**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**

**Definition statement**

*This place covers:*

The mechanical preparation of plastic material as raw material used in subsequent plastic shaping techniques which form a final product (B29B 7/00, B29B 9/00, B29B 13/00 and B29B 15/00).

The making of preforms used as an intermediate product which will undergo an additional processing step, e.g. blow moulding, to obtain the final product (B29B 11/00).

The recovery of plastics from waste products in order to reuse it for making new products (B29B 17/00).

**References**

**Limiting references**

*This place does not cover:*

Methods, devices directed to the chemical aspects of the plastic preparation, pretreatment or recovery (e.g. chemical composition, use of specific additives, operating steps intended to modify the properties of the polymer, etc.)  

**Informative references**

*Attention is drawn to the following places, which may be of interest for search:*

<table>
<thead>
<tr>
<th>Mixing in general</th>
<th>B01F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Granulating in general</td>
<td>B01J 2/00</td>
</tr>
<tr>
<td>Solid waste disposal</td>
<td>B09B</td>
</tr>
</tbody>
</table>

**Special rules of classification**

- In this subclass, it is desirable to add the Indexing Codes of subclasses B29K
- Reference is further made to the special rule of classification in the field of B29B 17/00 as far as the application of Indexing Codes as provided in B29L and B29K is concerned.
- Products per se are not classified in this subclass. However, if a product is characterised by the way it is produced and not by its structure or composition, the production method should be classified in this subclass.
- Inventive and additional information disclosed in documents to be classified should be identified by allocation the appropriate classification symbols provided in B29B. In particular attention should be paid to the so called break down Indexing Codes, forming a further subdivision of a group or a subgroup, which are only present at additional information level.

**Glossary of terms**

*In this place, the following terms or expressions are used with the meaning indicated:*

| A plastic | is defined as a macromolecular compound or composition based on such a compound. |
In a plastic state refers to a state in which the material is more or less easily deformable, locally or as a whole, by force in any direction, to assume and retain any desired shape.

Synonyms and Keywords

In patent documents, the following abbreviations are often used:

| Resins | Japanese patent applications usually refer to resins instead of plastics |

B29B 7/00

Mixing; Kneading (for preparation of dough A21C 1/00; in general B01F; combined with calendering B29C 43/24, with injection B29C 45/46, with extrusion B29C 48/36)

Definition statement

This place covers:

Devices for the preparation of plastics, this preparation only concerning the mechanical aspects of it, i.e. the mixing of the individual components to obtain a homogeneous mass and/or its subsequent mechanical kneading to achieve the desired consistency.

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

| Extrusion of plastics | B29C 48/00 |

Special rules of classification

In this subclass, as a general rule, the type of plastic mixer is to be specified, as well as the specific structural elements which are characteristic of this kind of device.

Additional details of the mixing or kneading device for which no specific classification information can be found in B29B 7/00 are classified under the corresponding sub-groups of B01F (mixing in general).
B29B 7/002
{Methods (chemical aspects C08J 3/00)}

Definition statement

This place covers:
Illustrative example of subject matter classified in B29B 7/002.
**B29B 7/005**

{for mixing in batches}

**Definition statement**

This place covers:

Illustrative example of subject matter classified in **B29B 7/005**.

**B29B 7/04**

with non-movable mixing or kneading devices

**Definition statement**

This place covers:

Illustrative example of subject matter classified in **B29B 7/04**.
B29B 7/085
{by means of axially movable pistons}

Definition statement

This place covers:

Illustrative example of subject matter classified in B29B 7/085.
B29B 7/125

{having a casing closely surrounding the rotor, e.g. for masticating rubber (with more than one shaft B29B 7/183); Rotors therefor (B29B 7/14, B29B 7/16 take precedence)}

Definition statement

This place covers:

Illustrative example of subject matter classified in B29B 7/125.
B29B 7/14

with screw or helix

Definition statement

This place covers:

Illustrative example of subject matter classified in B29B 7/14.
B29B 7/16
with paddles or arms

Definition statement

This place covers:
Illustrative examples of subject matter classified in B29B 7/16.
References

Informative references

Attention is drawn to the following places, which may be of interest for search:

| Recovery of plastics | B29B 17/00 |

B29B 7/183

{having a casing closely surrounding the rotors, e.g. of Banbury type (with single shaft B29B 7/125)}

Definition statement

This place covers:

Illustrative example of subject matter classified in B29B 7/183.
B29B 7/186

{Rotors therefor}

Definition statement

This place covers:

Illustrative example of subject matter classified in B29B 7/186.
B29B 7/20

with intermeshing devices, e.g. screws

Definition statement

This place covers:

Illustrative example of subject matter classified in B29B 7/20.
B29B 7/246
{in mixers having more than one rotor and a casing closely surrounding the rotors, e.g. with feeding plungers}

Definition statement
This place covers:
Illustrative example of subject matter classified in B29B 7/246.
B29B 7/248

{with plungers for introducing the material, e.g. from below (B29B 7/246 takes precedence)}

Definition statement

This place covers:

Illustrative example of subject matter classified in B29B 7/248.
B29B 7/263

{from the underside in mixers having more than one rotor and a casing closely surrounding the rotors}

**Definition statement**

*This place covers:*

Illustrative example of subject matter classified in B29B 7/263.
B29B 7/266
{using sliding doors}

Definition statement

This place covers:

Illustrative example of subject matter classified in B29B 7/266.
B29B 7/32
with non-movable mixing or kneading devices

Definition statement

This place covers: Illustrative example of subject matter classified in B29B 7/32.
B29B 7/325

{Static mixers (in general B01F 5/0602)}

**Definition statement**

This place covers:

Illustrative example of subject matter classified in **B29B 7/325**.

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**Fig. 1a**

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**Fig. 1b**
B29B 7/36
shaking, oscillating or vibrating

Definition statement
This place covers:
Illustrative examples of subject matter classified in B29B 7/36.
B29B 7/401

{having a casing closely surrounding the rotor, e.g. with a plunger for feeding the material (B29B 7/407, B29B 7/42 take precedence)}

Definition statement

This place covers:

Illustrative example of subject matter classified in B29B 7/401.
B29B 7/402
{using a rotor-stator system with intermeshing elements, e.g. teeth
(B29B 7/408, B29B 7/404 take precedence)}

Definition statement

This place covers:
Illustrative example of subject matter classified in B29B 7/402.
B29B 7/404
{with feeding or valve actuating means, e.g. with cleaning means}

Definition statement

This place covers:
Illustrative example of subject matter classified in B29B 7/404.
B29B 7/407
{with a casing closely surrounding the rotor, e.g. with conical rotor}

Definition statement
This place covers:
Illustrative example of subject matter classified in B29B 7/407.

DE 10 2008 044 871 A1 2010.03.04
B29B 7/408
{with mixing elements on a rotor co-operating with mixing elements, perpendicular to the axis of the rotor, fixed on a stator}

Definition statement

This place covers:

Illustrative example of subject matter classified in B29B 7/408.
**B29B 7/422**

{with screw sections co-operating, e.g. intermeshing, with elements on the wall of the surrounding casing}

**Definition statement**

This place covers:

Illustrative example of subject matter classified in B29B 7/422.

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**B29B 7/423**

{and oscillating axially (in general B01F 11/0057)}

**Definition statement**

This place covers:

Illustrative example of subject matter classified in B29B 7/423.
B29B 7/424
{with conical screw surrounded by conical casing}

Definition statement

This place covers:
Illustrative example of subject matter classified in B29B 7/424.
B29B 7/425
{with screw surrounded by a casing provided with grooves or cavities}

Definition statement

This place covers:

Illustrative example of subject matter classified in B29B 7/425.
B29B 7/426
{with consecutive casings or screws, e.g. for charging, discharging, mixing}

Definition statement
This place covers:
Illustrative example of subject matter classified in B29B 7/426.

B29B 7/427
{with independently driven screws rotating about the same axis, e.g. oscillating axially; with axially oscillating screws (B29B 7/423 takes precedence)}

Definition statement
This place covers:
Illustrative example of subject matter classified in B29B 7/427.
B29B 7/44

with paddles or arms

Definition statement

This place covers:

Illustrative example of subject matter classified in B29B 7/44.
B29B 7/465
{each shaft comprising rotor parts of the Banbury type in addition to screw parts}

Definition statement

This place covers:
Illustrative example of subject matter classified in B29B 7/465.
B29B 7/48
with intermeshing devices, e.g. screws

Definition statement

This place covers:
Illustrative example of subject matter classified in B29B 7/48.
**B29B 7/481**

{provided with paddles, gears or discs (B29B 7/482 takes precedence)}

**Definition statement**

*This place covers:*

Illustrative examples of subject matter classified in B29B 7/481.
B29B 7/482

{provided with screw parts in addition to other mixing parts, e.g. paddles, gears, discs}

Definition statement

This place covers:

Illustrative examples of subject matter classified in B29B 7/482.
**B29B 7/483**

{the other mixing parts being discs perpendicular to the screw axis}

**Definition statement**

This place covers:

Illustrative example of subject matter classified in B29B 7/483.

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**B29B 7/484**

{with two shafts provided with screws, e.g. one screw being shorter than the other (B29B 7/482 takes precedence)}

**Definition statement**

This place covers:

Illustrative example of subject matter classified in B29B 7/484.
B29B 7/485
{with three or more shafts provided with screws}

Definition statement
This place covers:
Illustrative example of subject matter classified in B29B 7/485.
B29B 7/486
{with screws surrounded by a casing provided with grooves or cavities}

Definition statement

This place covers:
Illustrative example of subject matter classified in B29B 7/486.
B29B 7/487
{with consecutive casings or screws, e.g. for feeding, discharging, mixing}

Definition statement
This place covers:
Illustrative example of subject matter classified in B29B 7/487.

Fig. 1
B29B 7/489
{Screws (B29B 7/482 takes precedence)}

Definition statement

This place covers:
Illustrative example of subject matter classified in B29B 7/489.
B29B 7/523
{co-operating with casings}

Definition statement

This place covers:

Illustrative example of subject matter classified in B29B 7/523.

DE1129681 B
B29B 7/526
{with two or more rollers}

Definition statement

This place covers:

Illustrative example of subject matter classified in B29B 7/526.
B29B 7/54

with a single roller co-operating with a stationary member {other than the casing}

Definition statement

This place covers:
Illustrative example of subject matter classified in B29B 7/54.
B29B 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}

Definition statement

This place covers:

Illustrative example of subject matter classified in B29B 7/56.
**B29B 7/562**

{with means for axially moving the material on the rollers}

**Definition statement**

*This place covers:*

Illustrative example of subject matter classified in B29B 7/562.
B29B 7/564

{at least one of the rollers being provided with helicoidal grooves or ridges, e.g. followed by axial extrusion}

Definition statement
This place covers:
Illustrative example of subject matter classified in B29B 7/564.
B29B 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}

Definition statement

This place covers:

Illustrative example of subject matter classified in B29B 7/566.
**B29B 7/568**

{with consecutive sets of rollers or a train of rollers}

**Definition statement**

*This place covers:*

Illustrative example of subject matter classified in **B29B 7/568**.
B29B 7/7442
{with driven stirrer}

Definition statement

This place covers:

Illustrative example of subject matter classified in B29B 7/7442.
B29B 7/7447
{including means for feeding the components}

Definition statement

This place covers:

Illustrative example of subject matter classified in B29B 7/7447.
B29B 7/7452
{for mixing components by spraying them into each other; for mixing by intersecting sheets}

Definition statement
This place covers:
Illustrative example of subject matter classified in B29B 7/7452.
B29B 7/7457

{Mixing heads without moving stirrer (B29B 7/7438, B29B 7/76 take precedence)}

Definition statement

This place covers:
Illustrative example of subject matter classified in B29B 7/7457.


FIG-1

FIG-2

FIG-6

FIG-3

FIG-4

FIG-5
B29B 7/7461
{Combinations of dissimilar mixers}

Definition statement

This place covers:

Illustrative example of subject matter classified in B29B 7/7461.

Fig. 2 E
B29B 7/7466
{Combinations of similar mixers}

Definition statement

This place covers:

Illustrative example of subject matter classified in B29B 7/7466.
B29B 7/7471

{Mixers in which the mixing takes place at the inlet of a mould, e.g. mixing chambers situated in the mould opening}

Definition statement

This place covers:

Illustrative example of subject matter classified in B29B 7/7471.
B29B 7/748

{Plants (B29B 7/7433, B29B 7/7485, B29B 7/7495 take precedence)}

Definition statement

This place covers:

Illustrative example of subject matter classified in B29B 7/748.
B29B 7/7485
{with consecutive mixers, e.g. with premixing some of the components}

Definition statement

This place covers:

Illustrative example of subject matter classified in B29B 7/7485.

Bild 1 - Schematischer Verfahrensaufbau einer mehrstufigen Direktverdampfung von elastomehltiger Polymerlösung
B29B 7/749
{with stirring means for the individual components before they are mixed together}

Definition statement

This place covers:

Illustrative example of subject matter classified in B29B 7/749.
B29B 7/7605
{having additional mixing arrangements (B29B 7/7673 takes precedence)}

**Definition statement**

*This place covers:*

Illustrative example of subject matter classified in B29B 7/7605.

WO 2011/023302

**Fig. 1a**

Reaktionsgemisch aus PUR-Mischkopf

Feststoff-Gasgemisch

Mischgas
B29B 7/7663

{the mixing head having an outlet tube with a reciprocating plunger, e.g. with the jets impinging in the tube} 

Definition statement 

This place covers: 

Illustrative example of subject matter classified in B29B 7/7663.
B29B 7/7668
{having a second tube intersecting the first one with the jets impinging in the second tube}

Definition statement
This place covers:
Illustrative example of subject matter classified in B29B 7/7668.
B29B 7/7673
{having additional mixing arrangements (B29B 7/7668 takes precedence)}

Definition statement

This place covers:

Illustrative example of subject matter classified in B29B 7/7673.
B29B 7/7689
{Plunger constructions}

Definition statement

This place covers:

Illustrative example of subject matter classified in B29B 7/7689.
B29B 7/7694
{comprising recirculation channels; ducts formed in the plunger}

Definition statement

This place covers:
Illustrative example of subject matter classified in B29B 7/7694.

B29B 9/00
Making granules (in general B01J; chemical aspects C08J 3/12)

Definition statement

This place covers:
the mechanical preparation of granules, pellets made of plastic material as raw material and used in subsequent plastic shaping techniques which form a final product. The plastic materials concerned by this subclass are polymeric materials used in the subclasses B29C.

References

Limiting references

This place does not cover:

| The mechanical preparation of granules, pellets made of non-polymeric material | e.g. A01N 25/12, B22F 9/08, C22B 1/14 |
| Medical preparations characterized by special physical form: particulate form, powder, granulates, microsphere, pellets | A61K 9/14 |
| Making or treating expandable particles | B29C 44/3461 |
| Method of shaping (pelletizing, briquetting) of solid fuel made of vegetable substances (wood, forestry or agricultural wates) | C10L 5/00 |
B29B 9/02

by dividing preformed material

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

| Cutting aspects of dividing the preformed material | B26D |
| Developers with toner particles; preparation methods | G03G 9/0802 |

B29B 9/04

in the form of plates or sheets

Definition statement

This place covers:

Illustrative example of subject matter classified in B29B 9/04.
References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Disintegrating by knives or other cutting or tearing members which chop material into fragments, specially adapted for disintegrating plastics

B02C 18/086, B02C 18/148
B29B 9/06
in the form of filamentary material, e.g. combined with extrusion

Definition statement

This place covers:
Illustrative example of subject matter classified in B29B 9/06.
References

Informative references

Attention is drawn to the following places, which may be of interest for search:

<table>
<thead>
<tr>
<th>Description</th>
<th>Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Disintegrating by knives or other cutting or tearing members which chop</td>
<td>B02C 18/086,</td>
</tr>
<tr>
<td>material into fragments, specially adapted for desintegrating plastics</td>
<td>B02C 18/148</td>
</tr>
<tr>
<td>Multi-port extrusion nozzles</td>
<td>B29C 48/345</td>
</tr>
</tbody>
</table>

B29B 9/065

{under-water, e.g. underwater pelletizers}

Definition statement

This place covers:

The methods and devices for the preparation of granules, pellets made of plastic material as raw material wherein the cutting operation is performed right after extrusion in a water box. Underwater pelletizer includes also the use of other liquids to cool down the extruded plastic material.
Illustrative example of subject matter classified in B29B 9/065.

**FIG. 1**

**FIG. 6**

<table>
<thead>
<tr>
<th>FLOW RATE</th>
<th>200rpm</th>
<th>REVOLUTIONS</th>
<th>750rpm</th>
<th>REVOLUTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>450m³/h</td>
<td>Case (a)-1</td>
<td>Case (a)-2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>750m³/h</td>
<td>Case (a)-3</td>
<td>Case (a)-4</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

FLOW TRACE LINES FROM THE INLET
**B29B 9/08**

by agglomerating smaller particles

**Definition statement**

*This place covers:*

Illustrative example of subject matter classified in [B29B 9/08](#).
B29B 9/10

by moulding the material, i.e. treating it in the molten state

Definition statement

This place covers:

The methods and devices for the preparation of granules, pellets made of plastic material as raw material wherein no preformed material (e.g. plates, sheets, filamentary material as in B29B 9/04 or B29B 9/06) is used. The granules are made by moulding.
Illustrative example of subject matter classified in B29B 9/10.
References

Informative references

Attention is drawn to the following places, which may be of interest for search:

| Granulating material in general; by dividing the liquid material into drops, e.g. by spraying, and solidifying the drops | B01J 2/02 |
| Granulating material in general; by dividing the liquid material into drops, in a gaseous medium | B01J 2/04 |
| Granulating material in general; by dividing the liquid material into drops, in a liquid medium | B01J 2/06 |

B29B 9/12

characterised by structure or composition

Definition statement

This place covers:

The methods and devices for the mechanical preparation of granules made of plastic material as raw material wherein the granules are defined by their physical structure (e.g. multilayer or compartmentalized granule) or by their composition (e.g. the selection of the granule ingredients has an influence on the method and apparatus used to manufacture the granule).

The documents disclosing only the chemical composition of granules and wherein the mechanical preparation is absent or trivial are classified in C08J 3/12.
Illustrative example of subject matter classified in B29B 9/12.
**B29B 9/14**

**fibre-reinforced**

**Definition statement**

This place covers:

The methods and devices for the preparation of granules, pellets made of plastic material as raw material wherein the granule comprises long fibres (fibres as long or longer than the granule), short fibres or fibrous material of different shapes.

The granules comprizing fillers (e.g. powder) are classified in [B29B 9/12].
Illustrative example of subject matter classified in B29B 9/14.
References

Informative references

Attention is drawn to the following places, which may be of interest for search:

| Pretreatment of reinforcement; coating or impregnating of reinforcements of indefinite length with a matrix in liquid form, e.g. as melt, solution or latex | B29B 15/122 |

B29B 9/16

Auxiliary treatment of granules

Definition statement

This place covers:

The methods and devices for the after-treatment of granules, pellets made of plastic material (e.g. absorbing, coating, crystallizing, deforming, purifying).

The chemical aspect of the treatment of granules (e.g. post-polymerization, polycondensation) is classified in C08.
Illustrative example of subject matter classified in B29B 9/16.

FIG. 3

FIG. 2

Vibratory Fluidized Bed Dryer

Coated dry and cool pellets

Pellets
Emulsion/Dispersion

Drying Air
Cooling Air
References

Informative references

Attention is drawn to the following places, which may be of interest for search:

<table>
<thead>
<tr>
<th>Topic</th>
<th>Class</th>
</tr>
</thead>
<tbody>
<tr>
<td>Macromolecular compounds obtained by reactions forming a carboxylic</td>
<td>C08G 63/00</td>
</tr>
<tr>
<td>ester link in the main chain of the macromolecule</td>
<td></td>
</tr>
<tr>
<td>Solid-state polycondensation</td>
<td>C08G 63/80</td>
</tr>
<tr>
<td>Post-polymerisation treatment</td>
<td>C08G 63/88</td>
</tr>
<tr>
<td>Purification; Drying</td>
<td>C08G 63/90</td>
</tr>
<tr>
<td>Macromolecular compounds obtained by reactions forming a carboxylic</td>
<td>C08G 69/00</td>
</tr>
<tr>
<td>amide link in the main chain of the macromolecule</td>
<td></td>
</tr>
<tr>
<td>Solid state polycondensation</td>
<td>C08G 69/30</td>
</tr>
<tr>
<td>Post-polymerisation treatment</td>
<td>C08G 69/46</td>
</tr>
<tr>
<td>Machines or apparatus for drying materials in loose, plastic, or fluidised form, e.g. granules, staple fibres, with progressive movement</td>
<td>F26B 17/00</td>
</tr>
</tbody>
</table>

B29B 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})

Definition statement

This place covers:

Preforms relating to B29 in general.

Preforms for blow-moulding bottles.
Making of preforms not otherwise provided for.

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

| F-term (Japanese classification) related to making preforms | 4F201/BM00 |

Special rules of classification

The making of preforms (process and apparatus) for which an entry is provided elsewhere, e.g. B29C, is not classified in B29B 11/00 and its subgroups.

However, the indexing of preforms for blow-moulding bottles using the coding scheme under B29B 2911/14 is obligatory when the structure of the preform differs from the conventional shape (one layer, open neck, flange, cylindrical body, closed semispherical end).

Glossary of terms

In this place, the following terms or expressions are used with the meaning indicated:

<table>
<thead>
<tr>
<th>Term</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preform</td>
<td>An object obtained by moulding substantially consisting of plastic material, which has to undergo an additional processing step, e.g. blow moulding, to obtain its final shape</td>
</tr>
</tbody>
</table>

Synonyms and Keywords

In patent documents, the following words/expressions are often used as synonyms:

- "preform", "parison" and "blank"

B29B 11/02

by dividing preformed material, e.g. sheets, rods

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

| F-term (Japanese classification) related to manufacturing preforms by shredding preformed materials | 4F201/BM01 |

B29B 11/04

by assembling preformed material

Definition statement

This place covers:

Making preforms by assembling separate parts, e.g. making a perform for blow moulding by joining a separately moulded neck and thread portion with a separately moulded body portion.
References

Informative references

Attention is drawn to the following places, which may be of interest for search:

<table>
<thead>
<tr>
<th>Joining of preformed parts</th>
<th>B29C 65/00</th>
</tr>
</thead>
<tbody>
<tr>
<td>F-term (Japanese classification) related to manufacturing preforms by assembling preformed materials</td>
<td>4F201/BM02</td>
</tr>
</tbody>
</table>

B29B 11/06

by moulding the material

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

| F-term (Japanese classification) related to manufacturing preforms by moulding the materials | 4F201/BM04 |

B29B 11/08

Injection moulding

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

| F-term (Japanese classification) related to manufacturing preforms by injection moulding | 4F201/BM05 |

Special rules of classification

Injection moulding processes and devices for making preforms, whereby the alleged invention lies in the moulding technique as such, are classified in the moulding technique as such (B29C 45/00) and not in this subgroup.

B29B 11/10

Extrusion moulding

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

| F-term (Japanese classification) related to manufacturing preforms by extrusion moulding | 4F201/BM06 |
Special rules of classification
Extrusion moulding processes and devices for making preforms, whereby the alleged invention lies in
the moulding technique as such, are classified in the moulding technique (B29C 48/00) as such and
not in this subgroup.

B29B 11/12
Compression moulding

References

Informative references
Attention is drawn to the following places, which may be of interest for search:

| F-term (Japanese classification) related to manufacturing preforms by compression moulding | 4F201/BM07 |

Special rules of classification
Compression moulding processes and devices for making preforms, whereby the alleged invention
lies in the moulding technique as such, are classified in the moulding technique (B29C 43/00) as such
and not in this subgroup.

B29B 11/14
characterised by structure or composition

Definition statement
This place covers:
Preforms having a special composition or shape adapted for its further processing steps or use.

References

Informative references
Attention is drawn to the following places, which may be of interest for search:

| F-term (Japanese classification) related to:Shapes, structures | 4F201/BM12 |
| F-term (Japanese classification) related to:Layered structures | 4F201/BM13 |
| F-term (Japanese classification) related to:Compositions, properties | 4F201/BM14 |

Special rules of classification
The indexing of preforms for blow-moulding bottles using the coding scheme under B29B 2911/14
is obligatory when the structure of the preform differs from the conventional shape (one layer, open
neck, flange, cylindrical body, closed semispherical end).
B29B 11/16

comprising fillers or reinforcement {(non-woven fabrics per se D04H 1/00, D04H 3/00)}

Definition statement

This place covers:
Preforms having fillers/reinforcement where the purpose of subsequent moulding is mentioned

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

<table>
<thead>
<tr>
<th>Shaping composites</th>
<th>B29C 70/00</th>
</tr>
</thead>
<tbody>
<tr>
<td>F-term (Japanese classification) related to: Preforms, including shaping thereof</td>
<td>4F072/AG00</td>
</tr>
<tr>
<td>F-term (Japanese classification) related to: Manufacturing preforms</td>
<td>4F072/AH00</td>
</tr>
</tbody>
</table>

B29B 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})

Definition statement

This place covers:
The methods and devices for the pre-treatment of the plastic material to be shaped prior to the moulding operation.

Illustrative example of subject matter classified in B29B 13/00.
B29B 13/007
{Treatment of sinter powders}

Definition statement

This place covers:
The methods and devices for the pre-treatment of powder plastic material prior to the process of sintering.

Illustrative example of subject matter classified in B29B 13/007.

References

Limiting references

This place does not cover:

<table>
<thead>
<tr>
<th>Sintering layers coated on a mould</th>
<th>B29C 41/00</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compression moulding; pressing and sintering powders, granules or fibres</td>
<td>B29C 43/006</td>
</tr>
<tr>
<td>Rapid manufacturing or prototyping of 3D objects; using layers of powder being selectively joined, e.g. by selective laser sintering or melting</td>
<td>B29C 64/153</td>
</tr>
</tbody>
</table>
B29B 13/021

{Heat treatment of powders}

Definition statement

*This place covers:*

The methods and devices for the pre-treatment of the plastic material to be shaped (powder, pellets, granules) by heating prior to the moulding operation.

Illustrative example of subject matter classified in B29B 13/021.
B29B 13/022

{Melting the material to be shaped}

Definition statement

This place covers:

The methods and devices for the heat treatment of the plastic material to be shaped (powder, pellets, granules) until said plastic material melts prior to the moulding operation.
Illustrative example of subject matter classified in B29B 13/022.
References

Informative references

Attention is drawn to the following places, which may be of interest for search:

| Storage, supply or control of liquid or other fluent material; provided with means for heating or cooling the liquid or other fluent material in the supplying means upstream of the applying apparatus | B05C 11/1042 |

B29B 13/023

{Half-products, e.g. films, plates}

Definition statement

This place covers:

The methods and devices for the pre-treatment by heating of the plastic material to be shaped, said plastic material typically being in the form of a film or plate. Said film or plate is a half-product as it has not yet undergone its final shaping operation.

Illustrative example of subject matter classified in B29B 13/023.
References

Limiting references

This place does not cover:

| Heating preforms (film, sheet, plate) prior to thermoforming | B29C 51/421 |
B29B 13/024
{Hollow bodies, e.g. tubes or profiles}

Definition statement

This place covers:
Illustrative example of subject matter classified in B29B 13/024.

EP 2 232 269 A1
References

Limiting references

This place does not cover:

<table>
<thead>
<tr>
<th>Heating a tubular preform prior to blow moulding</th>
<th>B29C 49/64</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ovens specially adapted for heating preforms or parisons</td>
<td>B29C 49/68</td>
</tr>
</tbody>
</table>
B29B 13/025

{Tube ends}

Definition statement

This place covers:

Illustrative example of subject matter classified in B29B 13/025.
References

Limiting references

This place does not cover:

| Shaping of tube ends, e.g. flanging, belling, closing; Apparatus therefor | B29C 57/00 |
**B29B 13/04**

by cooling {(cooling moulded articles or half products B29C 35/16)}

**Definition statement**

*This place covers:*

Illustrative example of subject matter classified in B29B 13/04.
B29B 13/045
{of powders or pellets}

Definition statement

This place covers:

Illustrative example of subject matter classified in B29B 13/045.
B29B 13/06
by drying (B29B 13/08 takes precedence {; drying moulded articles or half products B29C 37/0092})

Definition statement
This place covers:
Illustrative example of subject matter classified in B29B 13/06.
B29B 13/065
(of powder or pellets)

Definition statement

This place covers:

Illustrative example of subject matter classified in B29B 13/065.
References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Machines or apparatus for drying materials in loose, plastic, or fluidised form, e.g. granules, staple fibres, with progressive movement

F26B 17/00
**B29B 13/08**

by using wave energy or particle radiation

**Definition statement**

This place covers:

Illustrative example of subject matter classified in B29B 13/08.

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**FIG. 1**

Electron beams in air, inert gas or acetylene

Shielding

Crosslinked by electron beam irradiation

**FIG. 1**
References

Informative references

Attention is drawn to the following places, which may be of interest for search:

| Processes of treating or compounding macromolecular substances. | C08J 3/28 |
| Treatment by wave energy or particle radiation                  |            |
| Irradiation devices                                            | G21K 5/00  |

B29B 13/10

by grinding, e.g. by triturating; by sieving; by filtering

Definition statement

This place covers:

The methods and devices for the mechanical pre-treatment of the plastic material to be shaped by grinding prior to the moulding operation.
Illustrative example of subject matter classified in B29B 13/10.

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

| Recovery of plastics or other constituents of waste material containing plastics. Disintegrating plastics (e.g. by milling) | B29B 17/04 |
| Disintegrating by knives or other cutting or tearing members which chop material into fragments, specially adapted for disintegrating plastics | B02C 18/086, B02C 18/148 |

B29B 15/00

Pretreatment of the material to be shaped, not covered by groups B29B 7/00 - B29B 13/00

Definition statement

This place covers:

The methods and devices wherein the material undergoes a pre-treatment operation that is an operation that modifies the material to be shaped e.g. by moulding.
Illustrative example of subject matter classified in B29B 15/00.

B29B 15/04
Coagulating devices

Definition statement

This place covers:
The methods and devices wherein the material undergoes a coagulation operation prior to final shaping wherein the mechanical aspect of the method or device is detailed.

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

| Treatment of rubber latex, coagulation                  | C08C 1/14 |
| Treatment of polymer emulsions, coagulation            | C08F 6/22 |

B29B 15/08
of reinforcements or fillers (chemical aspects C08J, C08K)

Definition statement

This place covers:
Surface modifications, normally chemical but also treatments like preheating or carving, of reinforcements or fillers typically to improve the adhesion with the matrix
B29B 15/105

{of reinforcement of definite length with a matrix in solid form, e.g. powder, fibre or sheet form (calendering B29C 70/506)}

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

| Treatments of textile materials by liquids, gases or vapours | D06B |
| Artificial leather obtained by covering fibrous webs with macromolecular material | D06N 3/00 |

B29B 15/122

{with a matrix in liquid form, e.g. as melt, solution or latex}

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

| Matrix in powder form | B29K 2105/251 |
| Matrix in the form of sheet | B29K 2105/256 |

B29B 17/00

Recovery of plastics or other constituents of waste material containing plastics; {volume reduction of waste plastics, e.g. by mechanical compacting or melting disposal of solid waste B09B;} chemical recovery C08J 11/00)

Definition statement

This place covers:
Processes as well as the corresponding machinery for recovering plastics, as well as other constituents of waste material containing plastics

References

Limiting references

This place does not cover:

| Reuse of recycled material in moulding processes as such, e.g. in compression moulding | B29C |

Informative references

Attention is drawn to the following places, which may be of interest for search:

| General arrangement of separating plants for refuse | B03B 9/06 |
| Volume reduction of waste plastics other than plastic containers | B09B |
Special rules of classification

In this group including its subgroups, it is highly desirable to add the Indexing Codes B29K for the type of plastic material to be recycled, and the Indexing Codes B29L for the type of product to be recycled.

In this group including its subgroups, only the type of plastic material to be recycled shall be classified by the B29K Indexing Codes. Any non-recycled material, e.g. virgin material, which is added during the recycling process shall not be classified by such B29K Indexing Codes.

Synonyms and Keywords

In patent documents, the following words/expressions are often used as synonyms:


B29B 17/0005

{Direct recuperation and re-use of scrap material during moulding operation, i.e. feed-back of used material}

Definition statement

This place covers:

Recycling processes, as well as the corresponing machinery, whereby the recovery of plastics is combined with the direct reuse of said material in a molding process.

Typical examples are:

- Re-use by regrinding the hardened runner/sprue and feeding it into the hopper of an injection moulding machine.
- Re-use by regrinding or directly feeding the side-trim in plastic film extrusion to the hopper of the extruder.

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

| Recovery of starting material, waste material or solvents during the manufacture of artificial filaments or the like, made of synthetic polymers | D01F 13/04 |

B29B 17/0026

{by agglomeration or compacting}

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

| Dietetic products with reduced nutritive value, by addition of substantially indigestible substances, i.e. Cellulose or derivatives | A23L 33/24 |
| Making particle boards or fibreboards, with preformed covering layer | B27N 3/06 |
| Making discontinuous sheets of paper, pulpboard or cardboard, or of wet web, for fibreboard production | D21F 13/00 |
B29B 17/0036

{of large particles, e.g. beads, granules, pellets, flakes, slices}

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

| Making granules | B29B 9/00 |

B29B 17/0042

{for shaping parts, e.g. multilayered parts with at least one layer containing regenerated plastic}

Definition statement

This place covers:

Recovery of plastics or other constituents of waste material containing plastics by an agglomeration or compacting process. The recovered material is used for shaping parts, e.g. compacting plastic waste particles in a heated compression mould for obtaining a discrete article. Possibly with the addition of a binding agent, i.e. urethane.

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

| Destroying solid waste or transforming solid waste by agglomeration, binding or encapsulation using an organic binder or matrix | B09B 3/0033 |
| Layered products essentially comprising synthetic resin made from or containing mainly scrap material | B32B 2272/00 |

Special rules of classification

In this group, it is highly recommended to add additional classification in the shaping technique concerned, e.g. B29C 43/00 for compression moulding, B29C 45/00 for injection moulding.

B29B 17/0047

{Compacting complete waste articles}

Definition statement

This place covers:

Recovery of plastics or other constituents of waste material containing plastics by an agglomeration or compacting process, whereby a complete wasted article is compacted, e.g. recovery of plastic containers, e.g. PET bottles by volume reduction.
B29B 17/0052

{Hollow articles, e.g. bottles}

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Presses specially adapted for consolidating scrap metal or for compacting used cars B30B 9/321

B29B 17/02

Separating plastics from other materials

Definition statement

This place covers:

Recovery of plastics or other constituents of waste material containing plastics whereby said recovered material is separated from other materials, e.g. one type of plastics, e.g. PE is separated from another type of plastics, e.g. PA, by density separation in a water bath.

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Separating by pneumatic tables or by pneumatic jigs B03B 4/00
Wet separating by sink-float separation B03B 5/28

B29B 17/021

{using local heating of the reinforcement}

Definition statement

This place covers:

Recovery of plastics or other constituents of waste material containing plastics whereby the matrix material is separated selectively from the reinforcements by destroying the interface bound before desintegrating the matrix to particles or powder using local heating of the reinforcement, e.g. heating of tires or conveyor belts, e.g. by induction heating, for softening the rubber matrix around the then hot steel wires.

B29B 17/04

Disintegrating plastics, {e.g. by milling} (B29B 9/02, B29B 11/02, B29B 13/10, {B29B 17/02} take precedence)

Definition statement

This place covers:

Processes as well as the corresponding machinery for recovering plastics, as well as other constituents of waste material containing plastics, whereby the plastic material is disintegrated.
References

Informative references

Attention is drawn to the following places, which may be of interest for search:

<table>
<thead>
<tr>
<th>Description</th>
<th>Indexing Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Disintegrating by knives or other cutting or tearing members which chop</td>
<td>B02C 18/00</td>
</tr>
<tr>
<td>material into fragments</td>
<td></td>
</tr>
<tr>
<td>Especially adapted for disintegrating plastics, e.g. cinematographic films</td>
<td>B02C 18/086</td>
</tr>
<tr>
<td>For plastic bottles</td>
<td></td>
</tr>
<tr>
<td>Cutting through work characterised by the nature or movement of the</td>
<td>B26D 1/00</td>
</tr>
<tr>
<td>cutting member; Apparatus or machines therefor; Cutting members therefor</td>
<td></td>
</tr>
<tr>
<td>Especially adapted for cutting rubber</td>
<td>B26D 3/003</td>
</tr>
<tr>
<td>For cutting used tyres</td>
<td>B26D 3/005</td>
</tr>
</tbody>
</table>

Special rules of classification

In this group including its undergroups, it is highly desirable to add additional B29B 2017/0424 Indexing Codes for the type of disintegrating technique.