

# CPC COOPERATIVE PATENT CLASSIFICATION

## C CHEMISTRY; METALLURGY

(NOTES omitted)

### CHEMISTRY

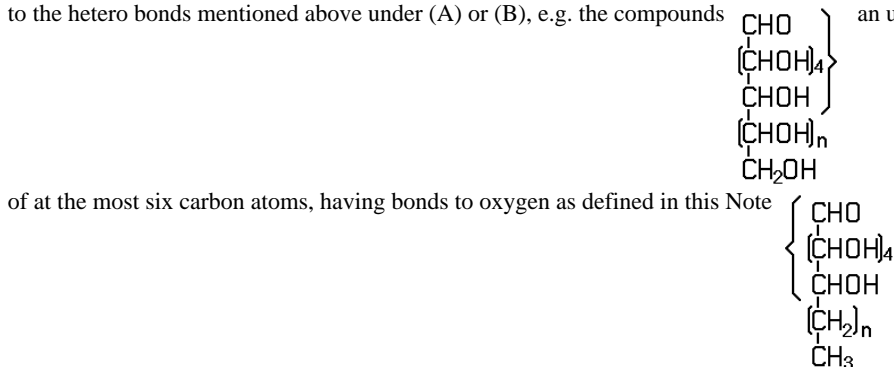
#### C07 ORGANIC CHEMISTRY

(NOTES omitted)

**C07H SUGARS; DERIVATIVES THEREOF; NUCLEOSIDES; NUCLEOTIDES; NUCLEIC ACIDS** (derivatives of aldonic or saccharic acids [C07C](#), [C07D](#); aldonic acids, saccharic acids [C07C 59/105](#), [C07C 59/285](#); cyanohydrins [C07C 255/16](#); glycals [C07D](#); compounds of unknown constitution [C07G](#); polysaccharides, derivatives thereof [C08B](#); DNA or RNA concerning genetic engineering, vectors, e.g. plasmids, or their isolation, preparation or purification [C12N 15/00](#); sugar industry [C13](#))

#### NOTES

1. This subclass covers compounds containing saccharide radicals (see the definitions in Note (3) below).
2. This subclass does not cover polysaccharides which for the purpose of this subclass are defined as having more than five saccharide radicals attached to each other by glycosidic linkages.
3. In this subclass, the following expressions are used with the meanings indicated:
  - "saccharide radical" which is derived from acyclic polyhydroxy-aldehydes or acyclic polyhydroxy-ketones, or from their cyclic tautomers, by removing hydrogen atoms or by replacing hetero bonds to oxygen by the same number of hetero bonds to halogen, nitrogen, sulfur, selenium, or tellurium, in accordance with either of the following definitions:
    - a. It
      - i. consists of an uninterrupted carbon skeleton and oxygen atoms directly attached thereto, and
      - ii. is considered to be terminated by every bond to a carbon atom of a cyclic structure and by every bond to a carbon atom having three bonds to hetero atoms, e.g. ester or nitrile radicals, and
      - iii. contains within the carbon skeleton an unbranched sequence of at the most six carbon atoms in which at least three carbon atoms — at least two in the case of a skeleton having only four carbon atoms — have one single bond to an oxygen atom as the only hetero bond, and
        - A. in a cyclic or acyclic sequence, at least one other carbon atom has two single bonds to oxygen atoms as the only hetero bonds, or
        - B. in an acyclic sequence, at least one other carbon atom has one double bond to an oxygen atom as the only hetero bond, the said sequence containing at the most one double bond, i.e. C=C or possibly ketalised C=O, in addition to the hetero bonds mentioned above under (A) or (B), e.g. the compounds



n being an integer, are classified in group [C07H 3/02](#);

- b. It is also a radical derived from a radical as defined in (a) above by replacing at the most four of the specified hetero bonds to oxygen by the same number of hetero bonds to halogen, nitrogen, sulfur, selenium, or tellurium;
  - "heterocyclic radical" or "hetero ring" is considered to exclude saccharide radicals as defined above
4. Attention is drawn to Note (3) after class [C07](#), which defines the last place priority rule applied in the range of subclasses [C07C-C07K](#) and within these subclasses.

#### 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.

<b>1/00</b>	<b>Processes for the preparation of sugar derivatives</b>	13/12	<ul style="list-style-type: none"> <li>by acids having the group <math>-X-C(=X)-X-</math>, or halides thereof, in which each X means nitrogen, oxygen, sulfur, selenium or tellurium, e.g. carbonic acid, carbamic acid</li> </ul>
1/02	<ul style="list-style-type: none"> <li>Phosphorylation</li> </ul>		
1/04	<ul style="list-style-type: none"> <li>Introducing polyphosphoric acid radicals</li> </ul>		
1/06	<ul style="list-style-type: none"> <li>Separation; Purification</li> </ul>		
1/08	<ul style="list-style-type: none"> <li>from natural products</li> </ul>		
<b>3/00</b>	<b>Compounds containing only hydrogen atoms and saccharide radicals having only carbon, hydrogen, and oxygen atoms (preparation by hydrolysis of di- or polysaccharides C13; separation or purification of sucrose, glucose, fructose, lactose or maltose C13)</b>	<b>15/00</b>	<b>Compounds containing hydrocarbon or substituted hydrocarbon radicals directly attached to hetero atoms of saccharide radicals</b>
			<b>NOTE</b>
			In this group, acyl radicals directly attached to hetero atoms of the saccharide radicals are not considered as substituted hydrocarbon radicals.
3/02	<ul style="list-style-type: none"> <li>Monosaccharides</li> </ul>	15/02	<ul style="list-style-type: none"> <li>Acyclic radicals, not substituted by cyclic structures</li> </ul>
3/04	<ul style="list-style-type: none"> <li>Disaccharides</li> </ul>	15/04	<ul style="list-style-type: none"> <li>attached to an oxygen atom of the saccharide radical</li> </ul>
3/06	<ul style="list-style-type: none"> <li>Oligosaccharides, i.e. having three to five saccharide radicals attached to each other by glycosidic linkages</li> </ul>	15/06	<ul style="list-style-type: none"> <li>being a hydroxyalkyl group esterified by a fatty acid</li> </ul>
3/08	<ul style="list-style-type: none"> <li>Deoxysugars; Unsaturated sugars (1,2-dideoxy-1-enoses C07D); Osones</li> </ul>	15/08	<ul style="list-style-type: none"> <li>Polyoxyalkylene derivatives</li> </ul>
3/10	<ul style="list-style-type: none"> <li>Anhydrosugars, e.g. epoxides</li> </ul>	15/10	<ul style="list-style-type: none"> <li>containing unsaturated carbon-to-carbon bonds</li> </ul>
<b>5/00</b>	<b>Compounds containing saccharide radicals in which the hetero bonds to oxygen have been replaced by the same number of hetero bonds to halogen, nitrogen, sulfur, selenium, or tellurium</b>	15/12	<ul style="list-style-type: none"> <li>attached to a nitrogen atom of the saccharide radical</li> </ul>
5/02	<ul style="list-style-type: none"> <li>to halogen</li> </ul>	15/14	<ul style="list-style-type: none"> <li>attached to a sulfur, selenium or tellurium atom of a saccharide radical</li> </ul>
5/04	<ul style="list-style-type: none"> <li>to nitrogen</li> </ul>	15/16	<ul style="list-style-type: none"> <li>Lincomycin; Derivatives thereof</li> </ul>
5/06	<ul style="list-style-type: none"> <li>Aminosugars</li> </ul>	15/18	<ul style="list-style-type: none"> <li>Acyclic radicals, substituted by carbocyclic rings</li> </ul>
5/08	<ul style="list-style-type: none"> <li>to sulfur, selenium or tellurium</li> </ul>	15/20	<ul style="list-style-type: none"> <li>Carbocyclic rings</li> </ul>
5/10	<ul style="list-style-type: none"> <li>to sulfur</li> </ul>	15/203	<ul style="list-style-type: none"> <li>Monocyclic carbocyclic rings other than cyclohexane rings; Bicyclic carbocyclic ring systems</li> </ul>
<b>7/00</b>	<b>Compounds containing non-saccharide radicals linked to saccharide radicals by a carbon-to-carbon bond</b>	15/207	<ul style="list-style-type: none"> <li>Cyclohexane rings not substituted by nitrogen atoms, e.g. kasugamycins</li> </ul>
7/02	<ul style="list-style-type: none"> <li>Acyclic radicals</li> </ul>	15/22	<ul style="list-style-type: none"> <li>Cyclohexane rings, substituted by nitrogen atoms</li> </ul>
7/027	<ul style="list-style-type: none"> <li>Keto-aldehydic acids</li> </ul>	15/222	<ul style="list-style-type: none"> <li>Cyclohexane rings substituted by at least two nitrogen atoms</li> </ul>
7/033	<ul style="list-style-type: none"> <li>Uronic acids</li> </ul>	15/224	<ul style="list-style-type: none"> <li>with only one saccharide radical directly attached to the cyclohexyl radical, e.g. destomycin, fortimicin, neamine</li> </ul>
7/04	<ul style="list-style-type: none"> <li>Carbocyclic radicals</li> </ul>	15/226	<ul style="list-style-type: none"> <li>with at least two saccharide radicals directly attached to the cyclohexane rings</li> </ul>
7/06	<ul style="list-style-type: none"> <li>Heterocyclic radicals</li> </ul>	15/228	<ul style="list-style-type: none"> <li>attached to adjacent ring-carbon atoms of the cyclohexane rings</li> </ul>
<b>9/00</b>	<b>Compounds containing a hetero ring sharing at least two hetero atoms with a saccharide radical</b>	15/23	<ul style="list-style-type: none"> <li>with only two saccharide radicals in the molecule, e.g. ambutyrosin, butyrosin, xylostatin, ribostamycin</li> </ul>
9/02	<ul style="list-style-type: none"> <li>the hetero ring containing only oxygen as ring hetero atoms</li> </ul>	15/232	<ul style="list-style-type: none"> <li>with at least three saccharide radicals in the molecule, e.g. lividomycin, neomycin, paromomycin</li> </ul>
9/04	<ul style="list-style-type: none"> <li>Cyclic acetals</li> </ul>	15/234	<ul style="list-style-type: none"> <li>attached to non-adjacent ring carbon atoms of the cyclohexane rings, e.g. kanamycins, tobramycin, nebramycin, gentamicin A<sub>2</sub></li> </ul>
9/06	<ul style="list-style-type: none"> <li>the hetero ring containing nitrogen as ring hetero atoms</li> </ul>	15/236	<ul style="list-style-type: none"> <li>a saccharide radical being substituted by an alkylamino radical in position 3 and by two substituents different from hydrogen in position 4, e.g. gentamicin complex, sisomicin, verdamycin</li> </ul>
<b>11/00</b>	<b>Compounds containing saccharide radicals esterified by inorganic acids; Metal salts thereof (halo-sugars C07H 5/02; thio-, seleno-, or telluro-sugars C07H 5/08)</b>	15/238	<ul style="list-style-type: none"> <li>Cyclohexane rings substituted by two guanidine radicals, e.g. streptomycins</li> </ul>
11/02	<ul style="list-style-type: none"> <li>Nitrates; Nitrites</li> </ul>	15/24	<ul style="list-style-type: none"> <li>Condensed ring systems having three or more rings</li> </ul>
11/04	<ul style="list-style-type: none"> <li>Phosphates; Phosphites; Polyphosphates</li> </ul>	15/244	<ul style="list-style-type: none"> <li>Anthraquinone radicals, e.g. sennosides</li> </ul>
<b>13/00</b>	<b>Compounds containing saccharide radicals esterified by carbonic acid or derivatives thereof, or by organic acids, e.g. phosphonic acids</b>	15/248	<ul style="list-style-type: none"> <li>Colchicine radicals, e.g. colchicosides</li> </ul>
13/02	<ul style="list-style-type: none"> <li>by carboxylic acids</li> </ul>	15/252	<ul style="list-style-type: none"> <li>Naphthacene radicals, e.g. daunomycins, adriamycins</li> </ul>
13/04	<ul style="list-style-type: none"> <li>having the esterifying carboxyl radicals attached to acyclic carbon atoms</li> </ul>		
13/06	<ul style="list-style-type: none"> <li>Fatty acids</li> </ul>		
13/08	<ul style="list-style-type: none"> <li>having the esterifying carboxyl radicals directly attached to carbocyclic rings</li> </ul>		
13/10	<ul style="list-style-type: none"> <li>having the esterifying carboxyl radicals directly attached to heterocyclic rings</li> </ul>		

15/256	. . . Polyterpene radicals	21/04	. with deoxyribosyl as saccharide radical
15/26	. Acyclic or carbocyclic radicals, substituted by hetero rings	<b>23/00</b>	<b>Compounds containing boron, silicon, or a metal, e.g. chelates, vitamin B<sub>12</sub> (esters with inorganic acids <a href="#">C07H 11/00</a>; metal salts, see parent compounds)</b>
<b>17/00</b>	<b>Compounds containing heterocyclic radicals directly attached to hetero atoms of saccharide radicals</b>	<b>99/00</b>	<b>Subject matter not provided for in other groups of this subclass</b>
17/02	. Heterocyclic radicals containing only nitrogen as ring hetero atoms		
17/04	. Heterocyclic radicals containing only oxygen as ring hetero atoms		
17/06	. . Benzopyran radicals		
17/065	. . . Benzo[b]pyrans		
17/07	. . . . Benzo[b]pyran-4-ones		
17/075	. . . . Benzo[b]pyran-2-ones		
17/08	. . Hetero rings containing eight or more ring members, e.g. erythromycins		
<b>19/00</b>	<b>Compounds containing a hetero ring sharing one ring hetero atom with a saccharide radical; Nucleosides; Mononucleotides ; Anhydro-derivatives thereof</b>		
19/01	. sharing oxygen		
19/02	. sharing nitrogen		
19/04	. . Heterocyclic radicals containing only nitrogen atoms as ring hetero atom		
19/044	. . . Pyrrole radicals		
19/048	. . . Pyridine radicals		
19/052	. . . Imidazole radicals		
19/056	. . . Triazole or tetrazole radicals		
19/06	. . . Pyrimidine radicals		
19/067	. . . . with ribosyl as the saccharide radical		
19/073	. . . . with 2-deoxyribosyl as the saccharide radical		
19/09	. . . . with arabinosyl as the saccharide radical		
19/10	. . . . with the saccharide radical esterified by phosphoric or polyphosphoric acids		
19/11	. . . . . containing cyclic phosphate		
19/12	. . . Triazine radicals		
19/14	. . . Pyrrolo-pyrimidine radicals		
19/16	. . . Purine radicals		
19/167	. . . . with ribosyl as the saccharide radical		
19/173	. . . . with 2-deoxyribosyl as the saccharide radical		
19/19	. . . . with arabinosyl as the saccharide radical		
19/20	. . . . with the saccharide radical esterified by phosphoric or polyphosphoric acids		
19/207	. . . . . the phosphoric or polyphosphoric acids being esterified by a further hydroxylic compound, e.g. flavine adenine dinucleotide or nicotinamide-adenine dinucleotide		
19/213	. . . . . containing cyclic phosphate		
19/22	. . . Pteridine radicals		
19/23	. . . Heterocyclic radicals containing two or more heterocyclic rings condensed among themselves or condensed with a common carbocyclic ring system, not provided for in groups <a href="#">C07H 19/14</a> - <a href="#">C07H 19/22</a>		
19/24	. . Heterocyclic radicals containing oxygen or sulfur as ring hetero atom		
<b>21/00</b>	<b>Compounds containing two or more mononucleotide units having separate phosphate or polyphosphate groups linked by saccharide radicals of nucleoside groups, e.g. nucleic acids</b>		
21/02	. with ribosyl as saccharide radical		