/24</a>
Making microballoons	<a href="#">B01J 13/02</a>

**C08J 9/33**

Agglomerating foam fragments, e.g. waste foam

**Definition statement**

*This place covers:*

Foam fragments in an unfoamed matrix.

**C08J 9/35**

Composite foams, i.e. continuous macromolecular foams containing discontinuous cellular particles or fragments

**Definition statement**

*This place covers:*

Foam fragments in a foamed matrix.

## C08J 11/00

**Recovery or working-up of waste materials (recovery of plastics [B29B 17/00](#); polymerisation processes involving purification or recycling of waste polymers or their depolymerisation products [C08B](#), [C08C](#), [C08F](#), [C08G](#), [C08H](#))**

### Definition statement

*This place covers:*

Physical and chemical recycling of waste polymers with the purpose of recovering monomer(s), oligomer(s) and/or polymers with the purpose of making new polymers (same or different).

### References

#### Informative references

*Attention is drawn to the following places, which may be of interest for search:*

Agglomerating foam fragments, e.g. waste foam	<a href="#">C08J 9/33</a>
Collecting, recovering, recycling or eliminating the paint sludge from the washing liquid; Recovering or eliminating the paint sludge from washing liquid	<a href="#">B05B 16/00</a>
Mechanical treatments	<a href="#">B29</a>
Recovery of plastics or other constituents of waste material containing plastics, e.g. mechanical aspects of recycling	<a href="#">B29B 17/00</a>
Layered products made from or containing mainly scrap material	<a href="#">B32B 2272/00</a>
Polymerisation processes involving purification or recycling of waste polymers or their depolymerisation products	<a href="#">C08B</a> , <a href="#">C08C</a> , <a href="#">C08F</a> , <a href="#">C08G</a> , <a href="#">C08H</a>
Use of waste materials, e.g. treated or untreated sewage sludge	<a href="#">C08K 11/005</a>
Compositions of (unvulcanised) reclaimed rubber	<a href="#">C08L 17/00</a>
Compositions of precrosslinked rubber or scrap rubber or used vulcanised rubber	<a href="#">C08L 19/003</a>
Paint detackifiers or coagulants, e.g. for the treatment of oversprays in paint spraying installations	<a href="#">C09D 7/71</a>
Chemical paint or ink removers	<a href="#">C09D 9/00</a> - <a href="#">C09D 9/04</a>

### Special rules of classification

References [B29B 17/00](#), [C08B](#), [C08C](#), [C08F](#), [C08G](#) and [C08H](#) are non-limiting in the main group [C08J 11/00](#). CPC will be updated/corrected once this inconsistency is resolved in IPC.

Looping references between [C08J 11/00](#) and [B29B 17/00](#) have been identified. Until this inconsistency is resolved in IPC, the current classification practice in CPC is as follows: [B29B 17/00](#) is considered as non-limiting in the main group [C08J 11/00](#).

#### Classification Guidance:

The treatment of specific polymers is indicated using Indexing symbols of the group [C08J 2300/00](#)-[C08J 2399/00](#).

When the presence of one or several additional polymers, present in minority, is of relevance, this additional polymer is specified using Indexing symbols of the group [C08J 2400/00](#)-[C08J 2499/00](#).

Example:

- Recycling of saturated polyesters is classified in [C08J 11/00](#) and [C08J 2367/02](#).

## Synonyms and Keywords

*In patent documents, the following words/expressions are often used as synonyms:*

- "recycle(-ing)", "reclaim(-ing)", "discard(-ing)", "recuperate(-ing)", "rejuvenate(-ing)", "reutilize(-ing)", "regenerate(-ing)", "salvage(-ing)", "waste", "scrap", "recover(-ing)", "reject(ed)", and "post-consumed" in combination with the corresponding polymer.

## C08J 11/02

### of solvents, plasticisers or unreacted monomers

#### Definition statement

*This place covers:*

Cleaning or purifying waste polymers by removing residual monomers, solvents, plasticizers, and the like.

#### References

##### Informative references

*Attention is drawn to the following places, which may be of interest for search:*

Treatment of polymeric surfaces with solvents or swelling agents	<a href="#">C08J 7/02</a>
Post polymerisation treatment of polymer obtained by reactions involving carbon to carbon unsaturated bonds; Purification	<a href="#">C08F 6/00</a> - <a href="#">C08F 6/28</a>

#### Special rules of classification

Please see the Rules under [C08J 11/00](#).

## C08J 11/04

### of polymers

#### Definition statement

*This place covers:*

After-treatment of waste polymers involving mainly chemical modification of polymers, use of functional compatibilizers, and the like.

#### References

##### Informative references

*Attention is drawn to the following places, which may be of interest for search:*

Chemical modification of membranes	<a href="#">B01D 67/0093</a>
After treatment of addition polymers (obtained by reactions involving polymers obtained by reactions involving carbon to carbon unsaturated bonds; purification)	<a href="#">C08F 8/00</a> - <a href="#">C08F 8/50</a>

After treatment of condensation/ polyaddition polymers	<a href="#">C08G 2/30</a> , <a href="#">C08G 59/14</a> , <a href="#">C08G 63/46</a> , <a href="#">C08G 63/91</a> , <a href="#">C08G 64/42</a> , <a href="#">C08G 65/32</a> , <a href="#">C08G 65/48</a> , <a href="#">C08G 69/48</a> , <a href="#">C08G 75/0286</a> , <a href="#">C08G 77/38</a> , <a href="#">C08G 85/004</a>
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### Special rules of classification

Please see the Rules under [C08J 11/00](#).

## C08J 11/06

without chemical reactions

### Definition statement

*This place covers:*

Physical recovery or recycling of polymers.

### References

#### Informative references

Attention is drawn to the following places, which may be of interest for search:

Agglomerating foam fragments, e.g. waste foam	<a href="#">C08J 9/33</a>
Recovery or recycling of polymers by mechanical means	<a href="#">B29B 17/00</a> - <a href="#">B29B 17/0412</a>
Post polymerization treatment of polymers obtained by reactions involving carbon to carbon unsaturated bonds; Purification	<a href="#">C08F 8/06</a> - <a href="#">C08F 6/28</a>
Compositions of (unvulcanized) reclaimed rubber	<a href="#">C08L 17/00</a>
Compositions of scrap (vulcanized) rubber	<a href="#">C08L 19/003</a>

### Special rules of classification

Please see the Rules under [C08J 11/00](#).

## C08J 11/08

using selective solvents for polymer components

### Definition statement

*This place covers:*

Recovery, extracting or recycling of polymer components from a waste mixture using selective solvents.

### References

#### Informative references

Attention is drawn to the following places, which may be of interest for search:

Working-up tar by extraction with selective solvents	<a href="#">C10C 1/18</a>
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Working-up pitch, asphalt, bitumen by selective extraction	<a href="#">C10C 3/08</a>
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### Special rules of classification

Please see the Rules under [C08J 11/00](#).

## C08J 11/10

by chemically breaking down the molecular chains of polymers or breaking of crosslinks, e.g. devulcanisation (depolymerisation to the original monomer [C07](#))

### Definition statement

*This place covers:*

Depolymerization of waste polymers.

### References

#### Informative references

Attention is drawn to the following places, which may be of interest for search:

Organic chemistry	<a href="#">C07</a>
Depolymerisation of halogenated hydrocarbon polymers	<a href="#">C07C 17/367</a>
Depolymerisation of polyesters	<a href="#">C07C 51/09</a> , <a href="#">C07C 63/26</a>
Depolymerisation of polyamides	<a href="#">C07D 201/12</a>
Depolymerisation of rubber	<a href="#">C08C 19/08</a>
Production of liquid hydrocarbon mixtures from rubber or rubber waste	<a href="#">C10G 1/10</a>

### Special rules of classification

Reference [C07](#) is non-limiting in the subgroup [C08J 11/10](#). CPC will be updated/corrected once this inconsistency is resolved in IPC.

Please see the Rules under [C08J 11/00](#).

## C08J 11/105

{by treatment with enzymes}

### Definition statement

*This place covers:*

Decomposing or depolymerizing of waste polymers with enzymes or microorganisms.

### References

#### Informative references

Attention is drawn to the following places, which may be of interest for search:

Processes for making harmful chemical substances harmless by biological methods, i.e. processes using enzymes or microorganisms	<a href="#">A62D 3/02</a>
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Preparation of polyesters of hydroxy-carboxylic acids by using microorganisms	<a href="#">C12P 7/625</a>
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### Special rules of classification

Please see the Rules under [C08J 11/00](#).

## C08J 11/12

### by dry-heat treatment only

#### Definition statement

*This place covers:*

Recovery or recycling of chemical compounds by thermal decomposition of waste polymers, e.g. by pyrolysis or incineration.

#### References

##### Informative references

Attention is drawn to the following places, which may be of interest for search:

Destructive distillation of carbonaceous materials for production of gas, coke, tar or similar matters	<a href="#">C10B</a>
Destructive distillation of synthetic polymeric materials. e.g. tyres	<a href="#">C10B 53/07</a>
Production of liquid hydrocarbon mixtures from rubber or rubber waste	<a href="#">C10G 1/10</a>

### Special rules of classification

Please see the Rules under [C08J 11/00](#).

#### Synonyms and Keywords

*In patent documents, the following words/expressions are often used as synonyms:*

- "pyrolysis", "incineration", "thermal decomposition" and "cracking" in combination with the corresponding polymer

## C08J 11/14

### by treatment with steam or water

#### Definition statement

*This place covers:*

Hydrolysis of waste polymers with water or steam or water in supercritical state.

### Special rules of classification

Please see the Rules under [C08J 11/00](#).

#### Synonyms and Keywords

*In patent documents, the following words/expressions are often used as synonyms:*

- "hydrolysis" and "decomposition or depolymerization in water" in combination with the corresponding polymer

## C08J 11/16

by treatment with inorganic material ([C08J 11/14](#) takes precedence)

### Definition statement

*This place covers:*

Depolymerization of waste polymers using inorganic materials such as catalysts.

### Special rules of classification

Please see the Rules under [C08J 11/00](#).

Group [C08J 11/14](#) takes precedence over group [C08J 11/16](#).

## C08J 11/18

by treatment with organic material

### Definition statement

*This place covers:*

Depolymerization of waste polymers with organic materials.

### Special rules of classification

Please see the Rules under [C08J 11/00](#).

### Synonyms and Keywords

*In patent documents the following expression/word "solvolysis" is often used as a synonym in combination with the corresponding polymer.*

## C08J 11/20

by treatment with hydrocarbons or halogenated hydrocarbons

### Definition statement

*This place covers:*

Depolymerisation of waste polymers with halogenated hydrocarbons.

## C08J 11/22

by treatment with organic oxygen-containing compounds

### Definition statement

*This place covers:*

Depolymerisation of waste polymers with oxygen containing compounds, e.g. peroxides.

### Special rules of classification

Please see the Rules under [C08J 11/00](#).

## **C08J 11/24**

**containing hydroxyl groups**

### **Definition statement**

*This place covers:*

Depolymerisation of waste polymers by alcoholysis or glycolysis.

### **Special rules of classification**

Please see the Rules under [C08J 11/00](#).

### **Synonyms and Keywords**

*In patent documents the following expressions/words are often used as synonyms in combination with the corresponding polymer:*

"alcoholysis", "glycolysis."

## **C08J 11/26**

**containing carboxylic acid groups, their anhydrides or esters**

### **Definition statement**

*This place covers:*

Depolymerisation of waste polymers with organic compounds containing carboxylic acid groups, their anhydrides or esters.

### **Special rules of classification**

Please see the Rules under [C08J 11/00](#).

## **C08J 11/28**

**by treatment with organic compounds containing nitrogen, sulfur or phosphorus**

### **Definition statement**

*This place covers:*

Depolymerisation of waste polymers with organic compounds containing nitrogen, sulphur or phosphorous; e.g. (cyclo)aliphatic amines, thiocarbamates, and the like.

### **Special rules of classification**

Please see the Rules under [C08J 11/00](#).