

## C08K

**USE OF INORGANIC OR NON-MACROMOLECULAR ORGANIC SUBSTANCES AS COMPOUNDING INGREDIENTS (pesticides, herbicides [A01N](#); pharmaceuticals, cosmetics [A61K](#); explosives [C06B](#); paints, inks, varnishes, dyes, polishes, adhesives [C09](#); lubricants [C10M](#); detergents [C11D](#); artificial filaments or fibres [D01F](#); textile treating compositions [D06](#))**

### Definition statement

*This place covers:*

- Polymeric compositions comprising inorganic or non-macromolecular organic substances as compounding ingredients, which are not used to chemically modify the polymer, i.e. inert additives;
- Inorganic or non-macromolecular organic substances which should start or accelerate a crosslinking but which are not chemically embedded in the polymer structure;
- Radical crosslinking agents, e.g. peroxides or S-containing vulcanisation agents;
- Coupling agents, i.e. compounds able to improve the adhesion between filler and macromolecule
- Carbodiimide and derivatives (compounds which have the same chemical role as carbodiimides).
- Vulcanizing agents for diene resins

### Relationships with other classification places

This subclass does not cover chemical elements or compounds or their preparation as such, which subject matter is covered by classes [C01](#) (inorganic chemistry) or [C07](#) (organic chemistry).

Blowing agents are classified in [C08J](#).

Glass which is defined by the chemical nature of its ingredients is classified in [C03C](#).

Polymeric compositions comprising inorganic substances and being suitable for ceramic, cement or stone like applications (but not claimed) is classified in [C04B](#).

Polymeric compositions comprising inorganic substances and being suitable for thermoconducting, electroconducting, insulating, magnetic or resistor applications (but not claimed) are classified in [H01B](#), [H01C](#) or [H01F](#).

Polymeric compositions comprising inorganic substances and being suitable for medical or dental applications (but not claimed) are classified in [A61K](#).

### 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:*

Disinfectants, pesticides or herbicides	<a href="#">A01N</a>
Pharmaceutical, medical, medicinal, dental, therapeutical or cosmetic compositions	<a href="#">A61K</a> , <a href="#">A61L</a>
Layered products	<a href="#">B32B</a>
Compositions of cements, mortars, concrete or ceramics	<a href="#">C04B</a>
Explosive or thermic compositions	<a href="#">C06B</a>
Use of reinforcing fibrous material in the manufacture of articles or shaped materials containing macromolecular substances	<a href="#">C08J 5/04</a> - <a href="#">C08J 5/10</a>
Organic dyes and pigments; Mordants; Lakes	<a href="#">C09B</a>

Treatment of inorganic materials to enhance their pigmenting or filling properties	<a href="#">C09C</a>
Paints based on inorganic substances, with or without organic additives	<a href="#">C09D 1/00</a> - <a href="#">C09D 1/12</a>
Anti-corrosive paints containing metal dust	<a href="#">C09D 5/10</a>
Paints containing biocides, e.g. fungicides, insecticides, pesticides	<a href="#">C09D 5/14</a>
Magnetisable or magnetic paints or lacquers	<a href="#">C09D 5/23</a>
Electrically-conductive paints	<a href="#">C09D 5/24</a>
Paints containing free metal	<a href="#">C09D 5/38</a>
Use of compounds as anti-settling agents in coating compositions	<a href="#">C09D 7/02</a>
Use of compounds as anti-skinning agents in coating	<a href="#">C09D 7/04</a>
Use of compounds as levelling agents in coating compositions	<a href="#">C09D 7/06</a>
Other additives in coating compositions	<a href="#">C09D 7/12</a>
Chemical paint or ink removers with abrasives	<a href="#">C09D 9/02</a>
Chemical paint or ink removers with surface-active agents	<a href="#">C09D 9/04</a>
Pigment pastes, e.g. for mixing in paints	<a href="#">C09D 17/00</a>
Polishing compositions	<a href="#">C09F</a> , <a href="#">C09G</a>
Electrically-conductive adhesives	<a href="#">C09J 9/02</a>
Non-macromolecular additives in adhesives	<a href="#">C09J 11/02</a>
Inorganic additives in adhesives	<a href="#">C09J 11/04</a>
Organic additives in adhesives	<a href="#">C09J 11/06</a>
Macromolecular additives in adhesives	<a href="#">C09J 11/08</a>
Compositions for sealing or packing joints or covers	<a href="#">C09K 3/10</a>
Compositions for stopping leaks	<a href="#">C09K 3/12</a>
Compositions for drilling of boreholes or wells	<a href="#">C09K 8/00</a>
Soil-conditioning or soil-stabilising materials	<a href="#">C09K 17/00</a>
Lubricating compositions	<a href="#">C10M</a>
Detergent compositions	<a href="#">C11D</a>
Artificial filaments or fibres	<a href="#">D01F</a>
Textile treating compositions	<a href="#">D06M</a> , <a href="#">D06N</a>
Conductors or insulators	<a href="#">H01B</a>

### **Informative references**

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

Making microcapsules or microballoons	<a href="#">B01J 13/02</a>
Making fibre-reinforced granules	<a href="#">B29B 9/14</a>
Pretreatment of reinforcements or fillers	<a href="#">B29B 15/08</a>
Releasing, lubricating or separating agents	<a href="#">B29C 33/56</a>
Shaping composites, i.e. plastics material comprising reinforcements or fillers	<a href="#">B29C 70/00</a>
Tyres characterised by the chemical composition	<a href="#">B60C 1/00</a>

Stabilisation of cellulose esters of organic acids	<a href="#">C08B 3/30</a>
Stabilisation of cellulose esters of inorganic acids	<a href="#">C08B 5/08</a>
Preservation of rubber latex	<a href="#">C08C 1/06</a>
Chemical modification of rubber	<a href="#">C08C 19/00</a>
Polymerisation in the presence of compounding ingredients, e.g. plasticisers, dyestuffs, fillers	<a href="#">C08F 2/44</a>
Processes of plasticising macromolecular compounds	<a href="#">C08J 3/18</a>
Processes of compounding polymers with additives, in general	<a href="#">C08J 3/20</a>
Processes of crosslinking, e.g. vulcanising, of macromolecules	<a href="#">C08J 3/24</a>
Anti-oxidant compositions; Compositions inhibiting chemical change	<a href="#">C09K 15/00</a>
Fireproofing of macromolecular materials	<a href="#">C09K 21/14</a>

### Special rules of classification

Subgroups of [C08K](#) are used for an additive in admixture with a single polymer only.

If an additive is used in admixture with a mixture of polymers, the symbols of the subgroups of [C08K](#) are replaced by the symbols of the corresponding Indexing Code [C08K](#), the subgroups in [C08K](#) are identical to those in [C08K](#), any further details on the kind of polymer mixture are to be found in the subgroups of the [C08L](#) classification.

An ingredient is classified in the last appropriate place.

Mixtures with two or three ingredients are classified in the appropriate groups of [C08K](#), e.g. a mixture of  $\text{Al}_2\text{O}_3$ , an ether and an amine is classified in [C08K 3/22](#), [C08K 5/06](#) and [C08K 5/17](#).

For mixtures with more than three essential ingredients, the following applies:

- a mixture of ingredients is classified in the most indented group covering all the essential ingredients of the mixture, e.g.:
- a mixture of a monohydric and a polyhydric alcohol [C08K 5/05](#);
- a mixture of two polyhydric alcohols [C08K 5/053](#);
- a mixture of an alcohol and an ether [C08K 5/04](#);
- a mixture of an ether and an amine [C08K 5/00](#);
- a mixture of an amine and a metal [C08K 13/02](#).

Ammonium salts are classified in the same way as metal salts.

The use of an ingredient for a specific polymer is classified by adding, in a C-Set, to the group symbol of [C08K](#), the subdivision of [C08L 1/00](#) - [C08L 99/00](#).

Example: Polystyrene containing a carboxylic amide is classified in ([C08K 5/20](#), [C08L 25/06](#)).

If an additive within the meaning of [C08K](#) can alternatively be used in admixture with a polymer which is selected from a list of several polymers (each of those polymers does however not form a blend of polymers) then all possible combinations can be classified separately up to a number of three different polymers, e.g. polystyrene or PVC containing a carboxylic amide is classified in ([C08K 5/20](#), [C08L 25/06](#)) and in ([C08K 5/20](#), [C08L 27/06](#)).

See also general Indexing Codes as listed in [C08K 2201/00-C08K 2201/019](#).

#### **Places to classify non-radical crosslinking and chain-extending agents:**

In [C08K](#) are classified radical cross-linking agents. When the added compound reacts as cross linking agent or chain extension agent via a non radical mechanism (condensation or addition mechanism),

it should not be classified in [C08K](#). These are the places where such compounds in combination with polymers can be classified. They are principally classified by the type of cross-linking agent or by the type of the chemical modification of the polymer to be cross-linked.

**a) For [C08B](#) polymers (polysaccharides):**

It should be referred to [C08B](#) for each specific polymer

**b) For Diene rubbers ([C08C](#)):**

see [C08C 19/30](#):

**c) For Vinyl polymers ([C08F](#)):**

In [C08F 8/00](#), it should be referred to the chemistry of the modified polymer which is cross-linked.

**d) For Polyurethanes ([C08G 18/00](#)):**

In [C08G 18/00](#), the use of cross linking agents is classified according to the corresponding chemistry (e.g. polyisocyanates)

Carbodiimides as cross linker can also be found in [C08G 18/797](#)

**e) For Epoxy resins ([C08G 59/00](#)) :**

Cross linking agents are classified in [C08G 59/40](#)

**f) For Polyesters and polycarbonates([C08G 63/00-C08G 63/64](#)):**

Symbols in [C08G 63/91](#) and [C08G 64/42](#) can be given.

**g) For Polyethers ([C08G 65/00](#)) :**

Symbols in [C08G 65/32](#) –[C08G 65/338](#) can be given.

**h) For Other polymers in [C08G](#):**

Symbols can be given according to the modification of the polymer induced by the cross-linking reaction or the modification of the polymer which allows the cross-linking reaction.

## Glossary of terms

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

Acyclic	The absence of a ring structure.
Carbocyclic	The presence of a ring or ring system where all ring members are carbons.
Condensed	The presence of two rings that share at least one ring member.
Heterocyclic	The presence of a ring or ring system wherein at least one ring member is not a carbon atom.

Inorganic compound	Compound devoid of a carbon atom and containing a non-metallic element, or a compound containing a carbon atom, and satisfying one of the following criteria: the compound cannot have a carbon atom having direct bonding to another carbon atom, or the compound cannot have direct bonding between a carbon atom and a halogen or hydrogen atom, or the compound cannot have direct bonding between a carbon and a nitrogen atom by a single or double bond. The following are exceptions to the above and are to be considered as inorganic compounds: compounds consisting of only carbon atoms (e.g. fullerenes), cyanogen, cyanogen halides, cyanamide, metal carbides, phosgene, thiophosgene, hydrocyanic acid, isocyanic acid, isothiocyanic acid, fulminic acid, unsubstituted carbamic acid, and salts of the previously mentioned acids and which contain the same limitations as to a carbon atom.
Macromolecular compound	Natural or synthetic (co)polymer or resin or rubber
Metal	Any element other than hydrogen, carbon, halogen (fluorine, chlorine, bromine, iodine and astatine), oxygen, nitrogen, sulfur, selenium, tellurium, phosphorus, silicon, boron, noble gases (helium, neon, argon, krypton, xenon and radon).
Organic compound	Compound satisfying one of the following criteria: at least two carbon atoms bonded to each other, or one carbon atom bonded to at least one hydrogen atom or halogen atom, or one carbon atom bonded to at least one nitrogen atom by a single or double bond. Exceptions to the above criteria are: compounds consisting of only carbon atoms (e.g. fullerenes), cyanogen, cyanogen halides, cyanamide, metal carbides, phosgene, thiophosgene, hydrocyanic acid, isocyanic acid, isothiocyanic acid, fulminic acid, unsubstituted carbamic acid, and salts of the previously mentioned acids; these exceptions are considered to be inorganic compounds for classification purposes.
Quinone	Compound derived from compounds containing a six-membered aromatic ring or a system comprising six-membered aromatic rings (which system may be condensed or not condensed) by replacing two or four >CH groups of the six-membered aromatic rings by >C=O groups, and by removing one or two carbon-to-carbon double bonds, respectively, and rearranging the remaining carbon-to-carbon double bonds to give a ring or ring system with alternating double bonds, including the carbon-to-oxygen bonds; this means that acenaphthenequinone or camphorquinone are not considered as quinones.

### Synonyms and Keywords

*In patent documents, the following abbreviations are often used:*

Phr	Parts per hundred parts of rubber
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## C08K 3/00

### Use of inorganic ingredients

#### Definition statement

*This place covers:*

Polymeric compositions comprising inert inorganic substances as compounding ingredients.

#### Relationships with other classification places

This group does not cover the preparation of the inorganic ingredients only, without their use as additive in the sense of [C08K](#).

#### References

##### Informative references

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

Polymeric compositions comprising inorganic substances and being suitable for laser marking applications (but not claimed)	<a href="#">B41M 5/00</a>
Polymeric compositions comprising inorganic substances and being suitable for film applications (but not claimed)	<a href="#">C08J 5/18</a>
Polymeric compositions comprising inorganic substances and being suitable for miscellaneous applications like liquid crystals, fire proofing materials or luminescent materials (but not claimed)	<a href="#">C09K</a>
Polymeric compositions comprising inorganic substances and being suitable for fire resistant wire or cable applications (but not claimed)	<a href="#">H01B 7/00</a>
Polymeric compositions comprising inorganic substances and being suitable for electromagnetic shielding (EMI) applications (but not claimed)	<a href="#">H05K 9/00</a>

#### Special rules of classification

(1) The special rules of classification as outlined for [C08K](#) apply

(2) The inorganic substances are classified into the appropriate groups according to their chemical nature, e.g. diamonds which consist of the chemical element carbon are to be classified in [C08K 3/04](#) (carbon).

Further subdivisions:

##### [C08K 3/0016](#)

For an inorganic substance which is to be classified but is not specifically chemically defined and only described as 'Crosslinking or vulcanising agent, including accelerators'.

##### [C08K 3/0025](#)

For an inorganic substance which is to be classified but not specifically chemically defined and only described as 'Additives activating the degradation of the macromolecular compound'.

##### [C08K 3/0033](#)

For an inorganic substance which is to be classified but not specifically chemically defined and only described as 'Filler, pigment or reinforcing additive'.

##### [C08K 3/0041](#)

For an inorganic substance which is to be classified but not specifically chemically defined and only described as 'Stabiliser against oxidation, heat, light or ozone'.

[C08K 3/005](#)

For an inorganic substance which is to be classified but not specifically chemically defined and only described as 'Biocide'.

[C08K 3/0058](#)

For an inorganic substance which is to be classified but not specifically chemically defined and only described as 'Flame-proofing or flame-retarding additive'.

[C08K 3/0066](#)

For an inorganic substance which is to be classified but is not specifically chemically defined and only described as 'Antistatic'.

[C08K 3/40](#)

For glass used as inorganic substance.

If glass is used as inorganic substance and its ingredients are specifically mentioned according to their chemical nature, then rule (1) above applies.

## C08K 5/00

### Use of organic ingredients

#### Definition statement

*This place covers:*

Use of organic ingredients: polymeric compositions comprising organic substances as compounding ingredients.

#### References

##### Limiting references

*This place does not cover:*

the preparation of the organic ingredients alone, without their use as additives in the sense	<a href="#">C08K</a>
the general processes of compounding and after-treatment	<a href="#">C08J</a>

##### Informative references

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

Polymeric compositions comprising organic substances and being suitable for laser marking applications (but not claimed)	<a href="#">B41M 5/00</a>
Polymeric compositions comprising organic substances and being suitable for film applications (but not claimed)	<a href="#">C08J 5/18</a>
Polymeric compositions comprising organic substances and being suitable for miscellaneous applications like liquid crystals, fire proofing materials, luminescent or tenebrescent materials (but not claimed)	<a href="#">C09K</a>
Polymeric compositions comprising organic substances and being suitable for conductors or conductive bodies (but not claimed)	<a href="#">H01B 1/12</a>

Polymeric compositions comprising organic substances and being suitable for fire resistant cable or wire applications (but not claimed)	<a href="#">H01B 7/00</a>
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### Special rules of classification

(1) The special rules of classification as outlined for [C08K](#) apply.

(2) The organic substances are classified into the appropriate groups according to their chemical nature, e.g. compounds containing ester and phenol groups are classified in [C08K 5/134](#).

The following Indexing Codes are to be used in this group:

- see general Indexing Codes as listed in [C08K 2201/00-C08K 2201/019](#)

Further subdivisions:

#### [C08K 5/0016](#)

For an organic substance which is to be classified but not specifically chemically defined and only described as 'plasticiser'.

#### [C08K 5/0025](#)

For an organic substance which is to be classified but not specifically chemically defined and only described as 'crosslinking or vulcanising agent' or 'accelerator'.

#### [C08K 5/005](#)

For an organic substance which is to be classified but not specifically chemically defined and only described as 'stabiliser against oxidation, heat, light, ozone'.

#### [C08K 5/0083](#)

For an organic substance which is to be classified but not specifically chemically defined and only described as 'nucleating', 'clarifying', or 'crystallisation improving' agent.

#### [C08K 5/37](#)

In this group, 'Thiols' is meant to also comprise derivatives obtained from substitution of the thiolic H atom.

## C08K 7/00

### Use of ingredients characterised by shape

#### Definition statement

*This place covers:*

All additives of [C08K](#) which are characterized by their shape, e.g. fibres, spherical particles, expanded particles, porous particles and hollow particles

Polymer fibres like aramide fibres are to be classified in [C08K 7/02](#) and in their corresponding place in [C08L](#).

Reinforced polymer or resin compositions and composites are classified in [C08K 7/00](#) when the amount of the fibres is generally lower than 50 % (volume or weight). Composites based on an higher content of fibres or based on fabric (woven or non-woven) are classified in [C08J 5/04](#) or in [C08J 5/24](#)

[C08J 5/04](#) and [C08J 5/24](#) refer to the reinforcement of polymer matrix (making composites) by using high amounts of fibres (generally more than 50 % (volume or weight)) in the sense that the fibres constitute the structure of the final product.

### Relationships with other classification places

This group does not cover the preparation of the ingredients characterised by shape only, without their use as additive in the sense of [C08K](#).

### References

#### Informative references

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

Polymeric compositions comprising carbon nanotubes or preparation of such carbon nanotubes	<a href="#">C01B 31/0206</a>
Polymeric compositions comprising carbon filaments or preparation of such filament	<a href="#">D01F 9/12</a>

### Special rules of classification

Further subdivisions:

[C08K 7/24](#)

For example, carbon nanotubes as additive material.

## C08K 9/00

### Use of pretreated ingredients

#### Definition statement

*This place covers:*

All additives of [C08K](#) which are characterized by being pretreated before their use as additive, the pretreatment encompassing physical as well as chemical pretreatment (resulting in physical but also in chemical attachment of the pretreating agent to the surface of the additive).

The chemical nature of pretreating agent is according to the classification scheme and as explained below.

### Relationships with other classification places

This group does not cover the preparation of the pretreated ingredients only, without their use as additive in the sense of [C08K](#).

### References

#### Informative references

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

Preparation of those additives is classified in <a href="#">C09C 3/06</a>	<a href="#">C08K 9/02</a>
Preparation of those additives is classified in <a href="#">C09C 3/08</a>	<a href="#">C08K 9/04</a>
Preparation of those additives is classified in <a href="#">C09C 3/12</a>	<a href="#">C08K 9/06</a>
Preparation of those additives is classified in <a href="#">C09C 3/10</a>	<a href="#">C08K 9/08</a>

## Special rules of classification

Further subdivisions:

### [C08K 9/04](#)

This subgroup defines physical/chemical pretreatment by non-macromolecular organic substances only

### [C08K 9/06](#)

This subgroup defines physical/chemical pretreatment by non-macromolecular organic silicon containing substances only

### [C08K 9/08](#)

This subgroup defines physical/chemical pretreatment by macromolecular organic substances only

### [C08K 9/10](#)

This subgroup is used only, if the claims and/or examples of the respective document explicitly show/define/claim a literally 'encapsulation' of the respective pretreating agent on the additive

### [C08K 9/12](#)

This subgroup is used only, if the claims and/or examples of the respective document explicitly show/define/claim a literally 'absorption' of the respective pretreating agent on the additive

## C08K 11/00

### Use of ingredients of unknown constitution, e.g. undefined reaction products

#### Definition statement

*This place covers:*

Any additive in the meaning of [C08K](#) which does not fall within any of the subgroups [C08K 3/00](#), [C08K 5/00](#), [C08K 7/00](#), [C08K 9/00](#) or [C08K 13/00](#).

#### Relationships with other classification places

This group does not cover the preparation of the ingredients of unknown constitution only, without their use as additive in the sense of [C08K](#).

## C08K 13/00

### Use of mixtures of ingredients not covered by one single of the preceding main groups, each of these compounds being essential

#### Definition statement

*This place covers:*

This subgroup should be used for classification only for mixtures with more than three essential ingredients as outlined in Special rules of classification in [C08K](#).