

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

- 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](#)).
- 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](#) - [C08L 99/00](#). Example: Polystyrene containing a carboxylic amide is classified in ([C08K 5/20](#), [C08L 25/06](#)).
- In this subclass, in the absence of an indication to the contrary, an ingredient is classified in the last appropriate place.
- 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 Al₂O₃, 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
- In this subclass, organic acid salts, alcoholates, phenolates or mercaptides are classified in the groups or subgroups of the parent compounds
- 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](#) - [C08L 99/00](#).
Example: Polystyrene containing a carboxylic amide is classified in [C08K 5/20](#) + [C08L 25/06](#)
- 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:

 - 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](#)

3/00	Use of inorganic ingredients	3/0075	. {Metal containing compounds according to more than one of the "one dot" groups of C08K 3/10 - C08K 3/40 }
3/0008	. {Inorganic ingredients according to more than one of the "one dot" groups of C08K 3/02 - C08K 3/40 }	3/0083	. . {Compounds containing metals of the 1st to 3rd Group of the Periodic system}
3/0016	. . {Crosslinking or vulcanising agents, including accelerators}	3/0091	. . {Compounds containing metals of the 4th to 8th Group of the Periodic system, e.g. nickel compounds}
3/0025	. . {Additives activating the degradation of the macromolecular compound}	3/02	. Elements
3/0033	. . {Fillers, pigments, reinforcing additives}	2003/023	. . {Silicon}
3/0041	. . {Stabilisers against oxidation, heat, light, ozone}	2003/026	. . {Phosphorus}
3/005	. . {Biocides; (macromolecular substances as carriers for biocide material A01N 25/10)}		
3/0058	. . {Flame-proofing or flame-retarding additives}		
3/0066	. . {Antistatics}		

3/04 . . Carbon

WARNING

Group [C08K 3/04](#) is impacted by reclassification into groups [C08K 3/041](#), [C08K 3/042](#), [C08K 3/043](#), [C08K 3/044](#), [C08K 3/045](#) and [C08K 3/046](#).

All groups listed in this warning should be considered in order to perform a complete search.

3/041 . . . {Carbon nanotubes}

WARNING

Group [C08K 3/041](#) is incomplete pending reclassification of documents from groups [C08K 3/04](#) and [C08K 7/24](#).

Groups [C08K 3/041](#), [C08K 3/04](#) and [C08K 7/24](#) should be considered in order to perform a complete search.

3/042 . . . {Graphene or derivatives, e.g. graphene oxides}

WARNING

Group [C08K 3/042](#) is incomplete pending reclassification of documents from groups [C08K 3/04](#) and [C08K 3/20](#).

Groups [C08K 3/042](#), [C08K 3/04](#) and [C08K 3/20](#) should be considered in order to perform a complete search.

3/043 . . . {Carbon nanocoils}

WARNING

Group [C08K 3/043](#) is incomplete pending reclassification of documents from groups [C08K 3/04](#) and [C08K 7/24](#).

Groups [C08K 3/043](#), [C08K 3/04](#) and [C08K 7/24](#) should be considered in order to perform a complete search.

3/044 . . . {Carbon nanohorns or nanobells}

WARNING

Group [C08K 3/044](#) is incomplete pending reclassification of documents from groups [C08K 3/04](#) and [C08K 7/24](#).

Groups [C08K 3/044](#), [C08K 3/04](#) and [C08K 7/24](#) should be considered in order to perform a complete search.

3/045 . . . {Fullerenes}

WARNING

Group [C08K 3/045](#) is incomplete pending reclassification of documents from groups [C08K 3/04](#) and [C08K 7/24](#).

Groups [C08K 3/045](#), [C08K 3/04](#) and [C08K 7/24](#) should be considered in order to perform a complete search.

3/046 . . . {Carbon nanorods, nanowires, nanoplatelets or nanofibres}

WARNING

Group [C08K 3/046](#) is incomplete pending reclassification of documents from groups [C08K 3/04](#) and [C08K 7/24](#).

Groups [C08K 3/046](#), [C08K 3/04](#) and [C08K 7/24](#) should be considered in order to perform a complete search.

3/06 . . Sulfur

3/08 . . Metals

2003/0806 . . . {Silver}

2003/0812 . . . {Aluminium}

2003/0818 . . . {Alkali metal}

2003/0825 {Potassium}

2003/0831 . . . {Gold}

2003/0837 . . . {Bismuth}

2003/0843 . . . {Cobalt}

2003/085 . . . {Copper}

2003/0856 . . . {Iron}

2003/0862 . . . {Nickel}

2003/0868 . . . {Osmium}

2003/0875 . . . {Antimony}

2003/0881 . . . {Titanium}

2003/0887 . . . {Tungsten}

2003/0893 . . . {Zinc}

3/10 . Metal compounds

3/12 . . Hydrides

3/14 . . Carbides

3/16 . Halogen-containing compounds

2003/162 . . {Calcium, strontium or barium halides, e.g. calcium, strontium or barium chloride}

2003/164 . . {Aluminum halide, e.g. aluminium chloride}

2003/166 . . {Magnesium halide, e.g. magnesium chloride}

2003/168 . . {Zinc halides}

3/18 . Oxygen-containing compounds, e.g. metal carbonyls

3/20 . . Oxides; Hydroxides {(graphene oxides [C08K 3/042](#))}**WARNING**

Group [C08K 3/20](#) is impacted by reclassification into group [C08K 3/042](#).

Groups [C08K 3/20](#), and [C08K 3/042](#) should be considered in order to perform a complete search.

3/22 . . . of metals

2003/2203 {of lithium}

2003/2206 {of calcium, strontium or barium}

2003/221 {of rare earth metal}

2003/2213 {of cerium}

2003/2217 {of magnesium}

2003/222 {Magnesia, i.e. magnesium oxide}

2003/2224 {Magnesium hydroxide}

2003/2227 {of aluminium}

2003/2231 {of tin}

2003/2234 {of lead}

2003/2237 {of titanium}

2003/2241 {Titanium dioxide}

2003/2244 {of zirconium}

- 2003/2248 {of copper}
- 2003/2251 {of chromium}
- 2003/2255 {of molybdenum}
- 2003/2258 {of tungsten}
- 2003/2262 {of manganese}
- 2003/2265 {of iron}
- 2003/2268 {Ferrous oxide (FeO)}
- 2003/2272 {Ferric oxide (Fe₂O₃)}
- 2003/2275 {Ferroso-ferric oxide (Fe₃O₄)}
- 3/2279 {of antimony}
- 2003/2282 {Antimonates}
- 2003/2286 {of silver}
- 2003/2289 {of cobalt}
- 2003/2293 {of nickel}
- 2003/2296 {of zinc}
- 3/24 Acids; Salts thereof {(C08K 3/16 takes precedence)}
- 3/26 Carbonates; Bicarbonates
- 2003/262 {Alkali metal carbonates}
- 2003/265 {Calcium, strontium or barium carbonate}
- 2003/267 {Magnesium carbonate}
- 3/28 Nitrogen-containing compounds
- 2003/282 {Binary compounds of nitrogen with aluminium}
- 2003/285 {Ammonium nitrates}
- 2003/287 {Calcium, strontium or barium nitrates}
- 3/30 Sulfur-, selenium- or tellurium-containing compounds
- 2003/3009 {Sulfides}
- 2003/3018 {of magnesium, calcium, strontium or barium}
- 2003/3027 {of cadmium}
- 2003/3036 {of zinc}
- 2003/3045 {Sulfates}
- 2003/3054 {Ammonium sulfates}
- 2003/3063 {Magnesium sulfate}
- 2003/3072 {Iron sulfates}
- 2003/3081 {Aluminum sulfate}
- 2003/309 {Sulfur containing acids}
- 3/32 Phosphorus-containing compounds
- 2003/321 {Phosphates}
- 2003/322 {Ammonium phosphate}
- 2003/323 {Ammonium polyphosphate}
- 2003/324 {Alkali metal phosphate}
- 2003/325 {Calcium, strontium or barium phosphate}
- 2003/326 {Magnesium phosphate}
- 2003/327 {Aluminium phosphate}
- 2003/328 {Phosphates of heavy metals}
- 2003/329 {Phosphorus containing acids}
- 3/34 Silicon-containing compounds
- 2003/343 {Peroxyhydrates, peroxyacids or salts thereof}
- 3/346 {Clay}
- 3/36 Silica
- 3/38 Boron-containing compounds
- 2003/382 {and nitrogen}
- 2003/385 {Binary compounds of nitrogen with boron}
- 2003/387 {Borates}
- 3/40 Glass
- 5/00 Use of organic ingredients**
- 5/0008 {Organic ingredients according to more than one of the "one dot" groups of C08K 5/01 - C08K 5/59}
- 5/0016 {Plasticisers}
- 5/0025 {Crosslinking or vulcanising agents; including accelerators}
- 5/0033 {Additives activating the degradation of the macromolecular compound}
- 5/0041 {Optical brightening agents, organic pigments}
- 5/005 {Stabilisers against oxidation, heat, light, ozone}
- 5/0058 {Biocides; (macromolecular substances as carriers for biocide material A01N 25/10)}
- 5/0066 {Flame-proofing or flame-retarding additives}
- 5/0075 {Antistatics}
- 5/0083 {Nucleating agents promoting the crystallisation of the polymer matrix}
- 5/0091 {Complexes with metal-heteroatom-bonds}
- 5/01 Hydrocarbons {(C08K 5/0091 takes precedence)}
- 5/02 Halogenated hydrocarbons {(C08K 5/0091 takes precedence)}
- 5/03 aromatic, {e.g. C₆H₅-CH₂-Cl}
- 5/04 Oxygen-containing compounds {(C08K 5/0091 takes precedence)}
- 5/05 Alcohols; Metal alcoholates
- 5/053 Polyhydroxylic alcohols
- 5/057 Metal alcoholates {(metal enolates C08K 5/0091)}
- 5/06 Ethers; Acetals; Ketals; Ortho-esters
- 5/07 Aldehydes; Ketones
- 5/08 Quinones
- 5/09 Carboxylic acids; Metal salts thereof; Anhydrides thereof
- 5/092 Polycarboxylic acids
- 5/095 Carboxylic acids containing halogens
- 5/098 Metal salts of carboxylic acids
- 5/10 Esters; Ether-esters
- 5/101 of monocarboxylic acids
- 5/103 with polyalcohols
- 5/105 with phenols
- 5/107 with polyphenols
- 5/109 of carbonic acid, {e.g. R-O-C(=O)-O-R}
- 5/11 of acyclic polycarboxylic acids
- 5/12 of cyclic polycarboxylic acids
- 5/13 Phenols; Phenolates
- 5/132 Phenols containing keto groups, {e.g. benzophenones}
- 5/134 Phenols containing ester groups
- 5/1345 {Carboxylic esters of phenolcarboxylic acids}
- 5/136 Phenols containing halogens
- 5/138 Phenolates
- 5/14 Peroxides
- 5/15 Heterocyclic compounds having oxygen in the ring
- 5/151 having one oxygen atom in the ring
- 5/1515 Three-membered rings
- 5/1525 Four-membered rings
- 5/1535 Five-membered rings
- 5/1539 Cyclic anhydrides
- 5/1545 Six-membered rings
- 5/156 having two oxygen atoms in the ring
- 5/1565 Five-membered rings
- 5/1575 Six-membered rings
- 5/159 having more than two oxygen atoms in the ring
- 5/16 Nitrogen-containing compounds {(C08K 5/0091 takes precedence)}

- 5/17 . . Amines; Quaternary ammonium compounds
- 5/175 . . . {containing COOH-groups; Esters or salts thereof}
- 5/18 . . . with aromatically bound amino groups
- 5/19 . . . Quaternary ammonium compounds
- 5/20 . . Carboxylic acid amides
- 5/205 . . Compounds containing $\begin{array}{c} \text{O} \\ \parallel \\ -\text{O}-\text{C}-\text{N} \end{array}$ groups, e.g. carbamates
- 5/21 . . Urea; Derivatives thereof, e.g. biuret
- 5/22 . . Compounds containing nitrogen bound to another nitrogen atom
- 5/23 . . . Azo-compounds
- 5/235 {Diazo and polyazo compounds}
- 5/24 . . . Derivatives of hydrazine
- 5/25 Carboxylic acid hydrazides
- 5/26 Semicarbazides
- 5/27 . . . Compounds containing a nitrogen atom bound to two other nitrogen atoms, e.g. diazoamino-compounds
- 5/28 Azides
- 5/29 . . Compounds containing {one or more} carbon-to-nitrogen double bonds
- 5/30 . . . Hydrazones; Semicarbazones
- 5/31 . . . Guanidine; Derivatives thereof
- 5/315 . . Compounds containing carbon-to-nitrogen triple bonds
- 5/3155 . . . {Dicyandiamide}
- 5/32 . . Compounds containing nitrogen bound to oxygen
- 5/33 . . . Oximes
- 5/34 . . Heterocyclic compounds having nitrogen in the ring
- 5/3412 . . . having one nitrogen atom in the ring
- 5/3415 Five-membered rings
- 5/3417 condensed with carbocyclic rings
- 5/3432 Six-membered rings
- 5/3435 Piperidines
- 5/3437 condensed with carbocyclic rings
- 5/3442 . . . having two nitrogen atoms in the ring
- 5/3445 Five-membered rings
- 5/3447 condensed with carbocyclic rings
- 5/3462 Six-membered rings
- 5/3465 condensed with carbocyclic rings
- 5/3467 . . . having more than two nitrogen atoms in the ring
- 5/3472 Five-membered rings
- 5/3475 condensed with carbocyclic rings
- 5/3477 Six-membered rings
- 5/3492 Triazines
- 5/34922 {Melamine; Derivatives thereof}
- 5/34924 {containing cyanurate groups; Tautomers thereof}
- 5/34926 {also containing heterocyclic groups other than triazine groups}
- 5/34928 {Salts}
- 5/3495 condensed with carbocyclic rings
- 5/35 . . . having also oxygen in the ring
- 5/353 Five-membered rings
- 5/357 Six-membered rings
- 5/36 . Sulfur-, selenium-, or tellurium-containing compounds {(C08K 5/0091 takes precedence)}
- 5/37 . . Thiols
- 5/372 . . . Sulfides, {e.g. R-(S)x-R'}
- 5/3725 {containing nitrogen}
- 5/375 . . . containing six-membered aromatic rings {(C08K 5/3725 takes precedence)}
- 5/378 . . . containing heterocyclic rings
- 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}
- 5/39 . . Thiocarbamic acids; Derivatives thereof, e.g. dithiocarbamates
- 5/40 . . . Thiurams, {i.e. compounds containing $\begin{array}{c} \text{N}-\text{C}(\text{S})-\text{C}(\text{S})-\text{N} \\ \parallel \quad \parallel \\ \text{S} \quad \text{S} \end{array}$ groups}
- 5/405 . . . Thioureas; Derivatives thereof
- 5/41 . . Compounds containing sulfur bound to oxygen
- 5/42 . . . Sulfonic acids; Derivatives thereof
- 5/43 . . Compounds containing sulfur bound to nitrogen
- 5/435 . . . Sulfonamides
- 5/44 . . . Sulfenamides
- 5/45 . . Heterocyclic compounds having sulfur in the ring
- 5/46 . . . with oxygen or nitrogen in the ring
- 5/47 Thiazoles
- 5/48 . . Selenium- or tellurium-containing compounds
- 5/49 . Phosphorus-containing compounds {(C08K 5/0091 takes precedence)}
- 5/50 . . Phosphorus bound to carbon only
- 5/51 . . Phosphorus bound to oxygen
- 5/52 . . . Phosphorus bound to oxygen only
- 5/5205 {Salts of P-acids with N-bases}
- 5/521 Esters of phosphoric acids, e.g. of H₃PO₄
- 5/523 with hydroxyaryl compounds
- 5/524 Esters of phosphorous acids, e.g. of H₃PO₃
- 5/526 with hydroxyaryl compounds
- 5/527 Cyclic esters
- 5/529 Esters containing heterocyclic rings not representing cyclic esters of phosphoric or phosphorous acids
- 5/53 . . . bound to oxygen and to carbon only
- 5/5313 Phosphinic compounds, e.g. R₂=P(:O)OR'
- 5/5317 Phosphonic compounds, e.g. R-P(:O)(OR')₂
- 5/5333 Esters of phosphonic acids
- 5/5337 containing also halogens
- 5/5353 containing also nitrogen
- 5/5357 cyclic
- 5/5373 containing heterocyclic rings not representing cyclic esters of phosphonic acids
- 5/5377 Phosphinous compounds, e.g. R₂=P-OR'
- 5/5393 Phosphonous compounds, e.g. R-P(OR')₂
- 5/5397 Phosphine oxides
- 5/5398 . . Phosphorus bound to sulfur
- 5/5399 . . Phosphorus bound to nitrogen
- 5/54 . Silicon-containing compounds {(C08K 5/0091 takes precedence)}
- 5/5403 . . {containing no other elements than carbon or hydrogen}
- 5/5406 . . {containing elements other than oxygen or nitrogen}
- 5/541 . . containing oxygen
- 5/5415 . . . containing at least one Si-O bond

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

7/00 Use of ingredients characterised by shape

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

WARNING

Group [C08K 7/24](#) is impacted by reclassification into groups [C08K 3/041](#), [C08K 3/042](#), [C08K 3/043](#), [C08K 3/044](#), [C08K 3/045](#) and [C08K 3/046](#).

All groups listed in this warning should be considered in order to perform a complete search.

- 7/26 . . . Silicon- containing compounds
- 7/28 . . . Glass

9/00 Use of pretreated ingredients

- 9/02 . Ingredients treated with inorganic substances
- 9/04 . Ingredients treated with organic substances {(treated with macromolecular compounds [C08K 9/08](#))}
- 9/06 . . with silicon-containing compounds
- 9/08 . Ingredients agglomerated by treatment with a binding agent
- 9/10 . Encapsulated ingredients
- 9/12 . Adsorbed ingredients {, e.g. ingredients on carriers}

11/00 Use of ingredients of unknown constitution, e.g. undefined reaction products

- 11/005 . {Waste materials, e.g. treated or untreated sewage sludge}

13/00 Use of mixtures of ingredients not covered by one single of the preceding main groups, each of these compounds being essential

- 13/02 . Organic and inorganic ingredients
- 13/04 . Ingredients characterised by their shape and organic or inorganic ingredients
- 13/06 . Pretreated ingredients and ingredients covered by the main groups [C08K 3/00](#) - [C08K 7/00](#)
- 13/08 . Ingredients of unknown constitution and ingredients covered by the main groups [C08K 3/00](#) - [C08K 9/00](#)

2201/00 Specific properties of additives

- 2201/001 . Conductive additives
- 2201/002 . Physical properties
- 2201/003 . . Additives being defined by their diameter
- 2201/004 . . Additives being defined by their length
- 2201/005 . . Additives being defined by their particle size in general
- 2201/006 . . Additives being defined by their surface area
- 2201/007 . Fragrance additive
- 2201/008 . Additives improving gas barrier properties
- 2201/009 . Additives being defined by their hardness
- 2201/01 . Magnetic additives
- 2201/011 . Nanostructured additives
- 2201/012 . Additives improving oxygen scavenging properties
- 2201/013 . Additives applied to the surface of polymers or polymer particles
- 2201/014 . Additives containing two or more different additives of the same subgroup in [C08K](#)
- 2201/015 . Additives for heat shrinkable compositions
- 2201/016 . Additives defined by their aspect ratio
- 2201/017 . Additives being an antistatic agent
- 2201/018 . Additives for biodegradable polymeric composition
- 2201/019 . the composition being defined by the absence of a certain additive