

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.

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DISSOLVING.....	1/00
MIXING, DISPERSING, EMULSIFYING	
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EMULSIFYING OR DISPERSING AGENTS.....	17/00

1/00	Dissolving (separating by dissolving B01D; dissolving to effect cooling F25D 5/00) [2]	5/16	• • Turbo-mixers
		5/18	• Spray-mixers
3/00	Mixing, e.g. dispersing, emulsifying, according to the phases to be mixed	5/20	• • with nozzles
3/02	• gases with gases or vapours	5/22	• • with rotary discs
3/04	• gases or vapours with liquids (mixing non-alcoholic beverages with gases A23L 2/54)	5/24	• Falling particle mixers with repeated action
3/06	• gases or vapours with solids	5/26	• Falling particle mixers with moving means, e.g. stirrers for increasing the mixing
3/08	• liquids with liquids; Emulsifying	7/00	Mixers with rotary stirring devices in fixed receptacles; Kneaders (B01F 13/04 takes precedence)
3/10	• • Mixing very viscous liquids	7/02	• with stirrers rotating about a horizontal or inclined axis
3/12	• liquids with solids (displacing one liquid by another in dispersions of solids in liquids B01D 12/00)	7/04	• • with paddles or arms
3/14	• • Mixing very viscous liquids with solids	7/06	• • with propellers
3/18	• solid with solids	7/08	• • with helices
3/20	• Pretreatment of the materials to be mixed	7/10	• • with rotary discs
3/22	• Aftertreatment of the mixture	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

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

B01F

- 9/06 • • with fixed bars
- 9/08 • • with rotating stirring devices
- 9/10 • rotating about a vertical axis
- 9/12 • • with paddles or arms
- 9/14 • • with propellers
- 9/16 • • with helices
- 9/18 • • with rotary discs
- 9/20 • • with cylinders
- 9/22 • with stirrers having planetary motion

- 11/00 Mixers with shaking, oscillating, or vibrating mechanisms** (B01F 13/04 takes precedence)
- 11/02 • Mixing by means of ultrasonic vibrations
- 11/04 • with pendulum stirrers

- 13/00 Other mixers; Mixing plant, including combinations of dissimilar mixers**
- 13/02 • Mixers with gas agitation, e.g. with air supply tubes
- 13/04 • Mixers combined with safety devices
- 13/06 • Mixers adapted for working at sub- or super-atmospheric pressure
- 13/08 • Magnetic mixers
- 13/10 • Mixing plant, including combinations of dissimilar mixers

- 15/00 Accessories for mixers**
- 15/02 • Feed or discharge mechanisms
- 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)
- 15/06 • Heating or cooling systems

- 17/00 Use of substances as emulsifying, wetting, dispersing, or foam-producing agents** (flotation agents B03D 1/001; used for particular applications, see the relevant classes, e.g. use of substances as detergents C11D) [3, 5]
- 17/02 • Alkyl sulfonates or sulfuric acid ester salts derived from monohydric alcohols
- 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)
- 17/06 • Esters of higher fatty acids with hydroxyalkylated sulfonic acids or salts thereof
- 17/08 • Sulfation or sulfonation products of fats, oils, waxes, or higher fatty acids or esters thereof with monovalent alcohols
- 17/10 • Derivatives of low-molecular-weight sulfocarboxylic acids or sulfopolycarboxylic acids
- 17/12 • Sulfonates of aromatic or alkylated aromatic compounds
- 17/14 • Derivatives of phosphoric acid
- 17/16 • Amines or polyamines
- 17/18 • Quaternary ammonium compounds
- 17/20 • Phosphonium and sulfonium compounds
- 17/22 • Amides or hydrazides
- 17/24 • • Amides of higher fatty acids with aminoalkylated sulfonic acids
- 17/26 • Sulfonamides
- 17/28 • Aminocarboxylic acids (protein hydrolysates B01F 17/30)
- 17/30 • Proteins; Protein hydrolysates
- 17/32 • Heterocyclic compounds
- 17/34 • Higher-molecular-weight carboxylic acid esters (B01F 17/06 takes precedence)
- 17/36 • • Esters of polycarboxylic acids
- 17/38 • Alcohols, e.g. oxidation products of paraffins
- 17/40 • Phenols
- 17/42 • Ethers, e.g. polyglycol ethers of alcohols or phenols
- 17/44 • • Ether carboxylic acids
- 17/46 • • Ethers of aminoalcohols
- 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