

## SECTION B — PERFORMING OPERATIONS; TRANSPORTING

### B01 PHYSICAL OR CHEMICAL PROCESSES OR APPARATUS IN GENERAL

#### B01F MIXING, e.g. DISSOLVING, EMULSIFYING, DISPERSING (mixing paints B44D 3/06)

##### Note(s)

In this subclass, the following term or expression is used with the meaning indicated:

- "mixing" covers stirring of a single material.

##### Subclass index

DISSOLVING.....	1/00
MIXING, DISPERSING, EMULSIFYING	
Processes.....	3/00
Apparatus	
flow mixers.....	5/00
with rotary action.....	7/00, 9/00
other mixers.....	11/00, 13/00
accessories.....	15/00
EMULSIFYING OR DISPERSING AGENTS.....	17/00

**1/00 Dissolving** (separating by dissolving B01D; dissolving to effect cooling F25D 5/00) [2]

**3/00 Mixing, e.g. dispersing, emulsifying, according to the phases to be mixed**

- 3/02 • gases with gases or vapours
- 3/04 • gases or vapours with liquids (mixing non-alcoholic beverages with gases A23L 2/54)
- 3/06 • gases or vapours with solids
- 3/08 • liquids with liquids; Emulsifying
- 3/10 • • Mixing very viscous liquids
- 3/12 • liquids with solids (displacing one liquid by another in dispersions of solids in liquids B01D 12/00)
- 3/14 • • Mixing very viscous liquids with solids
- 3/18 • solid with solids
- 3/20 • Pretreatment of the materials to be mixed
- 3/22 • Aftertreatment of the mixture

##### Mixers

**5/00 Flow mixers** (sprayers, atomisers B05B); **Mixers for falling materials, e.g. solid particles** (B01F 13/04 takes precedence; centrifugal mixers B04)

- 5/02 • Jet mixers
- 5/04 • Injector mixers
- 5/06 • Mixers in which the components are pressed together through slits, orifices, or screens (turbo-mixers B01F 5/16; colloid-mills B02C; mixing valves F16K 11/00)
- 5/08 • • Homogenising or emulsifying nozzles
- 5/10 • Circulation mixers
- 5/12 • Pump mixers
- 5/14 • • of the gear type

- 5/16 • • Turbo-mixers
- 5/18 • Spray-mixers
- 5/20 • • with nozzles
- 5/22 • • with rotary discs
- 5/24 • Falling particle mixers with repeated action
- 5/26 • Falling particle mixers with moving means, e.g. stirrers for increasing the mixing

**7/00 Mixers with rotary stirring devices in fixed receptacles; Kneaders** (B01F 13/04 takes precedence)

- 7/02 • with stirrers rotating about a horizontal or inclined axis
- 7/04 • • with paddles or arms
- 7/06 • • with propellers
- 7/08 • • with helices
- 7/10 • • with rotary discs
- 7/12 • • with cylinders
- 7/14 • • with stirrers having planetary motion
- 7/16 • with stirrers rotating about a vertical axis
- 7/18 • • with paddles or arms
- 7/20 • • • with fixed axis
- 7/22 • • with propellers
- 7/24 • • with helices
- 7/26 • • with rotary discs
- 7/28 • • with cylinders
- 7/30 • • with stirrers having planetary motion
- 7/32 • • with openwork frames or cages

**9/00 Mixers with rotating receptacles** (B01F 13/04 takes precedence)

- 9/02 • rotating about a horizontal or inclined axis, e.g. drum mixers
- 9/04 • • without bars

**B01F**

9/06	• • with fixed bars	17/02	• Alkyl sulfonates or sulfuric acid ester salts derived from monohydric alcohols
9/08	• • with rotating stirring devices	17/04	• Sulfonates or sulfuric acid ester salts derived from polyhydric alcohols or amino alcohols or derivatives thereof (sulfated or sulfonated fatty oils B01F 17/08)
9/10	• rotating about a vertical axis	17/06	• Esters of higher fatty acids with hydroxyalkylated sulfonic acids or salts thereof
9/12	• • with paddles or arms	17/08	• Sulfation or sulfonation products of fats, oils, waxes, or higher fatty acids or esters thereof with monovalent alcohols
9/14	• • with propellers	17/10	• Derivatives of low-molecular-weight sulfocarboxylic acids or sulfopolycarboxylic acids
9/16	• • with helices	17/12	• Sulfonates of aromatic or alkylated aromatic compounds
9/18	• • with rotary discs	17/14	• Derivatives of phosphoric acid
9/20	• • with cylinders	17/16	• Amines or polyamines
9/22	• with stirrers having planetary motion	17/18	• Quaternary ammonium compounds
<b>11/00</b>	<b>Mixers with shaking, oscillating, or vibrating mechanisms</b> (B01F 13/04 takes precedence)	17/20	• Phosphonium and sulfonium compounds
11/02	• Mixing by means of ultrasonic vibrations	17/22	• Amides or hydrazides
11/04	• with pendulum stirrers	17/24	• • Amides of higher fatty acids with aminoalkylated sulfonic acids
<b>13/00</b>	<b>Other mixers; Mixing plant, including combinations of dissimilar mixers</b>	17/26	• Sulfonamides
13/02	• Mixers with gas agitation, e.g. with air supply tubes	17/28	• Aminocarboxylic acids (protein hydrolysates B01F 17/30)
13/04	• Mixers combined with safety devices	17/30	• Proteins; Protein hydrolysates
13/06	• Mixers adapted for working at sub- or super-atmospheric pressure	17/32	• Heterocyclic compounds
13/08	• Magnetic mixers	17/34	• Higher-molecular-weight carboxylic acid esters (B01F 17/06 takes precedence)
13/10	• Mixing plant, including combinations of dissimilar mixers	17/36	• • Esters of polycarboxylic acids
<b>15/00</b>	<b>Accessories for mixers</b>	17/38	• Alcohols, e.g. oxidation products of paraffins
15/02	• Feed or discharge mechanisms	17/40	• Phenols
15/04	• Forming a predetermined ratio of the substances to be mixed (controlling ratio of two or more flows of fluid or fluent material G05D 11/02)	17/42	• Ethers, e.g. polyglycol ethers of alcohols or phenols
15/06	• Heating or cooling systems	17/44	• • Ether carboxylic acids
<hr/>		17/46	• • Ethers of aminoalcohols
<b>17/00</b>	<b>Use of substances as emulsifying, wetting, dispersing, or foam-producing agents</b> (flotation agents B03D 1/001; used for particular applications, <u>see</u> the relevant classes, e.g. use of substances as detergents C11D) [3, 5]	17/48	• • Cellulose ethers
		17/50	• Derivatives of lignin
		17/52	• Natural or synthetic resins or their salts
		17/54	• Silicon compounds
		17/56	• Glucosides; Mucilage; Saponines