

# CPC COOPERATIVE PATENT CLASSIFICATION

**G21F PROTECTION AGAINST X-RADIATION, GAMMA RADIATION, CORPUSCULAR RADIATION OR PARTICLE BOMBARDMENT; TREATING RADIOACTIVELY CONTAMINATED MATERIAL; DECONTAMINATION ARRANGEMENTS THEREFOR** (radiation protection by pharmaceutical means [A61K 8/00](#); in cosmonautic vehicles [B64G](#); combined with a reactor [G21C 11/00](#); combined with X-ray tubes [H01J 35/16](#); combined with X-ray apparatus [H05G 1/02](#))

<b>1/00</b>	<b>Shielding characterised by the composition of the materials</b>	5/10	. . Heat-removal systems, e.g. using circulating fluid or cooling fins
1/02	. Selection of uniform shielding materials	5/12	. . Closures for containers; Sealing arrangements
1/023	. . {Liquids}	2005/125	. . . {Means to monitor or detect the leak-tightness of the closure}
1/026	. . {Semi-liquids, gels, pastes}	5/14	. . Devices for handling containers or shipping-casks, e.g. transporting devices {loading and unloading, filling of containers (Cranes, load-engaging elements or devices for cranes, capstans, winches or tackles <a href="#">B66C</a> )}
1/04	. . Concretes; Other hydraulic hardening materials		
1/042	. . . {Concretes combined with other materials dispersed in the carrier}		
1/045	. . . . {with organic substances}		
1/047	. . . . {with metals}		
1/06	. . Ceramics; Glasses; Refractories ( <a href="#">cermets G21F 1/08</a> )	<b>7/00</b>	<b>Shielded cells or rooms (chambers provided with manipulating devices in general <a href="#">B25J</a>)</b>
1/08	. . Metals; Alloys; Cermets, i.e. sintered mixtures of ceramics and metals	7/005	. Shielded passages through walls; Locks; Transferring devices between rooms ( <a href="#">between glove-boxes G21F 7/047</a> )
1/085	. . . {Heavy metals or alloys}	7/01	. . Transferring by fluidic means
1/10	. . Organic substances; Dispersions in organic carriers	7/015	. Room atmosphere, temperature or pressure control devices
1/103	. . . {Dispersions in organic carriers}	7/02	. Observation devices permitting vision but shielding the observer ({ <a href="#">optical systems per se G02</a> })
1/106	. . . . {metallic dispersions}	7/03	. . Windows, e.g. shielded
1/12	. Laminated shielding materials	7/04	. Shielded glove-boxes ( <a href="#">glove-boxes in general B25J 21/02</a> )
1/125	. . {comprising metals}	7/041	. . {Glove-box atmosphere, temperature or pressure control devices ( <a href="#">in general G21F 7/015</a> )}
<b>3/00</b>	<b>Shielding characterised by its physical form, e.g. granules, or shape of the material</b>	7/043	. . {Lighting}
3/02	. Clothing ( <a href="#">protective garments in general A41D 13/00</a> )	7/045	. . {Transportable glove-boxes}
3/025	. . Clothing completely surrounding the wearer	7/047	. . Shielded passages; Closing or transferring means between glove-boxes
3/03	. . Aprons	7/053	. . Glove mounting means
3/035	. . Gloves ( <a href="#">mounting means on glove boxes G21F 7/053</a> )	7/06	. Structural combination with remotely controlled apparatus, e.g. with manipulators ( <a href="#">manipulators B25J</a> ; <a href="#">remote control in general G05</a> )
3/04	. Bricks; Shields made up therefrom	7/061	. . {Integrated manipulators}
<b>5/00</b>	<b>Transportable or portable shielded containers</b>	7/062	. . . {mounted in a wall, e.g. pivotably mounted ( <a href="#">in general F16J 15/50, F16J 15/52</a> )}
5/002	. Containers for fluid radioactive wastes	7/063	. . {Remotely manipulated measuring or controlling devices ( <a href="#">combined with window G21F 7/02</a> )}
5/005	. Containers for solid radioactive wastes, e.g. for ultimate disposal	7/065	. . {Remotely manipulated machinery}
5/008	. . Containers for fuel elements	7/066	. . {Remotely manipulated tools}
5/012	. . . Fuel element racks in the containers	7/067	. . {Transferring devices within cells or boxes ( <a href="#">between cells G21F 7/005, G21F 7/047</a> )}
5/015	. for storing radioactive sources, e.g. source carriers for irradiation units; Radioisotope containers	7/068	. . {Remotely manipulating devices for fluids}
5/018	. . Syringe shields or holders ( <a href="#">syringe shielding for applying radioactive material to the body {A61M 5/1785}</a> )	<b>9/00</b>	<b>Treating radioactively contaminated material; Decontamination arrangements therefor</b>
5/02	. with provision for restricted exposure of a radiation source within the container	9/001	. {Decontamination of contaminated objects, apparatus, clothes, food; Preventing contamination thereof}
5/04	. . Means for controlling exposure, e.g. time, size of aperture ( <a href="#">controlling exposure to X-radiation H05G 1/30</a> )	9/002	. . {Decontamination of the surface of objects with chemical or electrochemical processes}
5/06	. Details of, or accessories to, the containers		
5/065	. . {Containers provided with a rotatable drum}		
5/08	. . Shock-absorbers, e.g. impact buffers for containers		

- 9/004 . . . {of metallic surfaces}
- 9/005 . . {Decontamination of the surface of objects by ablation}
- 9/007 . {Recovery of isotopes from radioactive waste, e.g. fission products (separating different isotopes of the same chemical element [B01D 59/00](#))}
- 9/008 . {Apparatus specially adapted for mixing or disposing radioactively contaminated material ([G21F 9/305](#) and [G21F 9/308](#) take precedence)}
- 9/02 . Treating gases
- 9/04 . Treating liquids

**NOTES**

1. In this group the following term is used with the meaning indicated:
  - "liquids" mean compounds being liquid under normal temperature and pressure conditions.
2. Molten metals and corium are classified as solids. Muds are classified as liquids as long as they are not dried

- 9/06 . . Processing (separating different isotopes of the same chemical element [B01D 59/00](#))
- 9/08 . . . by evaporation; by distillation
- 9/10 . . . by flocculation
- 9/12 . . . by absorption; by adsorption; by ion-exchange
- 9/125 . . . . {by solvent extraction}
- 9/14 . . . by incineration; by calcination, e.g. desiccation
- 9/16 . . . by fixation in stable solid media {([G21F 9/305](#) takes precedence)}
- 9/162 . . . . {in an inorganic matrix, e.g. clays, zeolites}
- 9/165 . . . . {Cement or cement-like matrix (compositional aspects [C04B](#))}
- 9/167 . . . . {in polymeric matrix, e.g. resins, tars}
- 9/18 . . . by biological processes
- 9/20 . . Disposal of liquid waste
- 9/22 . . . by storage in a tank or other container
- 9/24 . . . by storage in the ground; by storage under water, e.g. in ocean
- 9/26 . . . by dilution in water, e.g. in ocean, in stream
- 9/28 . Treating solids
- 9/30 . . Processing (separating different isotopes of the same chemical element [B01D 59/00](#))
- 9/301 . . . {by fixation in stable solid media}
- 9/302 . . . . {in an inorganic matrix}
- 9/304 . . . . {Cement or cement-like matrix (compositional aspects [C04B](#))}
- 9/305 . . . . {Glass or glass like matrix ([C03B 5/005](#) takes precedence; compositional aspects [C03C](#))}
- 9/307 . . . . {in polymeric matrix, e.g. resins, tars}
- 9/308 . . . {by melting the waste ([G21F 9/305](#), [G21F 9/32](#) take precedence)}
- 9/32 . . . by incineration
- 9/34 . . Disposal of solid waste
- 9/36 . . . by packaging; by baling