

ECLA**EUROPEAN 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 [A61K7/40](#); in cosmonautic vehicles [B64G](#); combined with a reactor [G21C11/00](#); combined with X-ray tubes [H01J35/16](#); combined with X-ray apparatus [H05G1/02](#))

G21F1/00

Shielding characterised by the composition of the materials

- G21F1/02 . Selection of uniform shielding materials
- G21F1/02B . . [N: Liquids]
- G21F1/02C . . [N: Semi-liquids, gels, pastes]
- G21F1/04 . . Concretes; Other hydraulic hardening materials
- G21F1/04B . . . [N: Concretes combined with other materials dispersed in the carrier]
- G21F1/04B2 [N: with organic substances]
- G21F1/04B4 [N: with metals]
- G21F1/06 . . Ceramics; Glasses; Refractories ([cermets G21F1/08](#))
- G21F1/08 . . Metals; Alloys; Cermets, i.e. sintered mixtures of ceramics and metals
- G21F1/08B . . . [N: Heavy metals or alloys]
- G21F1/10 . . Organic substances; Dispersions in organic carriers
- G21F1/10B . . . [N: Dispersions in organic carriers]
- G21F1/10B2 [N: metallic dispersions]
- G21F1/12 . Laminated shielding materials
- G21F1/12B . . [N: comprising metals]

G21F3/00

Shielding characterised by its physical form, e.g. granules, or shape of the material

- G21F3/02 . Clothing ([protective garments in general A41D13/00](#))
- G21F3/025 . . Clothing completely surrounding the wearer
- G21F3/03 . . Aprons
- G21F3/035 . . Gloves ([mounting means on glove boxes G21F7/053](#))
- G21F3/04 . Bricks; Shields made up therefrom

G21F5/00

Transportable or portable shielded containers

- G21F5/002 . Containers for fluid radioactive wastes
- G21F5/005 . Containers for solid radioactive wastes, e.g. for ultimate disposal
- G21F5/008 . . Containers for fuel elements

- G21F5/012 . . . Fuel element racks in the containers
- G21F5/015 . for storing radioactive sources, e.g. source carriers for irradiation units; Radioisotope containers
- G21F5/018 . . Syringe shields or holders (syringe shielding for applying radioactive material to the body [N: [A61M5/178R](#)])
- G21F5/02 . with provision for restricted exposure of a radiation source within the container
- G21F5/04 . . Means for controlling exposure, e.g. time, size of aperture (controlling exposure to X-radiation [H05G1/30](#))
- G21F5/06 . Details of, or accessories to, the containers
- G21F5/06R . . [N: Containers provided with a rotatable drum]
- G21F5/08 . . Shock-absorbers, e.g. impact buffers for containers
- G21F5/10 . . Heat-removal systems, e.g. using circulating fluid or cooling fins
- G21F5/12 . . Closures for containers; Sealing arrangements
- G21F5/14 . . Devices for handling containers or shipping-casks, e.g. transporting devices [N: loading and unloading, filling of containers (Cranes, load-engaging elements or devices for cranes, capstans, winches or tackles [B66C](#))]
- G21F7/00** **Shielded cells or rooms** (chambers provided with manipulating devices in general [B25J](#))
- G21F7/005 . Shielded passages through walls; Locks; Transferring devices between rooms (between glove-boxes [G21F7/047](#))
- G21F7/01 . . Transferring by fluidic means
- G21F7/015 . Room atmosphere, temperature or pressure control devices
- G21F7/02 . Observation devices permitting vision but shielding the observer [N: (optical systems per se [G02](#))]
- G21F7/03 . . Windows, e.g. shielded
- G21F7/04 . Shielded glove-boxes (glove-boxes in general [B25J21/02](#))
- G21F7/04D . . [N: Glove-box atmosphere, temperature or pressure control devices (in general [G21F7/015](#))]
- G21F7/04F . . [N: Lighting]
- G21F7/04G . . [N: Transportable glove-boxes]
- G21F7/047 . . Shielded passages; Closing or transferring means between glove-boxes
- G21F7/053 . . Glove mounting means
- G21F7/06 . Structural combination with remotely controlled apparatus, e.g. with manipulators (manipulators [B25J](#); remote control in general [G05](#))
- G21F7/06B . . [N: Integrated manipulators]
- G21F7/06B2 . . . [N: mounted in a wall, e.g. pivotably mounted (in general [F16J15/50](#), [F16J15/52](#))]
- G21F7/06C . . [N: Remotely manipulated measuring or controlling devices (combined with window [G21F7/02](#))]
- G21F7/06D . . [N: Remotely manipulated machinery]

- G21F7/06F . . [N: Remotely manipulated tools]
- G21F7/06G . . [N: Transferring devices within cells or boxes (between cells [G21F7/005](#), [G21F7/047](#))]
- G21F7/06H . . [N: Remotely manipulating devices for fluids]

- G21F9/00** **Treating radioactively contaminated material; Decontamination arrangements therefor**

- G21F9/00B . [N: Decontamination of contaminated objects, apparatus, clothes, food; Preventing contamination thereof]
- G21F9/00B2 . . [N: Decontamination of the surface of objects with chemical or electrochemical processes] [N9911]
- G21F9/00B2B . . . [N: of metallic surfaces] [N9911]
- G21F9/00B4 . . [N: Decontamination of the surface of objects by ablation] [N9911]

- G21F9/00C . [N: Recovery of isotopes from radioactive waste, e.g. fission products (separating different isotopes of the same chemical element [B01D59/00](#))]

- G21F9/00P . [N: Apparatus specially adapted for mixing or disposing radioactively contaminated material ([G21F9/30B2D](#) and [G21F9/30F](#) take precedence)] [N9807]

- G21F9/02 . Treating gases

- G21F9/04 . Treating liquids

- [N: **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
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- G21F9/06 . . Processing (separating different isotopes of the same chemical element [B01D59/00](#))
- G21F9/08 . . . by evaporation; by distillation
- G21F9/10 . . . by flocculation
- G21F9/12 . . . by absorption; by adsorption; by ion-exchange
- G21F9/12E [N: by solvent extraction]
- G21F9/14 . . . by incineration; by calcination, e.g. desiccation
- G21F9/16 . . . by fixation in stable solid media [N: [G21F9/30B2D](#) takes precedence] [C9804]
- G21F9/16B [N: in an inorganic matrix, e.g. clays, zeolites] [N9804]
- G21F9/16B2 [N: Cement or cement-like matrix (compositional aspects [C04B](#))] [N9804]
- G21F9/16D [N: in polymeric matrix, e.g. resins, tars] [N9804]
- G21F9/18 . . . by biological processes
- G21F9/20 . . Disposal of liquid waste

- G21F9/22 . . . by storage in a tank or other container
- G21F9/24 . . . by storage in the ground; by storage under water, e.g. in ocean
- G21F9/26 . . . by dilution in water, e.g. in ocean, in stream

- G21F9/28 . Treating solids
- G21F9/30 . . Processing ([separating different isotopes of the same chemical element B01D59/00](#))
- G21F9/30B . . . [N: by fixation in stable solid media] [N9804]
- G21F9/30B2 [N: in an inorganic matrix] [N9804]
- G21F9/30B2B [N: Cement or cement-like matrix ([compositional aspects C04B](#))] [N9804]
- G21F9/30B2D [N: Glass or glass like matrix ([C03B5/00B](#) takes precedence; [compositional aspects C03C](#))] [N9804]
- G21F9/30B4 [N: in polymeric matrix, e.g. resins, tars] [N9805]
- G21F9/30F . . . [N: by melting the waste ([G21F9/30B2D](#), [G21F9/32](#) take precedence)] [N9804]
- G21F9/32 . . . by incineration
- G21F9/34 . . Disposal of solid waste
- G21F9/36 . . . by packaging; by baling