

7TH INTERNATIONAL PLASTICS, RUBBER AND COMPOSITES FAIR

POLYMERS – RAW MATERIALS AND AUXILIARIES

15.1.1 Thermoplastics

15.1.1.1 Polyolefins

- 15.1.1.1.1 Polyethylenes (PE)
- 15.1.1.1.1.1 Ultra low density polyethylenes (ULDPE)
- 15.1.1.1.1.2 Low density polyethylenes (LDPE)
- 15.1.1.1.1.3 Linear low density polyethylenes (LLDPE)
- 15.1.1.1.1.4 Medium-density polyethylenes (MDPE)
- 15.1.1.1.1.5 High-density polyethylenes (HDPE)
- 15.1.1.1.1.6 High molecular weight high-density polyethylenes (HMW-HDPE)
- 15.1.1.1.1.7 Ultra-high molecular weight high-density polyethylenes (UHMW-HDPE)
- 15.1.1.1.1.8 Modified PE, copolymers, degradable types
- 15.1.1.1.1.99 Polyethylenes, other

- 15.1.1.1.2 Polypropylenes (PP)
- 15.1.1.1.3 Polybutene (PB) and polyisobutylene (PIB)
- 15.1.1.1.99 Polyolefins – other

15.1.1.2 Polystyrene plastics

- 15.1.1.2.1 Polystyrene (PS)
- 15.1.1.2.2 Expandable polystyrene (EPS)
- 15.1.1.2.3 Rigid polystyrene (S/B, HIPS)
- 15.1.1.2.4 Styrene-acrylonitrile copolymers (SAN)
- 15.1.1.2.5 Acrylonitrile-butadiene-styrene (ABS)
- 15.1.1.2.99 Styrene copolymers, multipolymers and blends – other

15.1.1.3 Vinyl chloride plastics

- 15.1.1.4 Fluoroplastics
- 15.1.1.4.1 Polytetrafluorethylene (PTFE)
- 15.1.1.4.99 Fluoroplastics, other

15.1.1.5 Acrylates

- 15.1.1.5.1 Polymethylmetacrylate (PMMA)
- 15.1.1.5.2 Copolymers and acrylate blends

15.1.1.6 Polyoxymethylene (POM)

- 15.1.1.7 Polyamides (PA)
- 15.1.1.7.1 Polyamides PA 6
- 15.1.1.7.2 Polyamides PA 66
- 15.1.1.7.3 Polyamides PA 11
- 15.1.1.7.4 Polyamides PA 12
- 15.1.1.7.5 Polyamides PA 46, 610, 612
- 15.1.1.7.6 Polyamides – other types
- 15.1.1.7.7 Aromatic polyamides (polyarylamides)
- 15.1.1.7.8 Copolymers and polyamide alloys

15.1.1.8 Polyarylesters

- 15.1.1.8.1 Polycarbonates (PC)
- 15.1.1.8.2 Copolymers and polyarylester blends
- 15.1.1.8.3 Polyethylen terephthalate (PETP, PET)
- 15.1.1.8.4 Polybutylene terephthalate (PBTP)
- 15.1.1.8.5 Polyarylates (PAR, PEC)

15.1.1.9 Polysulfides

- 15.1.1.9.1 Polyphenylene sulfide (PPS)

15.1.1.10 Polysulfones

- 15.1.1.11 Thermoplastic polyimides (PI)
- 15.1.1.12 Liquid crystal polymers (LCP)
- 15.1.1.13 Polyphenylene oxides (POP, PPE) and their blends
- 15.1.1.14 Polyetheretherketone (PEEK)
- 15.1.1.15 Cellulose derivatives
- 15.1.1.16 Highly heat-resistant thermoplastics

15.1.1.99 Thermoplastics, other

15.1.2 Thermoplastic elastomers (TPE)

15.1.3 Thermosetting plastics

- 15.1.3.1 Phenol moulding compounds (PF)
- 15.1.3.2 Aminoplastic moulding compounds
- 15.1.3.3 Polyester resins unsaturated (UP)
- 15.1.3.4 Epoxy resins (EP)
- 15.1.3.5 Highly heat-resistant thermosetting plastics
- 15.1.3.99 Thermosetting plastics – other

15.1.4 Polyurethanes (PUR)

- 15.1.4.1 Unextended polyurethanes
- 15.1.4.2 PUR flexible foam systems
- 15.1.4.3 PUR rigid foam systems
- 15.1.4.4 PUR integral foam systems
- 15.1.4.5 Polyurethane elastomers
- 15.1.4.99 Polyurethanes (PUR) – other

15.1.5 Rubbers and vulcanized rubbers

15.1.6 Polymer materials for manufacture of coating materials

- 15.1.6.1 Polymers for manufacture of transparent lacquers
- 15.1.6.2 Polymers for manufacture of pigmented paints and enamels

15.1.7 Polymer materials for manufacture of adhesives

15.1.8 Polymers and fillers for manufacture of cements

- 15.1.8.1 Polymers for manufacture of thermoplastic cements

15.1.9 Additives and fillers for processing of plastics and rubber blends

- 15.1.9.1 Additives and fillers for processing of plastics
- 15.1.9.1.1 Dyestuffs, pigments for plastics
- 15.1.9.1.2 Dyestuffs and additives for plastics in the form of concentrates (masterbatches)
- 15.1.9.1.3 Fillers
- 15.1.9.1.4 Plasticizers
- 15.1.9.1.5 Stabilizers (thermo-oxidation, etc.)
- 15.1.9.1.6 Antistatic agents
- 15.1.9.1.7 Flame retarding agents
- 15.1.9.1.8 Crosslinking agents
- 15.1.9.1.9 Nucleating agents
- 15.1.9.1.10 Agents facilitating preparation of polymer blends (compatibilizers)
- 15.1.9.1.11 Blowing agents
- 15.1.9.1.12 Dispersing agents
- 15.1.9.1.13 Not genuine solvents
- 15.1.9.1.14 Lubricants, waxes for processing of plastics
- 15.1.9.1.15 Separating agents
- 15.1.9.1.99 Additives and fillers for processing of plastics – other

15.1.9.2 Additives and fillers for processing of rubber blends

15.1.10 Biopolymers

15.1.11 Synthetic polymer-based ion exchange resins

15.1.99 Polymers – raw materials and additives – other

MACHINES AND EQUIPMENT FOR PROCESSING OF PLASTICS AND RUBBERS

15.2.1 Machines for treatment of polymer materials

- 15.2.1.1 Mixing and kneading machines
- 15.2.1.2 Crushing machines
- 15.2.1.3 Filtration systems
- 15.2.1.4 Machines for manufacture of plastics and rubbers mixtures
- 15.2.1.99 Machines for treatment of polymer materials – other



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15.2.2	Calenders – rolling machines	15.2.14.10	Digital scales
15.2.2.1	Machines and lines for production of plastic sheets and floorings	15.2.14.11	Equipment for separation of gate and culls from castings
15.2.3	Extruders – extruding machines for plastic and rubber blends	15.2.14.12	Robots and handling devices for plastics and rubber processing machines
15.2.3.1	Extruders for plastic materials	15.2.14.13	Systems for automatic mould changing
15.2.3.1.1	Machines and lines for production of boards, sheets, pipes and sections of thermoplastics	15.2.14.14	Belt conveyors for mouldings
15.2.3.2	Extruders for rubber industry	15.2.14.99	Ancillary machines and equipment for plastics and rubber industries – other
15.2.3.2.1	Extruding equipment for rubber	15.2.15	Dying units for plastic materials
15.2.4	Moulding machines for thermosetting plastics and rubber	15.2.16	Equipment for intake and treatment of air and other gases for technological purposes
15.2.4.1	Injection moulding machines for thermosetting plastics and rubber blends	15.2.17	Deflashing machines for plastic and rubber components
15.2.4.2	Multibank presses for manufacture of laminated materials	15.2.18	Plastics thermoforming machines
15.2.5	Injection moulding machines	15.2.19	Machines and fixtures for welding of plastics
15.2.5.1	Hydraulic injection moulding machines	15.2.19.1	Machines for welding plastic sheets
15.2.5.2	Hybrid (electrical and hydraulic) injection moulding machines	15.2.20	Machines for chip working of plastics
15.2.5.3	Electrical injection moulding machines	15.2.21	Machines and equipment for finishing operations
15.2.5.4	Multi-colour and multi-component injection moulding machines	15.2.22	Machines, equipment and materials for finishing, decorating, printing and marking plastic and rubbers products
15.2.5.5	Injection moulding machines for thermosetting plastics	15.2.23	Equipment and technologies for Rapid Prototyping, Rapid Tooling and Room Temperature Vulcanization
15.2.5.6	Injection moulding machines for technical rubber articles	15.2.24	Process control equipment of machines for plastics and rubber industries
15.2.5.7	Injection moulding machines with pressurized inert gas	15.2.25	Parts and components of machines for plastics and rubber industries
15.2.5.8	Power injection moulding (PIM) machines	15.2.25.1	Screws
15.2.5.99	Injection moulding machines – other	15.2.25.2	Hydraulic and pneumatic rollers
15.2.6	Machinery for manufacture of foamed materials and processing of reactive resins	15.2.25.3	Rollers for calenders
15.2.7	Curing presses	15.2.25.4	Pumps for plastics and rubber processing machines
15.2.8	Machines for manufacture of tyres	15.2.25.5	Nozzles
15.2.9	Machines for manufacture of rubber hoses	15.2.25.6	Heating elements
15.2.10	Blow moulding machines for manufacture of hollow articles	15.2.25.7	Machine blades
15.2.10.1	Extruding blow moulding machines	15.2.25.8	Clutches
15.2.10.2	Injection blow moulding machines	15.2.25.9	Electric motors and drives
15.2.11	Casting machines and equipment for liquid polymer processing	15.2.25.99	Parts and components of machines for plastics and rubber industries, other
15.2.12	Equipment for plastic or rubber coating	15.2.26	Equipment for neutralization and use of static electricity in manufacture
15.2.13	Moulds, tools and jigs	15.2.99	Machines and equipment for processing of plastics and rubber, other
15.2.13.1	Injection moulds	COMPOSITE MATERIALS	
15.2.13.2	Blow moulds	15.3.1	Composite reinforcements
15.2.13.3	Compression moulds	15.3.1.1	Reinforcing fibres
15.2.13.4	Moulds, tools and jigs for extruders	15.3.1.1.1	Glass fibres
15.2.13.5	Standardized parts for moulds, tools and jigs	15.3.1.1.1.1	Glass rovings
15.2.13.6	Heated injection systems	15.3.1.1.1.2	Textile glass fabric
15.2.13.7	Hot air-channel systems	15.3.1.1.1.3	Textile glass mats
15.2.13.99	Moulds, tools and jigs, other	15.3.1.1.99	Reinforcing fibres, other
15.2.14	Ancillary machines and equipment for plastics and rubber industries	15.3.1.99	Composite reinforcements, other
15.2.14.1	Silos and their accessories	15.3.2	Materials for polymer matrices
15.2.14.2	Granulate driers	15.3.3	Machines and equipment for manufacture of prepregs
15.2.14.3	Conveyors	15.3.4	Technologies, machines and equipment for manufacture of thermosetting matrix fibre composites
15.2.14.4	Metal separators	15.3.4.1	Hot pressing technologies (BMC or DMC)
15.2.14.5	Granulate suction equipment	15.3.4.2	Manual wet coating
15.2.14.6	Dosing equipment	15.3.4.3	Winding technologies (rovings, fabric strips)
15.2.14.7	Heating technology		
15.2.14.8	Cooling technology		
15.2.14.9	Flow meters		

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15.3.4.4	Resin Transfer Moulding (RTM) technologies	15.4.2.25	Linings and panelling of plants, equipment for transport and storage of bulk and abrasive materials
15.3.4.5	Vacuum Assisted RTM (VARTM) technologies	15.4.2.26	Masts
15.3.4.6	Seeman Composite Resin Infusion Moulding Process (SCRIMP) technologies	15.4.2.27	Sound protecting, thermal and waterproofing parts, panels and fillings
15.3.4.7	Pultrusion technologies	15.4.2.28	Facade lining and decorative panels, roofing
15.3.4.8	Sheet Moulding Composed (SMC) technologies	15.4.2.29	Electric insulation boards and components
15.3.4.99	Technologies, machines and equipment for manufacture of thermosetting matrix fibre composites, other	15.4.2.30	Oversize and small boxes, covers and lids
15.3.5	Technologies, machines and equipment for manufacture of thermosetting matrix fibre composites	15.4.2.31	Fillets, furniture strips and components
15.3.6	Technology of particle composites with polymer matrix	15.4.2.32	Sacks, bags
15.3.7	Technology of composites with metal matrix	15.4.2.33	Cups, mugs, plates, trays and kitchen utensils
15.3.8	Technology of composites with ceramic matrix	15.4.2.34	Floor coverings, industrial carpets
15.3.9	Nanocomposites	15.4.2.35	Synthetical leather, plastic coated paper or textile products
		15.4.2.36	Protective and safety aids
		15.4.2.99	Plastic products, other
15.3.10	Semi-finished composite products	15.4.3	Plastic constructional units
15.3.10.1	Composite structural sections, rods, pipes, boards	15.4.3.1	Injection moulded plastic constructional units
15.3.10.2	Composite panels with sandwich core	15.4.3.2	Pressed plastic constructional units
15.3.11	Composite products	15.4.3.3	Blown plastic constructional units
15.3.11.1	Glass-fibre reinforced plastic products	15.4.3.4	Structural parts of thermoformed plastics
15.3.99	Composites, other	15.4.3.5	Expanded plastic structural parts
		15.4.3.6	Structural parts of polycarbonates
		15.4.3.7	Polyamide structural parts
		15.4.3.8	Polyoxymethylene structural parts
		15.4.3.9	Structural parts with inserts
		15.4.3.10	Reinforced structural parts
		15.4.3.11	Plastic machined structural parts
		15.4.3.12	Sliding and wear-resistant structural parts
		15.4.3.99	Plastic constructional units, other
		15.4.4	Plastic parts and products for selected industries and end users
SEMI-FINISHED AND FINISHED PLASTIC PRODUCTS		15.4.4.1	Plastic parts and products for mechanical engineering
15.4.1	Semi-finished plastic products	15.4.4.2	Plastic parts and products for transport
15.4.1.1	Films, sheets, strips, bands	15.4.4.3	Plastic parts and products for the automotive industry
15.4.1.2	Blocks, boards	15.4.4.3.1	Motor vehicle components for interior fittings
15.4.1.3	Sections	15.4.4.3.2	Motor vehicle components for exterior fittings
15.4.1.4	Rods	15.4.4.3.3	Plastic parts for vehicle driving sets
15.4.1.5	Fibres, lines, strings	15.4.4.4	Plastic parts and products for power engineering
15.4.1.6	Pipes, hoses	15.4.4.5	Plastic parts and products for the building industry
15.4.1.7	Semi-finished plastic castings	15.4.4.6	Plastic parts and products for the environment protection
15.4.1.99	Semi-finished plastic products, other	15.4.4.7	Plastic parts and products for agriculture
15.4.2	Plastic products	15.4.4.8	Plastic parts and products for the food industry
15.4.2.1	Bearings and parts thereof	15.4.4.9	Plastic parts and products for the printing and packaging industries
15.4.2.2	Gears	15.4.4.10	Plastic parts and products for electrical engineering
15.4.2.3	Shaft couplings	15.4.4.11	Plastic parts and products for electronics
15.4.2.4	Springs and flexible elements	15.4.4.12	Plastic parts and products for information and communication technologies and office machinery
15.4.2.5	Sealings, bellows	15.4.4.13	Plastic parts and products for health services
15.4.2.6	Conveyer belts	15.4.4.14	Plastic parts and products for the textile and clothing industries
15.4.2.7	Conveyer chains, chains tensioners	15.4.4.15	Plastic parts and products for the furniture-making industry
15.4.2.8	Conveyer and driving belts	15.4.4.16	Plastic parts and products for home appliances, households
15.4.2.9	Conveyer rollers, conveyer worms	15.4.4.17	Plastic parts and products for school and office supplies
15.4.2.10	Energy chains	15.4.4.18	Plastic parts and products for garden, garden appliances
15.4.2.11	Pipes	15.4.4.19	Plastic parts and products for games, hobbies, sports, leisure time
15.4.2.12	Tubes, drainage parts	15.4.4.20	Plastic parts and products for advertising, promotional items
15.4.2.13	Hoses	15.4.4.99	Plastic parts and products for other selected industries and end users
15.4.2.14	Fittings, quick couplers		
15.4.2.15	Pumps		
15.4.2.16	Castor wheels, rollers, pulleys, sheaves		
15.4.2.17	Assembling elements		
15.4.2.17.1	Joining elements – screws, nuts, rivets, pins		
15.4.2.17.2	Leveling elements – distance columns, articulated supporting feet, leveling screws		
15.4.2.17.3	Protective elements – caps, plugs, blinds, sleeves, closures		
15.4.2.17.4	Fastening elements – wall clips, clamps, wall holder sleeves, fixing strips, assembly strappings, dowels, hinges		
15.4.2.18	Operating elements – handles, hand rails, balls, wheels, levers, star handles		
15.4.2.19	Large tanks, silos, containers		
15.4.2.20	Vessels, barrels, canisters, bottles		
15.4.2.21	Pallets, crates, containers, cases, boxes, packs, trays		
15.4.2.22	Ropes, cords, binding straps		
15.4.2.23	Filters		
15.4.2.24	Mesh screens		



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- 15.4.5 Semi-finished and finished products made of polyurethane elastomers**
- 15.4.5.1 Boards, blocks
 - 15.4.5.2 Sections
 - 15.4.5.3 Bellows, sleeves, covers, rings
 - 15.4.5.4 Dilatation compensators
 - 15.4.5.5 PU elastomers including metal inserts
 - 15.4.5.6 Shaft seal rings
 - 15.4.5.7 Seals
 - 15.4.5.8 Vibration dampers
 - 15.4.5.9 Silentblocks
 - 15.4.5.10 Shaped products
 - 15.4.5.11 Casts
 - 15.4.5.12 Glass fiber reinforced polyurethane
 - 15.4.5.13 Wheels
 - 15.4.5.14 Solid tyre wheels
 - 15.4.5.15 Polyurethane coated rollers
 - 15.4.5.99 Semi-finished and finished products made of polyurethane elastomers other

SEMI-FINISHED AND FINISHED RUBBER-BASED PRODUCTS

- 15.5.1 Rubber boards, blocks
- 15.5.2 Rubber sections
- 15.5.3 Rubber fibres, ropes
- 15.5.4 Rubber hoses
- 15.5.5 Rubber flooring
- 15.5.6 Rubber V-belts, indented belts
- 15.5.7 Rubber conveyor belts
- 15.5.8 Rubber bellows, sleeves, covers, rings
- 15.5.9 Rubber dilatation compensators
- 15.5.10 Rubber-metal
- 15.5.11 Shaft seal rings
- 15.5.12 Rubber seals
- 15.5.13 Rubber vibration dampers
- 15.5.14 Silentblocks
- 15.5.15 Shaped rubber products
- 15.5.16 Rubber textile products
- 15.5.17 Rubber wheels
- 15.5.18 Cellular rubber products
- 15.5.19 Tyres and tubes
- 15.5.20 Rubber containers and bags
- 15.5.21 Rubber-coated cylinders
- 15.5.22 Articles produced by dipping
- 15.5.23 Ebonite products
- 15.5.98 Rubber components for automotive applications of all kinds
- 15.5.99 Rubber semi-finished and finished products, other

MACHINES AND EQUIPMENT FOR RECYCLING AND USE OF PLASTIC AND RUBBER WASTE MATERIALS

- 15.6.1 Mills and crushers for plastic waste
- 15.6.1.1 Cryogenic mills and crushers for plastic and rubber waste
- 15.6.1.2 Tyre crushers
- 15.6.2 Machines, equipment and technologies for separation of contaminating materials from plastic and rubber waste
- 15.6.3 Technologies, machines and equipment for chemical and thermal recycling of waste polymer materials
- 15.6.4 Solid waste processing lines (plastics, cables, tyres)
- 15.6.5 Plastic re-granulates and waste (HDPE, LDPE, PP, PS, PVC, PUR)
- 15.6.6 Recycled elastomer materials
- 15.6.7 Consultancy in recycling and use of plastic and rubber waste materials
- 15.6.99 Machines and equipment for recycling and use of plastic and rubber waste materials – other

COMPUTER, TESTING AND MEASURING TECHNOLOGIES FOR PLASTICS AND RUBBERS

- 15.7.1 Control systems for plastics and rubber enterprises
- 15.7.2 Statistical Process Control (SPC) systems for long-term monitoring of production processes and quality
- 15.7.3 CAD, CAM and CIM for plastics and rubber plants
- 15.7.3.1 CAD systems for injection processes analysis and optimization
- 15.7.3.2 Regulation system for melt flow in the mould
- 15.7.4 Development software for designers
- 15.7.5 Pick-up sensors of dimensions, pressure, temperature and forces in plastics and rubber processing machines
- 15.7.6 Measuring equipment for length, thickness and surface geometry of plastic components
- 15.7.6.1 Systems for 2D and 3D scanning of complex shapes
- 15.7.7 Rheometers, plastometers, viscosimeters
- 15.7.8 Temperature measuring instruments for manufacture and processing of plastics and rubbers
- 15.7.9 Thermomechanical analysers
- 15.7.10 Measuring instruments of optical properties of plastics and rubbers
- 15.7.11 Multiparameter measuring stations
- 15.7.12 Material thermostability testers
- 15.7.13 Testers of mechanical and dynamic ruggedness of materials
- 15.7.99 Computer, testing and measuring technologies for plastics and rubbers, other

RESEARCH, SERVICES AND INSTITUTIONS IN PLASTICS AND RUBBERS

- 15.8.1 Research in plastics and rubbers
- 15.8.2 Custom plastic and rubber components manufacture
- 15.8.2.1 Custom plastic components manufacture
- 15.8.2.2 Custom rubber components manufacture
- 15.8.2.3 Custom adjustments and assembly of components
- 15.8.3 Consultancy in plastics and rubber manufacturing
- 15.8.4 Engineering and design services for plastics and rubber manufacturing
- 15.8.5 Service and repairs of machines for plastics and rubber industries
- 15.8.5.1 Spare parts for machines for plastics and rubber industries
- 15.8.5.2 Renovation of moulds, screws, chambers and cylinders
- 15.8.5.3 Turnkey systems of general overhauls of machines for plastics and rubber industries
- 15.8.5.4 Reconstruction and modernisation of machines for plastics and rubber industries
- 15.8.6 Refurbished machines for plastics and rubber industries
- 15.8.7 Manufacture of prototype and single-purpose equipment for plastics and rubber industries
- 15.8.8 Technologies for plastics and rubber industries
- 15.8.8.1 Technology projects for plastics and rubber industries
- 15.8.8.2 Technology supplies to plastics and rubber industries
- 15.8.9 Execution of investment projects in plastics and rubber industries
- 15.8.10 Financial services, leasing for plastics and rubber industries
- 15.8.11 Technical literature and publications for plastics and rubber industries

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- 15.8.12 Institutions and organisations in plastics and rubber industries
- 15.8.13 Vocational training schools for plastics and rubber industries
- 15.8.14 Vocational training courses and education for plastics and rubber industries
- 15.8.99 Research, services, institutions in plastics and rubbers sector, other