

# CPC COOPERATIVE PATENT CLASSIFICATION

## C CHEMISTRY; METALLURGY

(NOTES omitted)

### CHEMISTRY

## C08 ORGANIC MACROMOLECULAR COMPOUNDS; THEIR PREPARATION OR CHEMICAL WORKING-UP; COMPOSITIONS BASED THEREON

### C08K Use of inorganic or non-macromolecular organic substances as compounding ingredients (paints, inks, varnishes, dyes, polishes, adhesives [C09](#))

#### NOTES

1. In this subclass, in the absence of an indication to the contrary, an ingredient is classified in the last appropriate place.
2. 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<sub>2</sub>O<sub>3</sub>, 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
3. In this subclass, any ingredient of a mixture which is not identified by the classification according to Note (2) above, and the use of which is determined to be novel and non-obvious, must also be classified in this subclass according to Note (1). The ingredient can be either a single compound or a composition in itself. ".{This IPC Note does not apply in CPC}
4. Any ingredient of a mixture which is not identified by the classification according to Notes (2) or (3) above, and which is considered to represent information of interest for search, may also be classified in this subclass according to Note (1). This can, for example, be the case when it is considered of interest to enable searching of mixtures using a combination of classification symbols. Such non-obligatory classification should be given as "additional information".{This IPC Note does not apply in CPC}
5. {In this subclass, combination sets [C-Sets] are used. The detailed information about the C-Sets construction and the associated syntax rules is present in the definitions of [C08K](#)}
6. {In this subclass, organic acid salts, alcoholates, phenolates or mercaptides are classified in the groups or subgroups of the parent compounds}

#### WARNING

In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

#### 3/00 Use of inorganic substances as compounding ingredients

##### NOTE

In this group, C-Sets are used. The detailed information about the C-Sets construction and the associated syntax rules is present in the Definitions of [C08K](#).

3/01	• characterized by their specific function	3/014	• • Stabilisers against oxidation, heat, light or ozone
3/011	• • Crosslinking or vulcanising agents, e.g. accelerators	3/015	• • Biocides ( <a href="#">macromolecular substances as carriers for biocide material A01N 25/10</a> )
3/012	• • Additives activating the degradation of the macromolecular compounds	3/016	• • Flame-proofing or flame-retarding additives
3/013	• • Fillers, pigments or reinforcing additives	3/017	• • Antistatic agents
		3/02	• Elements
		2003/023	• • {Silicon}
		2003/026	• • {Phosphorus}
		3/04	• • Carbon
		3/041	• • • {Carbon nanotubes}
		3/042	• • • {Graphene or derivatives, e.g. graphene oxides}
		3/043	• • • {Carbon nanocoils}
		3/044	• • • {Carbon nanohorns or nanobells}

3/045	. . . {Fullerenes}	2003/2286	. . . . {of silver}
3/046	. . . {Carbon nanorods, nanowires, nanoplatelets or nanofibres}	2003/2289	. . . . {of cobalt}
3/06	. . Sulfur	2003/2293	. . . . {of nickel}
3/08	. . Metals	2003/2296	. . . . {of zinc}
2003/0806	. . . {Silver}	3/24	. . Acids; Salts thereof {(C08K 3/16 takes precedence)}
2003/0812	. . . {Aluminium}	3/26	. . . Carbonates; Bicarbonates
2003/0818	. . . {Alkali metal}	2003/262	. . . . {Alkali metal carbonates}
2003/0825	. . . . {Potassium}	2003/265	. . . . {Calcium, strontium or barium carbonate}
2003/0831	. . . {Gold}	2003/267	. . . . {Magnesium carbonate}
2003/0837	. . . {Bismuth}	3/28	. Nitrogen-containing compounds
2003/0843	. . . {Cobalt}	2003/282	. . {Binary compounds of nitrogen with aluminium}
2003/085	. . . {Copper}	2003/285	. . {Ammonium nitrates}
2003/0856	. . . {Iron}	2003/287	. . {Calcium, strontium or barium nitrates}
2003/0862	. . . {Nickel}	3/30	. Sulfur-, selenium- or tellurium-containing compounds
2003/0868	. . . {Osmium}	2003/3009	. . {Sulfides}
2003/0875	. . . {Antimony}	2003/3018	. . . {of magnesium, calcium, strontium or barium}
2003/0881	. . . {Titanium}	2003/3027	. . . {of cadmium}
2003/0887	. . . {Tungsten}	2003/3036	. . . {of zinc}
2003/0893	. . . {Zinc}	2003/3045	. . {Sulfates}
3/10	. Metal compounds	2003/3054	. . . {Ammonium sulfates}
3/105	. . Compounds containing metals of Groups 1 to 3 or Groups 11 to 13 of the Periodic system	2003/3063	. . . {Magnesium sulfate}
3/11	. . Compounds containing metals of Groups 4 to 10 or Groups 14 to 16 of the Periodic system	2003/3072	. . . {Iron sulfates}
3/12	. . Hydrides	2003/3081	. . . {Aluminum sulfate}
3/14	. . Carbides	2003/309	. . {Sulfur containing acids}
3/16	. Halogen-containing compounds	3/32	. Phosphorus-containing compounds
2003/162	. . {Calcium, strontium or barium halides, e.g. calcium, strontium or barium chloride}	2003/321	. . {Phosphates}
2003/164	. . {Aluminum halide, e.g. aluminium chloride}	2003/322	. . . {Ammonium phosphate}
2003/166	. . {Magnesium halide, e.g. magnesium chloride}	2003/323	. . . . {Ammonium polyphosphate}
2003/168	. . {Zinc halides}	2003/324	. . . {Alkali metal phosphate}
3/18	. Oxygen-containing compounds, e.g. metal carbonyls	2003/325	. . . {Calcium, strontium or barium phosphate}
3/20	. . Oxides; Hydroxides {(graphene oxides C08K 3/042)}	2003/326	. . . {Magnesium phosphate}
3/22	. . . of metals	2003/327	. . . {Aluminium phosphate}
2003/2203	. . . . {of lithium}	2003/328	. . . {Phosphates of heavy metals}
2003/2206	. . . . {of calcium, strontium or barium}	2003/329	. . {Phosphorus containing acids}
2003/221	. . . . {of rare earth metal}	3/34	. Silicon-containing compounds
2003/2213	. . . . . {of cerium}	2003/343	. . {Peroxyhydrates, peroxyacids or salts thereof}
2003/2217	. . . . . {of magnesium}	3/346	. . {Clay}
2003/222	. . . . . {Magnesia, i.e. magnesium oxide}	3/36	. . Silica
2003/2224	. . . . . {Magnesium hydroxide}	3/38	. Boron-containing compounds
2003/2227	. . . . . {of aluminium}	2003/382	. . {and nitrogen}
2003/2231	. . . . . {of tin}	2003/385	. . . {Binary compounds of nitrogen with boron}
2003/2234	. . . . . {of lead}	2003/387	. . {Borates}
2003/2237	. . . . . {of titanium}	3/40	. Glass
2003/2241	. . . . . {Titanium dioxide}	5/00	Use of organic ingredients
2003/2244	. . . . . {of zirconium}	NOTE	
2003/2248	. . . . . {of copper}	In this group, C-Sets are used. The detailed information about the C-Sets construction and the associated syntax rules is present in the Definitions of C08K.	
2003/2251	. . . . . {of chromium}		
2003/2255	. . . . . {of molybdenum}	5/0008	. {Organic ingredients according to more than one of the "one dot" groups of C08K 5/01 - C08K 5/59}
2003/2258	. . . . . {of tungsten}	5/0016	. . {Plasticisers}
2003/2262	. . . . . {of manganese}	5/0025	. . {Crosslinking or vulcanising agents; including accelerators}
2003/2265	. . . . . {of iron}	5/0033	. . {Additives activating the degradation of the macromolecular compound}
2003/2268	. . . . . {Ferrous oxide (FeO)}	5/0041	. . {Optical brightening agents, organic pigments}
2003/2272	. . . . . {Ferric oxide (Fe <sub>2</sub> O <sub>3</sub> )}	5/005	. . {Stabilisers against oxidation, heat, light, ozone}
2003/2275	. . . . . {Ferroso-ferric oxide (Fe <sub>3</sub> O <sub>4</sub> )}		
3/2279	. . . . . {of antimony}		
2003/2282	. . . . . {Antimonates}		

- 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.  $C_6H_5-CH_2-Cl$ }
- 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  $\begin{array}{c} O \\ || \\ -O-C-N< \end{array}$  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  $\begin{array}{c} \text{>N}-\text{C}(\text{S})_x-\text{C}(\text{S})-\text{N}< \\ \text{S} \quad \text{S} \end{array}$  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 H<sub>3</sub>PO<sub>4</sub>
- 5/523 . . . . . with hydroxyaryl compounds
- 5/524 . . . . Esters of phosphorous acids, e.g. of H<sub>3</sub>PO<sub>3</sub>
- 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. R<sub>2</sub>=P(O)OR'
- 5/5317 . . . . Phosphonic compounds, e.g. R—P(O)(OR')<sub>2</sub>
- 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. R<sub>2</sub>=P—OR'
- 5/5393 . . . . Phosphonous compounds, e.g. R—P(OR')<sub>2</sub>
- 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

#### WARNING

Group C08K 5/544 is impacted by reclassification into group C08K 5/5445.

Groups C08K 5/544 and C08K 5/5445 should be considered in order to perform a complete search.

- 5/5445 . . . containing at least one Si-N bond

#### WARNING

Group C08K 5/5445 is incomplete pending reclassification of documents from group C08K 5/544.

Groups C08K 5/544 and C08K 5/5445 should be considered in order to perform a complete search.

- 5/5455 . . . containing at least one  $\begin{array}{c} \text{O} \\ \parallel \\ \text{>N}-\text{C}- \end{array}$  group

- 5/5465 . . . containing at least one C=N bond

- 5/5475 . . . containing at least one C≡N bond

- 5/5477 . . . {containing nitrogen in a heterocyclic ring}

- 5/548 . . containing sulfur {(C08K 5/5477 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

##### NOTE

In this group, C-Sets are used. The detailed information about the C-Sets construction and the associated syntax rules is present in the Definitions of C08K.

- 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

- 7/26 . . . Silicon- containing compounds

- 7/28 . . . Glass

#### 9/00 Use of pretreated ingredients

##### NOTE

In this group, C-Sets are used. The detailed information about the C-Sets construction and the associated syntax rules is present in the Definitions of C08K.

- 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**

##### **NOTE**

In this group, C-Sets are used. The detailed information about the C-Sets construction and the associated syntax rules is present in the Definitions of [C08K](#).

- 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**

##### **NOTE**

In this group, C-Sets are used. The detailed information about the C-Sets construction and the associated syntax rules is present in the Definitions of [C08K](#).

- 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