

# CPC COOPERATIVE PATENT CLASSIFICATION

## B29B PREPARATION OR PRETREATMENT OF THE MATERIAL TO BE SHAPED; MAKING GRANULES OR PREFORMS; RECOVERY OF PLASTICS OR OTHER CONSTITUENTS OF WASTE MATERIAL CONTAINING PLASTICS

|       |   |       |   |
|-------|---|-------|---|
| 7/00  | <b>Mixing; Kneading</b> ({for preparation of dough <a href="#">A21C 1/00</a> ; in general <a href="#">B01F</a> ; combined with calendaring <a href="#">B29C 43/24</a> , with injection <a href="#">B29C 45/46</a> , with extrusion <a href="#">B29C 47/36</a> ) | 7/30  | . continuous, with mechanical mixing or kneading devices  |
| 7/002 | . {Methods (chemical aspects <a href="#">C08J 3/00</a> )}   | 7/32  | . . with non-movable mixing or kneading devices   |
| 7/005 | . . {for mixing in batches}   | 7/325 | . . . {Static mixers (in general <a href="#">B01F 5/0602</a> )}   |
| 7/007 | . . {for continuous mixing}   | 7/34  | . . with movable mixing or kneading devices   |
| 7/02  | . non-continuous, with mechanical mixing or kneading devices, i.e. batch type   | 7/36  | . . . shaking, oscillating or vibrating   |
| 7/04  | . . with non-movable mixing or kneading devices   | 7/365 | . . . . {by means of axially movable pistons}   |
| 7/06  | . . with movable mixing or kneading devices   | 7/38  | . . . rotary ( <a href="#">B29B 7/52</a> takes precedence)  |
| 7/08  | . . . shaking, oscillating or vibrating   | 7/385 | . . . . {fluid mixers}  |
| 7/085 | . . . . {by means of axially movable pistons}   | 7/40  | . . . . with single shaft   |
| 7/10  | . . . rotary  | 7/401 | . . . . . {having a casing closely surrounding the rotor, e.g. with a plunger for feeding the material ( <a href="#">B29B 7/407</a> , <a href="#">B29B 7/42</a> take precedence)}     |
| 7/103 | . . . . {with rollers or the like in casings}   | 7/402 | . . . . . {using a rotor-stator system with intermeshing elements, e.g. teeth ( <a href="#">B29B 7/408</a> , <a href="#">B29B 7/404</a> take precedence)}                             |
| 7/106 | . . . . {using rotary casings}  | 7/404 | . . . . . {with feeding or valve actuating means, e.g. with cleaning means}   |
| 7/12  | . . . . with single shaft   | 7/405 | . . . . . {Mixing heads ( <a href="#">B29B 7/404</a> , <a href="#">B29B 7/42</a> take precedence; mixing heads without moving stirrer <a href="#">B29B 7/457</a> )}                   |
| 7/125 | . . . . . {having a casing closely surrounding the rotor, e.g. for masticating rubber (with more than one shaft <a href="#">B29B 7/183</a> ); Rotors therefor ( <a href="#">B29B 7/14</a> , <a href="#">B29B 7/16</a> take precedence)}                         | 7/407 | . . . . . {with a casing closely surrounding the rotor, e.g. with conical rotor}  |
| 7/14  | . . . . . with screw or helix   | 7/408 | . . . . . {with mixing elements on a rotor co-operating with mixing elements, perpendicular to the axis of the rotor, fixed on a stator}  |
| 7/16  | . . . . . with paddles or arms  | 7/42  | . . . . . with screw or helix   |
| 7/18  | . . . . . with more than one shaft  | 7/421 | . . . . . {with screw and additionally other mixing elements on the same shaft, e.g. paddles, discs, bearings, rotor blades of the Banbury type}                                      |
| 7/183 | . . . . . {having a casing closely surrounding the rotors, e.g. of Banbury type (with single shaft <a href="#">B29B 7/125</a> )}  | 7/422 | . . . . . {with screw sections co-operating, e.g. intermeshing, with elements on the wall of the surrounding casing}  |
| 7/186 | . . . . . . {Rotors therefor}   | 7/423 | . . . . . . {and oscillating axially (in general <a href="#">B01F 11/0057</a> )}  |
| 7/20  | . . . . . with intermeshing devices, e.g. screws  | 7/424 | . . . . . . {with conical screw surrounded by conical casing}   |
| 7/22  | . . Component parts, details or accessories; Auxiliary operations   | 7/425 | . . . . . . {with screw surrounded by a casing provided with grooves or cavities}   |
| 7/24  | . . . for feeding   | 7/426 | . . . . . . {with consecutive casings or screws, e.g. for charging, discharging, mixing}  |
| 7/242 | . . . . {in measured doses}   | 7/427 | . . . . . . {with independently driven screws rotating about the same axis, e.g. oscillating axially; with axially oscillating screws ( <a href="#">B29B 7/423</a> takes precedence)} |
| 7/244 | . . . . . {of several materials}  | 7/428 | . . . . . . {Parts or accessories, e.g. casings, feeding or discharging means}  |
| 7/246 | . . . . . {in mixers having more than one rotor and a casing closely surrounding the rotors, e.g. with feeding plungers}  | 7/429 | . . . . . . {Screws ( <a href="#">B29B 7/421</a> takes precedence)}   |
| 7/248 | . . . . . {with plungers for introducing the material, e.g. from below ( <a href="#">B29B 7/246</a> takes precedence)}  | 7/44  | . . . . . with paddles or arms  |
| 7/26  | . . . for discharging, e.g. doors   |       |   |
| 7/263 | . . . . {from the underside in mixers having more than one rotor and a casing closely surrounding the rotors}   |       |   |
| 7/266 | . . . . . {using sliding doors}   |       |   |
| 7/28  | . . . for measuring, controlling or regulating, e.g. viscosity control {( <a href="#">B29B 7/242</a> takes precedence)}   |       |   |
| 7/283 | . . . . {measuring data of the driving system, e.g. torque, speed, power}   |       |   |
| 7/286 | . . . . {measuring properties of the mixture, e.g. temperature, density ( <a href="#">B29B 7/283</a> takes precedence)}   |       |   |

- 7/46 . . . . with more than one shaft
- 7/465 . . . . {each shaft comprising rotor parts of the Banbury type in addition to screw parts}
- 7/48 . . . . with intermeshing devices, e.g. screws
- 7/481 . . . . . {provided with paddles, gears or discs ([B29B 7/482 takes precedence](#))}
- 7/482 . . . . . {provided with screw parts in addition to other mixing parts, e.g. paddles, gears, discs}
- 7/483 . . . . . {the other mixing parts being discs perpendicular to the screw axis}
- 7/484 . . . . . {with two shafts provided with screws, e.g. one screw being shorter than the other ([B29B 7/482 takes precedence](#))}
- 7/485 . . . . . {with three or more shafts provided with screws}
- 7/486 . . . . . {with screws surrounded by a casing provided with grooves or cavities}
- 7/487 . . . . . {with consecutive casings or screws, e.g. for feeding, discharging, mixing}
- 7/488 . . . . . {Parts, e.g. casings, sealings; Accessories, e.g. flow controlling or throttling devices ([discharging B29B 7/582](#); [feeding B29B 7/60](#))}
- 7/489 . . . . . {Screws ([B29B 7/482 takes precedence](#))}
- 7/50 . . . . with rotary casing
- 7/52 . . . with rollers or the like, e.g. calenders
- 7/523 . . . . {co-operating with casings}
- 7/526 . . . . . {with two or more rollers}
- 7/54 . . . . with a single roller co-operating with a stationary member {other than the casing}
- 7/56 . . . . with co-operating rollers {, e.g. with repeated action, i.e. the material leaving a set of rollers being reconducted to the same set or being conducted to a next set}
- 7/562 . . . . . {with means for axially moving the material on the rollers}
- 7/564 . . . . . {at least one of the rollers being provided with helicoidal grooves or ridges, e.g. followed by axial extrusion}
- 7/566 . . . . . {provided with means to take material away from a set of rollers and to reconduct it to the same set; provided with endless belts, e.g. which can be in or out of cooperation with at least one of the rollers}
- 7/568 . . . . . {with consecutive sets of rollers or a train of rollers}
- 7/58 . . Component parts, details or accessories; Auxiliary operations
- 7/582 . . . {for discharging, e.g. doors}
- 7/584 . . . {for mixers with rollers, e.g. wedges, guides, pressing means, thermal conditioning}
- 7/586 . . . . {Drives}
- 7/588 . . . . {cutting devices, e.g. movable cutting devices ([scrapers for stripping the material from rollers B29B 7/645](#))}
- 7/60 . . . for feeding, e.g. end guides for the incoming material {([B29B 7/7615 takes precedence](#); [feeding predetermined amounts for mixing in general B01F 15/0216](#))}
- 7/603 . . . . {in measured doses, e.g. proportioning of several materials}
- 7/606 . . . . {specially adapted for feeding calenders or the like}
- 7/62 . . . Rollers, e.g. with grooves ([B29B 7/564 takes precedence](#))
- 7/625 . . . . {provided with cooling or heating means}
- 7/64 . . . Stripping the material from the rollers
- 7/645 . . . . {by means of a scraper moving in the axial direction of the rollers}
- 7/66 . . . Recycling the material {([B29B 7/566 takes precedence](#))}
- 7/68 . . . Positioning of rollers
- 7/70 . . . Conditioning of rollers, e.g. cleaning
- 7/72 . . . Measuring, controlling or regulating
- 7/722 . . . . {Safety devices}
- 7/724 . . . . {for continuous roller mixers, e.g. calenders ([B29B 7/722 takes precedence](#))}
- 7/726 . . . . {Measuring properties of mixture, e.g. temperature or density ([B29B 7/724 takes precedence](#))}
- 7/728 . . . . {Measuring data of the driving system, e.g. torque, speed, power, vibration ([B29B 7/724 takes precedence](#))}
- 7/74 . . using other mixers or combinations of {mixers, e.g. of dissimilar mixers; {Plant}}
- 7/7404 . . {Mixing devices specially adapted for foamable substances ([B29B 7/76 takes precedence](#))}
- 7/7409 . . . {with supply of gas}
- 7/7414 . . . . {with rotatable stirrer, e.g. using an intermeshing rotor-stator system ([B29B 7/7423 takes precedence](#))}
- 7/7419 . . . . {with static or injector mixer elements}
- 7/7423 . . . . . {preceded or followed by rotatable stirring device}
- 7/7428 . . . . {Methodical aspects}
- 7/7433 . . . {Plants}
- 7/7438 . . {Mixing guns, i.e. hand-held mixing units having dispensing means ([B29B 7/761](#), [B29B 7/7678 take precedence](#))}
- 7/7442 . . . {with driven stirrer}
- 7/7447 . . . {including means for feeding the components}
- 7/7452 . . . {for mixing components by spraying them into each other; for mixing by intersecting sheets}
- 7/7457 . . {Mixing heads without moving stirrer ([B29B 7/7438](#), [B29B 7/76 take precedence](#))}
- 7/7461 . . {Combinations of dissimilar mixers}
- 7/7466 . . {Combinations of similar mixers}
- 7/7471 . . {Mixers in which the mixing takes place at the inlet of a mould, e.g. mixing chambers situated in the mould opening}
- 7/7476 . . {Systems, i.e. flow charts or diagrams; Plants}
- 7/748 . . . {Plants ([B29B 7/7433](#), [B29B 7/7485](#), [B29B 7/7495 take precedence](#))}
- 7/7485 . . . {with consecutive mixers, e.g. with premixing some of the components}
- 7/749 . . . . {with stirring means for the individual components before they are mixed together}
- 7/7495 . . . {for mixing rubber}
- 7/76 . . {Mixers} with stream-impingement mixing head
- 7/7605 . . . {having additional mixing arrangements ([B29B 7/7673 takes precedence](#))}
- 7/761 . . . {of gun-type, i.e. hand-held units having dispensing means ([B29B 7/7678 takes precedence](#))}

- 7/7615 . . . {characterised by arrangements for controlling, measuring or regulating, e.g. for feeding or proportioning the components}
- 7/7621 . . . . {involving introducing a gas or another component in at least one of the components}
- 7/7626 . . . . {using measuring chambers of piston or plunger type ([B29B 7/7621 takes precedence](#); for mixing in general [B01F 15/0454](#))}
- 7/7631 . . . {Parts; Accessories ([B29B 7/7684 takes precedence](#))}
- 7/7636 . . . . {Construction of the feed orifices, bores, ports}
- 7/7642 . . . . . {Adjustable feed orifices, e.g. for controlling the rate of feeding}
- 7/7647 . . . . {Construction of the mixing conduit module or chamber part}
- 7/7652 . . . . {Construction of the discharge orifice, opening or nozzle}
- 7/7657 . . . . . {Adjustable discharge orifices, openings or nozzle openings, e.g. for controlling the rate of dispensing}
- 7/7663 . . . {the mixing head having an outlet tube with a reciprocating plunger, e.g. with the jets impinging in the tube}
- 7/7668 . . . . {having a second tube intersecting the first one with the jets impinging in the second tube}
- 7/7673 . . . . {having additional mixing arrangements ([B29B 7/7668 takes precedence](#))}
- 7/7678 . . . . {of the gun type, i.e. hand-held units}
- 7/7684 . . . . {Parts; Accessories}
- 7/7689 . . . . . {Plunger constructions}
- 7/7694 . . . . . {comprising recirculation channels; ducts formed in the plunger}
- 7/78 . . by gravity, e.g. falling particle mixers
- 7/80 . Component parts, details or accessories; Auxiliary operations ([B29B 7/22](#), [B29B 7/58 take precedence](#), {[cleaning mixers B01F 15/00019](#)})
- 7/801 . . {Valves}
- 7/802 . . {Constructions or methods for cleaning the mixing or kneading device ([cleaning in general B08B](#))}
- 7/803 . . . {Cleaning of mixers of the gun type, stream-impingement type, mixing heads}
- 7/805 . . . . {Cleaning of the mixing conduit, module or chamber part}
- 7/806 . . . . {Cleaning of the discharge opening, e.g. orifice of the dispenser}
- 7/807 . . . . {Cleaning of the central body of the plunger}
- 7/808 . . . . {Cleaning of the plunger tip}
- 7/82 . . Heating or cooling
- 7/823 . . . {Temperature control}
- 7/826 . . . {Apparatus therefor}
- 7/84 . . Venting or degassing {; Removing liquids, e.g. by evaporating components}
- 7/842 . . . {Removing liquids in liquid form}
- 7/845 . . . {Venting, degassing or removing evaporated components in devices with rotary stirrers}
- 7/847 . . . . {Removing of gaseous components before or after mixing}
- 7/86 . . for working at sub- or superatmospheric pressure {([B01F 13/06 takes precedence](#))}
- 7/88 . . Adding charges, {i.e. additives}
- 7/885 . . . {with means for treating, e.g. milling, the charges ([B29B 7/905 takes precedence](#))}
- 7/90 . . . Fillers or reinforcements {, e.g. fibres}
- 7/905 . . . . {with means for pretreatment of the charges or fibres}
- 7/92 . . . . Wood chips or wood fibres
- 7/94 . . . Liquid charges
- 7/945 . . . . {involving coating particles}
- 9/00 Making granules (in general [B01J](#); chemical aspects [C08J 3/12](#))**
  - 9/02 . by dividing preformed material
  - 9/04 . . in the form of plates or sheets
  - 9/06 . . in the form of filamentary material, e.g. combined with extrusion
  - 9/065 . . . {under-water, e.g. underwater pelletizers}
  - 9/08 . by agglomerating smaller particles
  - 9/10 . by moulding the material, i.e. treating it in the molten state
  - 9/12 . characterised by structure or composition
  - 2009/125 . . {Micropellets, microgranules, microparticles}
  - 9/14 . . fibre-reinforced
  - 9/16 . Auxiliary treatment of granules
  - 2009/161 . . {Absorbing, i.e. introducing a gas, a liquid or a solid material into the granules}
  - 2009/163 . . {Coating, i.e. applying a layer of liquid or solid material on the granule}
  - 2009/165 . . {Crystallizing granules}
  - 2009/166 . . {Deforming granules to give a special form, e.g. spheroidizing, rounding}
  - 2009/168 . . {Removing undesirable residual components, e.g. solvents, unreacted monomers; Degassing}
- 11/00 Making preforms ([B29C 61/06 takes precedence](#); {combined with blow-moulding [B29C 49/02](#), with thermoforming [B29C 51/02](#); making preforms for manufacturing of light guides [B29D 11/00721](#)})**
  - 11/02 . by dividing preformed material, e.g. sheets, rods
  - 11/04 . by assembling preformed material
  - 11/06 . by moulding the material
  - 11/08 . . Injection moulding
  - 11/10 . . Extrusion moulding
  - 11/12 . . Compression moulding
  - 11/14 . characterised by structure or composition
  - 11/16 . . comprising fillers or reinforcement {(non-woven fabrics [per se D04H 1/00](#), [D04H 3/00](#))}
- 13/00 Conditioning or physical treatment of the material to be shaped (chemical aspects [C08J 3/00](#) {heating, cooling or curing during shaping [B29C 35/00](#); Thermal after-treatment [B29C 71/02](#)})**
  - 2013/002 . {Extracting undesirable residual components, e.g. solvents, unreacted monomers, from material to be moulded}
  - 2013/005 . {Degassing undesirable residual components, e.g. gases, unreacted monomers, from material to be moulded}
  - 13/007 . {Treatment of sinter powders}
  - 13/02 . by heating ([B29B 13/06](#), [B29B 13/08 take precedence](#))
  - 13/021 . . {Heat treatment of powders}
  - 13/022 . . {Melting the material to be shaped}
  - 13/023 . . {Half-products, e.g. films, plates}

|              |  |           |   |
|--------------|--|-----------|---|
| 13/024       | . . . {Hollow bodies, e.g. tubes or profiles}  | 17/0042   | . . {for shaping parts, e.g. multilayered parts with at least one layer containing regenerated plastic}   |
| 13/025       | . . . . {Tube ends}  | 17/0047   | . . {Compacting complete waste articles}  |
| 2013/026     | . . . {Obtaining a uniform temperature over the whole surface of films or tubes}   | 17/0052   | . . . {Hollow articles, e.g. bottles}   |
| 2013/027     | . . . {Obtaining a temperature gradient over the surface of films or tubes}  | 2017/0057 | . . . . {Externally powered deformation tools, e.g. tools being part of relatively big non domestic installations, powered by motors}   |
| 2013/028     | . . . {Obtaining a temperature gradient across the wall thickness of plates or tubes}  | 2017/0063 | . . . . {Manually driven deformation tools, e.g. tools being part of domestic installations}  |
| 13/04        | . by cooling ( <a href="#">cooling moulded articles or half products B29C 35/16</a> )  | 2017/0068 | . . . . {Softening the hollow articles by heat and causing permanent deformation}   |
| 13/045       | . . {of powders or pellets}  | 2017/0073 | . . . . {Removing caps or labels during deformation}  |
| 13/06        | . by drying ( <a href="#">B29B 13/08 takes precedence; {drying moulded articles or half products B29C 37/0092}</a> )   | 2017/0078 | . . . . {Maintaining the deflated state, e.g. by mounting original screw lids after deformation}  |
| 13/065       | . . {of powder or pellets}   | 2017/0084 | . . . . {Deflating the hollow articles by vacuum; Details of the nozzles used in the vacuum generating devices}   |
| 13/08        | . by using wave energy or particle radiation   | 2017/0089 | . {Recycling systems, wherein the flow of products between producers, sellers and consumers includes at least a recycling step, e.g. the products being fed back to the sellers or to the producers for recycling purposes} |
| 13/10        | . by grinding, e.g. by triturating; by sieving; by filtering   | 2017/0094 | . {Mobile recycling devices, e.g. devices installed in truck trailers}  |
| <b>15/00</b> | <b>Pretreatment of the material to be shaped, not covered by groups <a href="#">B29B 7/00</a> - <a href="#">B29B 13/00</a></b>   | 17/02     | . Separating plastics from other materials  |
| 15/02        | . of crude rubber, gutta-percha, or similar substances ( <a href="#">tapping latex A01G</a> ; <a href="#">Chemical aspects C08C</a> )  | 2017/0203 | . . {Separating plastics from plastics}   |
| 15/023       | . . {Breaking up rubber bales}   | 17/0206   | . . {Selectively separating reinforcements from matrix material by destroying the interface bound before desintegrating the matrix to particles or powder, e.g. from tires or belts}  |
| 15/026       | . . {Baling of rubber}   | 17/021    | . . . {using local heating of the reinforcement}  |
| 15/04        | . . Coagulating devices  | 2017/0213 | . . {Specific separating techniques}  |
| 15/06        | . . Washing devices  | 2017/0217 | . . . {Mechanical separating techniques; devices therefor}  |
| 15/08        | . of reinforcements or fillers ( <a href="#">chemical aspects C08J, C08K</a> )   | 2017/022  | . . . . {Grippers, hooks, piercing needles, fingers, e.g. mounted on robots}  |
| 15/10        | . . Coating or impregnating {independently of the moulding or shaping step} ( <a href="#">applying liquids in general B05</a> )  | 2017/0224 | . . . . {Screens, sieves}   |
|              | <b>NOTE</b>  | 2017/0227 | . . . . {Vibratory or shaking tables}   |
|              | Where the coating or impregnating is combined with moulding the documents are classified in <a href="#">B29C 53/8066</a> , <a href="#">B29C 70/00</a>  | 2017/0231 | . . . . {Centrifugating, cyclones}  |
| 15/105       | . . . {of reinforcement of definite length with a matrix in solid form, e.g. powder, fibre or sheet form ( <a href="#">calendering B29C 70/506</a> )}  | 2017/0234 | . . . . {using gravity, e.g. separating by weight differences in a wind sifter}   |
| 15/12        | . . . of reinforcements of indefinite length   | 2017/0237 | . . . . {using density difference}  |
| 15/122       | . . . . {with a matrix in liquid form, e.g. as melt, solution or latex}  | 2017/0241 | . . . . {in gas, e.g. air flow}   |
| 15/125       | . . . . . {by dipping}   | 2017/0244 | . . . . . {in liquids}  |
| 15/127       | . . . . . {by spraying}  | 2017/0248 | . . . . {Froth flotation, i.e. wherein gas bubbles are attached to suspended particles in an aerated liquid}  |
| 15/14        | . . . . of filaments or wires  | 2017/0251 | . . . . {Hydropulping for converting the material under the influence of water into a slurry, e.g. for separating laminated plastic from paper}   |
| <b>17/00</b> | <b>Recovery of plastics or other constituents of waste material containing plastics; (<a href="#">volume reduction of waste plastics, e.g. by mechanical compacting or melting disposal of solid waste B09B</a>; <a href="#">chemical recovery C08J 11/00</a>)</b> | 2017/0255 | . . . {using different melting or softening temperatures of the materials to be separated}  |
| 17/0005      | . {Direct recuperation and re-use of scrap material during moulding operation, i.e. feed-back of used material}  | 2017/0258 | . . . . {using heated surfaces for selective softening or melting of at least one plastic ingredient}   |
| 2017/001     | . {Pretreating the materials before recovery}  | 2017/0262 | . . . {using electrical characteristics}  |
| 2017/0015    | . . {Washing, rinsing}   | 2017/0265 | . . . . {Electrostatic separation}  |
| 2017/0021    | . . {Dividing in large parts}  | 2017/0268 | . . . {Separation of metals}  |
| 17/0026      | . {by agglomeration or compacting}   | 2017/0272 | . . . . {Magnetic separation}   |
| 2017/0031    | . . {Melting the outer surface of compressed waste, e.g. for forming briquets by expelling the compressed waste material through a heated tool}  | 2017/0275 | . . . {using chemical sensors, e.g. analysing gasified constituents}  |
| 17/0036      | . . {of large particles, e.g. beads, granules, pellets, flakes, slices}  |           |   |

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|----------------|---|------------|---|
| 2017/0279      | . . . {Optical identification, e.g. cameras or spectroscopy}  | 2911/14073 | . . . . . partially   |
| 2017/0282      | . . . {using information associated with the materials, e.g. labels on products}  | 2911/1408  | . . . . . at body portion   |
| 2017/0286      | . . . {Cleaning means used for separation}  | 2911/14086 | . . . . . partially   |
| 2017/0289      | . . . . {Washing the materials in liquids}  | 2911/14093 | . . . . . at bottom portion   |
| 2017/0293      | . . . {Dissolving the materials in gases or liquids}  | 2911/141   | . . . . . partially   |
| 2017/0296      | . . . . {Dissolving the materials in aqueous alkaline solutions, e.g. NaOH or KOH}  | 2911/14106 | . . . . . having at least one layer   |
| 17/04          | . Disintegrating plastics, {e.g. by milling} <a href="#">(B29B 9/02, B29B 11/02, B29B 13/10, B29B 17/02)</a> take precedence)   | 2911/14113 | . . . . . having at least two layers  |
| 17/0404        | . . {to powder}   | 2911/1412  | . . . . . having at least three layers  |
| 17/0408        | . . . {using cryogenic systems}   | 2911/14126 | . . . . . having more than three layers   |
| 17/0412        | . . {to large particles, e.g. beads, granules, flakes, slices}  | 2911/14133 | . . . . . having at least one layer being injected  |
| 2017/0416      | . . {Cooling the plastics before disintegration, e.g. freezing}   | 2911/1414  | . . . . . having at least two layers being injected   |
| 2017/042       | . . {Mixing disintegrated particles or powders with other materials, e.g. with virgin materials}                                | 2911/14146 | . . . . . having at least three layers being injected   |
| 2017/0424      | . . {Specific disintegrating techniques; devices therefor}  | 2911/14153 | . . . . . having more than three layers being injected  |
| 2017/0428      | . . . {Jets of high pressure fluid}   | 2911/1416  | . . . . . having at least one layer being extruded  |
| 2017/0432      | . . . . {Abrasive blasting, i.e. the jets being charged with abrasives}   | 2911/14166 | . . . . . having at least two layers being extruded   |
| 2017/0436      | . . . {Immersion baths}   | 2911/14173 | . . . . . having at least three layers being extruded   |
| 2017/044       | . . . {Knives}  | 2911/1418  | . . . . . having more than three layers being extruded  |
| 2017/0444      | . . . {Cutting wires, e.g. vibrating wires}   | 2911/14186 | . . . . . having at least one layer being thermoformed  |
| 2017/0448      | . . . {Cutting discs}   | 2911/14193 | . . . . . having at least two layers being thermoformed   |
| 2017/0452      | . . . . {the discs containing abrasives}  | 2911/142   | . . . . . having at least three layers being thermoformed   |
| 2017/0456      | . . . {Pressing tools with calibrated openings, e.g. in sizing plates, for disintegrating solid materials}                      | 2911/14206 | . . . . . having more than three layers being thermoformed  |
| 2017/046       | . . . {Extruder as pressing tool with calibrated die openings for forming and disintegrating pasty or melted material}          | 2911/14213 | . . . . . having at least one layer being compression moulded   |
| 2017/0464      | . . . {Solid state shear extrusion pulverisation}   | 2911/1422  | . . . . . having at least two layers being compression moulded  |
| 2017/0468      | . . . {Crushing, i.e. disintegrating into small particles}  | 2911/14226 | . . . . . having at least three layers being compression moulded  |
| 2017/0472      | . . . {Balls or rollers in a container}   | 2911/14233 | . . . . . having more than three layers being compression moulded   |
| 2017/0476      | . . . {Cutting or tearing members, e.g. spiked or toothed cylinders or intermeshing rollers}                                    | 2911/1424  | . . . . . having at least one layer being applied using techniques not covered by <a href="#">B29B 2911/14133</a> - <a href="#">B29B 2911/14213</a> |
| 2017/048       | . . . {Cutter-compactors, e.g. of the EREMA type}   | 2911/14246 | . . . . . having at least two layers being applied using said techniques  |
| 2017/0484      | . . . {Grinding tools, roller mills or disc mills}  | 2911/14253 | . . . . . having at least three layers being applied using said techniques  |
| 2017/0488      | . . . {Hammers or beaters}  | 2911/1426  | . . . . . having more than three layers being applied using said techniques   |
| 2017/0492      | . . . {Projecting the material on stationary or moving impact surfaces or plates}   | 2911/14266 | . . . . . Type of said techniques not covered by <a href="#">B29B 2911/14133</a> - <a href="#">B29B 2911/14213</a>                                  |
| 2017/0496      | . . . {Pyrolysing the materials}  | 2911/14273 | . . . . . Spray coating   |
| <b>2911/00</b> | <b>Indexing scheme related to making preforms for blow-moulding bottles or the like (not used)</b>                              | 2911/1428  | . . . . . Dip coating   |
| 2911/14        | . Layer configuration, geometry, dimensions or physical properties of preforms for blow-moulding bottles or the like (not used) | 2911/14286 | . . . . . Powder coating  |
| 2911/14006     | . . layer configuration (not used)  | 2911/14293 | . . . . . Casting   |
| 2911/14013     | . . . monolayered   | 2911/143   | . . . . . Interaction between at least two layers   |
| 2911/1402      | . . . . at neck portion   | 2911/14306 | . . . . . by welding  |
| 2911/14026     | . . . . at flange portion   | 2911/14313 | . . . . . by using adhesives  |
| 2911/14033     | . . . . at body portion   | 2911/1432  | . . Geometry (not used)   |
| 2911/1404      | . . . . at bottom portion   |            |   |
| 2911/14046     | . . . multilayered  |            |   |
| 2911/14053     | . . . . at neck portion   |            |   |
| 2911/1406      | . . . . . partially   |            |   |
| 2911/14066     | . . . . at flange portion   |            |   |

2911/14326 . . . Variable wall thickness

#### **WARNING**

Group [B29B 2911/14326](#) is impacted by reclassification into groups [B29B 2911/14328](#) - [B29B 2911/14332](#).

Groups [B29B 2911/14326](#) and [B29B 2911/14328](#) - [B29B 2911/14332](#) should be considered in order to perform a complete search.

2911/14328 . . . at neck portion

2911/1433 . . . at flange portion

2911/14331 . . . at body portion

2911/14332 . . . at bottom portion

2911/14333 . . . Variable diameter

#### **WARNING**

Group [B29B 2911/14333](#) is impacted by reclassification into groups [B29B 2911/14335](#) - [B29B 2911/14338](#).

Groups [B29B 2911/14333](#) and [B29B 2911/14335](#) - [B29B 2911/14338](#) should be considered in order to perform a complete search.

2911/14335 . . . at neck portion

2911/14336 . . . at flange portion

2911/14337 . . . at body portion

2911/14338 . . . at bottom portion

2911/1434 . . . Ribs or protrusions

#### **WARNING**

Group [B29B 2911/1434](#) is impacted by reclassification into groups [B29B 2911/14341](#) - [B29B 2911/14345](#).

Groups [B29B 2911/1434](#) and [B29B 2911/14341](#) - [B29B 2911/14345](#) should be considered in order to perform a complete search.

2911/14341 . . . at neck portion

2911/14343 . . . at flange portion

2911/14344 . . . at body portion

2911/14345 . . . at bottom portion

2911/14346 . . . Internal separating wall

#### **WARNING**

Group [B29B 2911/14346](#) is impacted by reclassification into groups [B29B 2911/14348](#) - [B29B 2911/14352](#).

Groups [B29B 2911/14346](#) and [B29B 2911/14348](#) - [B29B 2911/14352](#) should be considered in order to perform a complete search.

2911/14348 . . . at neck portion

2911/1435 . . . at flange portion

2911/14351 . . . at body portion

2911/14352 . . . at bottom portion

2911/14353 . . . Special shape

2911/1436 . . . Special overall shape

2911/14366 . . . Conical

2911/14373 . . . Axially asymmetrical

2911/1438 . . . Elliptic or oval cross-section shape

2911/14386 . . . Rectangular cross-section shape

2911/14393 . . . Hexagonal cross-section shape

2911/144 . . . Shape allows stacking or nesting

2911/14406 . . . Special shape of specific parts of preform

2911/14413 . . . Special lip, i.e. very top of preform neck

2911/1442 . . . Special neck

2911/14426 . . . Wide-mouth

2911/14433 . . . Closure retaining means

2911/1444 . . . Threads

2911/14446 . . . Interrupted threads

2911/14453 . . . Inner threads

2911/1446 . . . No threads

2911/14466 . . . Tamper-evident band retaining ring

2911/14473 . . . Special flange

2911/1448 . . . Special body

2911/14486 . . . Special bottom

2911/14493 . . . Special sprue, i.e. injection mark

2911/145 . . . Special pinch-off portion

2911/14506 . . . Auxiliary parts or inserts

2911/14513 . . . Handle

2911/1452 . . . Closure

2911/14526 . . . Transport means

2911/14533 . . . Dispensing spout

2911/1454 . . . Parts to assist orientation of preform, e.g. in mould

2911/14546 . . . at neck portion

2911/14553 . . . at flange portion

2911/1456 . . . at body portion

2911/14566 . . . at bottom portion

2911/14573 . . . Preform, i.e. neck, flange, body and bottom, made of several individual parts

2911/1458 . . . Finish neck ring

2911/14586 . . . Mentioned dimensions (**not used**)

2911/14593 . . . Wall thickness

2911/146 . . . of the lip, i.e. the very top of the preform neck

2911/14606 . . . of the neck

2911/14613 . . . of the threads

2911/1462 . . . of the tamper-evident band retaining ring

2911/14626 . . . of the flange

2911/14633 . . . of the body

2911/1464 . . . of the bottom

2911/14646 . . . of a layer

2911/14653 . . . Diameter, D

2911/1466 . . . of the lip, i.e. the very top of the preform neck

2911/14666 . . . of the neck

2911/14673 . . . of the threads

2911/1468 . . . of the tamper-evident band retaining ring

2911/14686 . . . of the flange

2911/14693 . . . of the body

2911/147 . . . of the bottom

2911/14706 . . . of a layer

2911/14713 . . . Height, length, L

2911/1472 . . . of the lip, i.e. the very top of the preform neck

2911/14726 . . . of the neck

2911/14733 . . . of the threads

2911/1474 . . . of the tamper-evident band retaining ring

2911/14746 . . . of the flange

2911/14753 . . . of the body

2911/1476 . . . of the bottom

## B29B

|            |         |  |
|------------|---------|--|
| 2911/14766 | . . . . | of a layer   |
| 2911/14773 | . . .   | Ratio L/D  |
| 2911/1478  | . . .   | Angle  |
| 2911/14786 | . . . . | of the lip, i.e. the very top of the preform<br>neck               |
| 2911/14793 | . . . . | of the neck  |
| 2911/148   | . . . . | of the threads   |
| 2911/14806 | . . . . | of the tamper-evident band retaining ring                          |
| 2911/14813 | . . . . | of the flange  |
| 2911/1482  | . . . . | of the body  |
| 2911/14826 | . . . . | of the bottom  |
| 2911/14833 | . . . . | of a layer   |
| 2911/1484  | . . .   | Curvature, e.g. radius   |
| 2911/14846 | . . . . | of the lip, i.e. the very top of the preform<br>neck               |
| 2911/14853 | . . . . | of the neck  |
| 2911/1486  | . . . . | of the threads   |
| 2911/14866 | . . . . | of the tamper-evident band retaining ring                          |
| 2911/14873 | . . . . | of the flange  |
| 2911/1488  | . . . . | of the body  |
| 2911/14886 | . . . . | of the bottom  |
| 2911/14893 | . . . . | of a layer   |
| 2911/149   | . .     | Mentioned values not covered by<br><a href="#">B29B 2911/14586</a> |
| 2911/14906 | . . .   | Crystallinity  |
| 2911/14913 | . . . . | at the neck portion  |
| 2911/1492  | . . . . | at the flange portion  |
| 2911/14926 | . . . . | at the body portion  |
| 2911/14933 | . . . . | at the bottom portion  |
| 2911/1494  | . . .   | Surface roughness  |
| 2911/14946 | . . . . | at the neck portion  |
| 2911/14953 | . . . . | at the flange portion  |
| 2911/1496  | . . . . | at the body portion  |
| 2911/14966 | . . . . | at the bottom portion  |
| 2911/14973 | . . .   | Optical properties   |
| 2911/1498  | . . .   | Weight   |
| 2911/14986 | . . .   | Composition  |
| 2911/14993 | . . . . | Recycled material  |