

CPC**COOPERATIVE PATENT CLASSIFICATION****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](#))

NOTES

1. 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](#) to [C08L 99/00](#). Example: Polystyrene containing a carboxylic amide is classified in ([C08K 5/20](#), [C08L 25/06](#)).
2. From April 2012, 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](#) to [C08L 99/00](#). Example: Polystyrene containing a carboxylic amide is classified in ([C08K 5/20](#), [C08L 25/06](#)).
3. In this subclass, in the absence of an indication to the contrary, an ingredient is classified in the last appropriate place.
4. In this subclass:
 - 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

{ This note is applied only for mixtures with more than three essential ingredients. Mixtures with two or three ingredients are classified in the appropriate groups of [C08K](#), e.g. a mixture of Al_2O_3 , an ether and an amine is classified in [C08K 3/22](#), [C08K 5/06](#) and [C08K 5/17](#)}
 - ammonium salts are classified in the same way as metal salts
5. In this subclass, organic acid salts, alcoholates, phenolates or mercaptides are classified in the groups or subgroups of the parent compounds
6. The use of an ingredient for a specific polymer is classified by adding to the group symbol of [C08K](#) and separated therefrom by a "+" sign, the subdivision of [C08L 1/00](#) to [C08L 99/00](#).
Example: Polystyrene containing a carboxylic amide is classified in [C08K 5/20](#) + [C08L 25/06](#)
7. In this subclass are considered as compounding ingredients:
 - inert additives
 - radical crosslinking agents, e.g. peroxides, S-containing vulcanisation agents
 - coupling agents, i.e. compounds able to improve the adhesion between filler and macromolecule

Are not considered as compounding ingredients:

C08K

(continued)

- chemical modifying or crosslinking agents which react via a condensation or addition mechanism (for [C08B](#) polymers [C08B](#), for diene rubbers [C08C 19/30](#), for other vinyl polymers [C08F 8/00](#), for polysiloxanes [C08L 83/00](#), for other [C08G](#) polymers [C08G](#))
- solvents or dispersion agents for making polymer solutions, emulsions or dispersions ([C08J 3/02](#))
- blowing agents ([C08J 9/04](#))

WARNING

The following IPC group is not used in the CPC system. Subject matter covered by this group is classified in the following CPC groups:

[C08K 5/5445](#) covered by [C08K 5/544](#)

C08K 3/00**Use of inorganic ingredients**

- | | |
|----------------|--|
| C08K 3/0008 | . {Inorganic ingredients according to more than one of the "one dot" groups of C08K 3/02 to C08K 3/40 } |
| C08K 3/0016 | . . {Crosslinking or vulcanising agents, including accelerators} |
| C08K 3/0025 | . . {Additives activating the degradation of the macromolecular compound} |
| C08K 3/0033 | . . {Fillers, pigments, reinforcing additives} |
| C08K 3/0041 | . . {Stabilisers against oxidation, heat, light, ozone} |
| C08K 3/005 | . . {Biocides; (macromolecular substances as carriers for biocide material A01N 25/10)} |
| C08K 3/0058 | . . {Flame-proofing or flame-retarding additives} |
| C08K 3/0066 | . . {Antistatics} |
| C08K 3/0075 | . {Metal containing compounds according to more than one of the "one dot" groups of C08K 3/10 to C08K 3/40 } |
| C08K 3/0083 | . . {Compounds containing metals of the 1st to 3rd Group of the Periodic system} |
| C08K 3/0091 | . . {Compounds containing metals of the 4th to 8th Group of the Periodic system, e.g. nickel compounds} |
| C08K 3/02 | . Elements |
| C08K 2003/023 | . . {Silicon} |
| C08K 2003/026 | . . {Phosphorus} |
| C08K 3/04 | . . Carbon |
| C08K 2003/045 | . . . {Fullerenes} |
| C08K 3/06 | . . Sulfur |
| C08K 3/08 | . . Metals |
| C08K 2003/0806 | . . . {Silver} |
| C08K 2003/0812 | . . . {Aluminium} |
| C08K 2003/0818 | . . . {Alkali metal} |
| C08K 2003/0825 | {Potassium} |
| C08K 2003/0831 | . . . {Gold} |
| C08K 2003/0837 | . . . {Bismuth} |
| C08K 2003/0843 | . . . {Cobalt} |

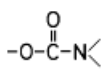
C08K 2003/085	. . . {Copper}
C08K 2003/0856	. . . {Iron}
C08K 2003/0862	. . . {Nickel}
C08K 2003/0868	. . . {Osmium}
C08K 2003/0875	. . . {Antimony}
C08K 2003/0881	. . . {Titanium}
C08K 2003/0887	. . . {Tungsten}
C08K 2003/0893	. . . {Zinc}
C08K 3/10	. Metal compounds
C08K 3/12	. . Hydrides
C08K 3/14	. . Carbides
C08K 3/16	. Halogen-containing compounds
C08K 2003/162	. . {Calcium, strontium or barium halides, e.g. calcium, strontium or barium chloride}
C08K 2003/164	. . {Aluminum halide, e.g. aluminium chloride}
C08K 2003/166	. . {Magnesium halide, e.g. magnesium chloride}
C08K 2003/168	. . {Zinc halides}
C08K 3/18	. Oxygen-containing compounds, e.g. metal carbonyls
C08K 3/20	. . Oxides; Hydroxides
C08K 3/22	. . . of metals
C08K 2003/2203	. . . . {of lithium}
C08K 2003/2206	. . . . {of calcium, strontium or barium}
C08K 2003/221	. . . . {of rare earth metal}
C08K 2003/2213	. . . . . {of cerium}
C08K 2003/2217	. . . . . {of magnesium}
C08K 2003/222	. . . . . {Magnesia, i.e. magnesium oxide}
C08K 2003/2224	. . . . . {Magnesium hydroxide}
C08K 2003/2227	. . . . . {of aluminium}
C08K 2003/2231	. . . . . {of tin}
C08K 2003/2234	. . . . . {of lead}
C08K 2003/2237	. . . . . {of titanium}
C08K 2003/2241	. . . . . {Titanium dioxide}
C08K 2003/2244	. . . . . {of zirconium}
C08K 2003/2248	. . . . . {of copper}
C08K 2003/2251	. . . . . {of chromium}
C08K 2003/2255	. . . . . {of molybdenum}
C08K 2003/2258	. . . . . {of tungsten}
C08K 2003/2262	. . . . . {of manganese}
C08K 2003/2265	. . . . . {of iron}
C08K 2003/2268	. . . . . {Ferrous oxide (FeO)}
C08K 2003/2272	. . . . . {Ferric oxide (Fe ₂ O ₃)}

C08K 2003/2275	. . . . . {Ferroso-ferric oxide (Fe ₃ O ₄)}
C08K 3/2279	. . . . . {of antimony}
C08K 2003/2282	. . . . . {Antimonates}
C08K 2003/2286	. . . . . {of silver}
C08K 2003/2289	. . . . . {of cobalt}
C08K 2003/2293	. . . . . {of nickel}
C08K 2003/2296	. . . . . {of zinc}
C08K 3/24	. . Acids; Salts thereof {(C08K 3/16 takes precedence)}
C08K 3/26	. . . Carbonates; Bicarbonates
C08K 2003/262	. . . . . {Alkali metal carbonates}
C08K 2003/265	. . . . . {Calcium, strontium or barium carbonate}
C08K 2003/267	. . . . . {Magnesium carbonate}
C08K 3/28	. Nitrogen-containing compounds
C08K 2003/282	. . {Binary compounds of nitrogen with aluminium}
C08K 2003/285	. . {Ammonium nitrates}
C08K 2003/287	. . {Calcium, strontium or barium nitrates}
C08K 3/30	. Sulfur-, selenium- or tellurium-containing compounds
C08K 2003/3009	. . {Sulfides}
C08K 2003/3018	. . . {of magnesium, calcium, strontium or barium}
C08K 2003/3027	. . . {of cadmium}
C08K 2003/3036	. . . {of zinc}
C08K 2003/3045	. . {Sulfates}
C08K 2003/3054	. . . {Ammonium sulfates}
C08K 2003/3063	. . . {Magnesium sulfate}
C08K 2003/3072	. . . {Iron sulfates}
C08K 2003/3081	. . . {Aluminum sulfate}
C08K 2003/309	. . {Sulfur containing acids}
C08K 3/32	. Phosphorus-containing compounds
C08K 2003/321	. . {Phosphates}
C08K 2003/322	. . . {Ammonium phosphate}
C08K 2003/323	. . . . {Ammonium polyphosphate}
C08K 2003/324	. . . {Alkali metal phosphate}
C08K 2003/325	. . . {Calcium, strontium or barium phosphate}
C08K 2003/326	. . . {Magnesium phosphate}
C08K 2003/327	. . . {Aluminium phosphate}
C08K 2003/328	. . . {Phosphates of heavy metals}
C08K 2003/329	. . {Phosphorus containing acids}
C08K 3/34	. Silicon-containing compounds
C08K 2003/343	. . {Peroxyhydrates, peroxyacids or salts thereof}
C08K 3/346	. . {Clay}

- C08K 3/36 . . Silica
- C08K 3/38 . Boron-containing compounds
- C08K 2003/382 . . {and nitrogen}
- C08K 2003/385 . . . {Binary compounds of nitrogen with boron}
- C08K 2003/387 . . {Borates}
- C08K 3/40 . Glass

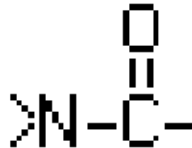
C08K 5/00**Use of organic ingredients**

- C08K 5/0008 . {Organic ingredients according to more than one of the "one dot" groups of [C08K 5/01](#) to [C08K 5/59](#)}
- C08K 5/0016 . . {Plasticisers}
- C08K 5/0025 . . {Crosslinking or vulcanising agents; including accelerators}
- C08K 5/0033 . . {Additives activating the degradation of the macromolecular compound}
- C08K 5/0041 . . {Optical brightening agents, organic pigments}
- C08K 5/005 . . {Stabilisers against oxidation, heat, light, ozone}
- C08K 5/0058 . . {Biocides; (macromolecular substances as carriers for biocide material [A01N 25/10](#))}
- C08K 5/0066 . . {Flame-proofing or flame-retarding additives}
- C08K 5/0075 . . {Antistatics}
- C08K 5/0083 . . {Nucleating agents promoting the crystallisation of the polymer matrix}
- C08K 5/0091 . {Complexes with metal-heteroatom-bonds}
- C08K 5/01 . Hydrocarbons {([C08K 5/0091](#) takes precedence)}
- C08K 5/02 . Halogenated hydrocarbons {([C08K 5/0091](#) takes precedence)}
- C08K 5/03 . . aromatic, {e.g. $C_6H_5-CH_2-Cl$ }
- C08K 5/04 . Oxygen-containing compounds {([C08K 5/0091](#) takes precedence)}
- C08K 5/05 . . Alcohols; Metal alcoholates
- C08K 5/053 . . . Polyhydroxylic alcohols
- C08K 5/057 . . . Metal alcoholates {(metal enolates [C08K 5/0091](#))}
- C08K 5/06 . . Ethers; Acetals; Ketals; Ortho-esters
- C08K 5/07 . . Aldehydes; Ketones
- C08K 5/08 . . . Quinones
- C08K 5/09 . . Carboxylic acids; Metal salts thereof; Anhydrides thereof
- C08K 5/092 . . . Polycarboxylic acids
- C08K 5/095 . . . Carboxylic acids containing halogens
- C08K 5/098 . . . Metal salts of carboxylic acids
- C08K 5/10 . . Esters; Ether-esters
- C08K 5/101 . . . of monocarboxylic acids
- C08K 5/103 with polyalcohols
- C08K 5/105 with phenols
- C08K 5/107 with polyphenols
- C08K 5/109 . . . of carbonic acid, {e.g. $R-O-C(=O)-O-R$ }

- C08K 5/11 . . . of acyclic polycarboxylic acids
- C08K 5/12 . . . of cyclic polycarboxylic acids
- C08K 5/13 . . Phenols; Phenolates
- C08K 5/132 . . . Phenols containing keto groups, {e.g. benzophenones}
- C08K 5/134 . . . Phenols containing ester groups
- C08K 5/1345 {Carboxylic esters of phenolcarboxylic acids}
- C08K 5/136 . . . Phenols containing halogens
- C08K 5/138 . . . Phenolates
- C08K 5/14 . . Peroxides
- C08K 5/15 . . Heterocyclic compounds having oxygen in the ring
- C08K 5/151 . . . having one oxygen atom in the ring
- C08K 5/1515 Three-membered rings
- C08K 5/1525 Four-membered rings
- C08K 5/1535 Five-membered rings
- C08K 5/1539 Cyclic anhydrides
- C08K 5/1545 Six-membered rings
- C08K 5/156 . . . having two oxygen atoms in the ring
- C08K 5/1565 Five-membered rings
- C08K 5/1575 Six-membered rings
- C08K 5/159 . . . having more than two oxygen atoms in the ring
- C08K 5/16 . Nitrogen-containing compounds {(C08K 5/0091 takes precedence)}
- C08K 5/17 . . Amines; Quaternary ammonium compounds
- C08K 5/175 . . . {containing COOH-groups; Esters or salts thereof}
- C08K 5/18 . . . with aromatically bound amino groups
- C08K 5/19 . . . Quaternary ammonium compounds
- C08K 5/20 . . Carboxylic acid amides
- C08K 5/205 . . Compounds containing  groups, e.g. carbamates
- C08K 5/21 . . Urea; Derivatives thereof, e.g. biuret
- C08K 5/22 . . Compounds containing nitrogen bound to another nitrogen atom
- C08K 5/23 . . . Azo-compounds
- C08K 5/235 {Diazo and polyazo compounds}
- C08K 5/24 . . . Derivatives of hydrazine
- C08K 5/25 Carboxylic acid hydrazides
- C08K 5/26 Semicarbazides
- C08K 5/27 . . . Compounds containing a nitrogen atom bound to two other nitrogen atoms, e.g. diazoamino-compounds
- C08K 5/28 Azides
- C08K 5/29 . . Compounds containing {one or more} carbon-to-nitrogen double bonds
- C08K 5/30 . . . Hydrazones; Semicarbazones

C08K 5/31	. . . Guanidine; Derivatives thereof
C08K 5/315	. . Compounds containing carbon-to-nitrogen triple bonds
C08K 5/3155	. . . {Dicyandiamide}
C08K 5/32	. . Compounds containing nitrogen bound to oxygen
C08K 5/33	. . . Oximes
C08K 5/34	. . Heterocyclic compounds having nitrogen in the ring
C08K 5/3412	. . . having one nitrogen atom in the ring
C08K 5/3415	. . . . Five-membered rings
C08K 5/3417	. . . . . condensed with carbocyclic rings
C08K 5/3432	. . . . Six-membered rings
C08K 5/3435	. . . . . Piperidines
C08K 5/3437	. . . . . condensed with carbocyclic rings
C08K 5/3442	. . . having two nitrogen atoms in the ring
C08K 5/3445	. . . . Five-membered rings
C08K 5/3447	. . . . . condensed with carbocyclic rings
C08K 5/3462	. . . . Six-membered rings
C08K 5/3465	. . . . . condensed with carbocyclic rings
C08K 5/3467	. . . having more than two nitrogen atoms in the ring
C08K 5/3472	. . . . Five-membered rings
C08K 5/3475	. . . . . condensed with carbocyclic rings
C08K 5/3477	. . . . Six-membered rings
C08K 5/3492	. . . . . Triazines
C08K 5/34922	. . . . . {Melamine; Derivatives thereof}
C08K 5/34924	. . . . . {containing cyanurate groups; Tautomers thereof}
C08K 5/34926	. . . . . {also containing heterocyclic groups other than triazine groups}
C08K 5/34928	. . . . . {Salts}
C08K 5/3495	. . . . . condensed with carbocyclic rings
C08K 5/35	. . . having also oxygen in the ring
C08K 5/353	. . . . Five-membered rings
C08K 5/357	. . . . Six-membered rings
C08K 5/36	. Sulfur-, selenium-, or tellurium-containing compounds {(C08K 5/0091 takes precedence)}
C08K 5/37	. . Thiols
C08K 5/372	. . . Sulfides, {e.g. R-(S)x-R'}
C08K 5/3725	. . . . {containing nitrogen}
C08K 5/375	. . . containing six-membered aromatic rings {(C08K 5/3725 takes precedence)}
C08K 5/378	. . . containing heterocyclic rings
C08K 5/38	. . Thiocarbonic acids; Derivatives thereof, e.g. xanthates; {i.e. compounds containing -X-C(=X)- groups, X being oxygen or sulfur, at least one X being sulfur}
C08K 5/39	. . Thiocarbamic acids; Derivatives thereof, e.g. dithiocarbamates

- C08K 5/40 . . . Thiurams, {i.e. compounds containing $\begin{array}{c} >N-C(=S)-S-C(=S)-N< \\ S \quad S \end{array}$ groups}
- C08K 5/405 . . . Thioureas; Derivatives thereof
- C08K 5/41 . . . Compounds containing sulfur bound to oxygen
- C08K 5/42 . . . Sulfonic acids; Derivatives thereof
- C08K 5/43 . . . Compounds containing sulfur bound to nitrogen
- C08K 5/435 . . . Sulfonamides
- C08K 5/44 . . . Sulfenamides
- C08K 5/45 . . . Heterocyclic compounds having sulfur in the ring
- C08K 5/46 . . . with oxygen or nitrogen in the ring
- C08K 5/47 Thiazoles
- C08K 5/48 . . . Selenium- or tellurium-containing compounds
- C08K 5/49 . . . Phosphorus-containing compounds {(C08K 5/0091 takes precedence)}
- C08K 5/50 . . . Phosphorus bound to carbon only
- C08K 5/51 . . . Phosphorus bound to oxygen
- C08K 5/52 Phosphorus bound to oxygen only
- C08K 5/5205 {Salts of P-acids with N-bases}
- C08K 5/521 Esters of phosphoric acids, e.g. of H_3PO_4
- C08K 5/523 with hydroxyaryl compounds
- C08K 5/524 Esters of phosphorous acids, e.g. of H_3PO_3
- C08K 5/526 with hydroxyaryl compounds
- C08K 5/527 Cyclic esters
- C08K 5/529 Esters containing heterocyclic rings not representing cyclic esters of phosphoric or phosphorous acids
- C08K 5/53 bound to oxygen and to carbon only
- C08K 5/5313 Phosphinic compounds, e.g. $R_2=P(:O)OR'$
- C08K 5/5317 Phosphonic compounds, e.g. $R-P(:O)(OR')_2$
- C08K 5/5333 Esters of phosphonic acids
- C08K 5/5337 containing also halogens
- C08K 5/5353 containing also nitrogen
- C08K 5/5357 cyclic
- C08K 5/5373 containing heterocyclic rings not representing cyclic esters of phosphonic acids
- C08K 5/5377 Phosphinous compounds, e.g. $R_2=P-OR'$
- C08K 5/5393 Phosphonous compounds, e.g. $R-P(OR')_2$
- C08K 5/5397 Phosphine oxides
- C08K 5/5398 . . . Phosphorus bound to sulfur
- C08K 5/5399 . . . Phosphorus bound to nitrogen
- C08K 5/54 . . . Silicon-containing compounds {(C08K 5/0091 takes precedence)}
- C08K 5/5403 . . . {containing no other elements than carbon or hydrogen}

- C08K 5/5406 . . {containing elements other than oxygen or nitrogen}
- C08K 5/541 . . containing oxygen
- C08K 5/5415 . . . containing at least one Si-O bond
- C08K 5/5419 containing at least one Si-C bond
- C08K 5/5425 . . . containing at least one C=C bond
- C08K 5/5435 . . . containing oxygen in a ring
- C08K 5/544 . . containing nitrogen
- C08K 5/5442 . . . {containing nitrogen in a heterocyclic ring}
- C08K 5/5455 . . . containing at least one  group {(C08K 5/5442 takes precedence)}
- C08K 5/5465 . . . containing at least one C=N bond {(C08K 5/5442 takes precedence)}
- C08K 5/5475 . . . containing at least one C-N {triple} bond {(C08K 5/5442 takes precedence)}
- C08K 5/548 . . containing sulfur {(C08K 5/5442 takes precedence)}
- C08K 5/549 . . containing silicon in a ring
- C08K 5/55 . Boron-containing compounds {(C08K 5/0091 takes precedence)}
- C08K 5/56 . Organo-metallic compounds, i.e. organic compounds containing a metal-to-carbon bond
- C08K 5/57 . . Organo-tin compounds
- C08K 5/58 . . . containing sulfur
- C08K 5/59 . Arsenic- or antimony-containing compounds

C08K 7/00**Use of ingredients characterised by shape**

- C08K 7/02 . Fibres or whiskers
- C08K 7/04 . . Inorganic
- C08K 7/06 . . . Elements
- C08K 7/08 . . . Oxygen-containing compounds
- C08K 7/10 . . . Silicon-containing compounds
- C08K 7/12 Asbestos
- C08K 7/14 . . . Glass
- C08K 7/16 . Solid spheres
- C08K 7/18 . . Inorganic
- C08K 7/20 . . . Glass
- C08K 7/22 . Expanded, porous or hollow particles
- C08K 7/24 . . Inorganic
- C08K 7/26 . . . Silicon- containing compounds
- C08K 7/28 . . . Glass

C08K 9/00**Use of pretreated ingredients**

C08K 9/02	Ingredients treated with inorganic substances
C08K 9/04	Ingredients treated with organic substances {(treated with macromolecular compounds C08K 9/08)}
C08K 9/06	Ingredients treated with silicon-containing compounds
C08K 9/08	Ingredients agglomerated by treatment with a binding agent
C08K 9/10	Encapsulated ingredients
C08K 9/12	Adsorbed ingredients {, e.g. ingredients on carriers}
C08K 11/00	Use of ingredients of unknown constitution, e.g. undefined reaction products
C08K 11/005	{Waste materials, e.g. treated or untreated sewage sludge}
C08K 13/00	Use of mixtures of ingredients not covered by one single of the preceding main groups, each of these compounds being essential
C08K 13/02	Organic and inorganic ingredients
C08K 13/04	Ingredients characterised by their shape and organic or inorganic ingredients
C08K 13/06	Pretreated ingredients and ingredients covered by the main groups C08K 3/00 to C08K 7/00
C08K 13/08	Ingredients of unknown constitution and ingredients covered by the main groups C08K 3/00 to C08K 9/00
C08K 2201/00	Specific properties of additives
C08K 2201/001	Conductive additives
C08K 2201/002	Physical properties
C08K 2201/003	Additives being defined by their diameter
C08K 2201/004	Additives being defined by their length
C08K 2201/005	Additives being defined by their particle size in general
C08K 2201/006	Additives being defined by their surface area
C08K 2201/007	Fragrance additive
C08K 2201/008	Additives improving gas barrier properties
C08K 2201/009	Additives being defined by their hardness
C08K 2201/01	Magnetic additives
C08K 2201/011	Nanostructured additives
C08K 2201/012	Additives improving oxygen scavenging properties
C08K 2201/013	Additives applied to the surface of polymers or polymer particles
C08K 2201/014	Additives containing two or more different additives of the same subgroup in C08K
C08K 2201/015	Additives for heat shrinkable compositions
C08K 2201/016	Additives defined by their aspect ratio
C08K 2201/017	Additives being an antistatic agent
C08K 2201/018	Additives for biodegradable polymeric composition
C08K 2201/019	the composition being defined by the absence of a certain additive