

CPC**COOPERATIVE PATENT CLASSIFICATION****Y02P****CLIMATE CHANGE MITIGATION TECHNOLOGIES IN THE PRODUCTION OR PROCESSING OF GOODS****NOTE**

This subclass covers climate change mitigation technologies in any kind of industrial processing or production activity, including the agroalimentary industry, agriculture, fishing, ranching and the like.

Y02P 10/00**Technologies related to metal processing**

Y02P 10/10

- . Reduction of greenhouse gas [GHG] emissions

Y02P 10/12

- . . CO₂

Y02P 10/122

- . . . by capturing CO₂

Y02P 10/124

- Recycling of CO₂-rich gas

Y02P 10/126

- Recycling of CO₂-lean gas

Y02P 10/128

- Oxycombustion

Y02P 10/13

- Post-combustion

Y02P 10/132

- CO₂ storage

Y02P 10/134

- . . . by CO₂ avoidance

Y02P 10/136

- using hydrogen, e.g. H₂

Y02P 10/138

- Electrolysis

Y02P 10/14

- . . Greenhouse gases [GHG] other than CO₂

Y02P 10/143

- . . . Methane [CH₄]

Y02P 10/146

- . . . Perfluorocarbons [PFC]; Hydrofluorocarbons [HFC]; Sulfur hexafluoride [SF₆]

Y02P 10/20

- . Process efficiency

Y02P 10/21

- . . by recovering materials

Y02P 10/212

- . . . Recovering metals from waste

Y02P 10/214

- by pyro metallurgy

Y02P 10/216

- of Fe

Y02P 10/218

- of Al

Y02P 10/22

- of Cu

Y02P 10/224

- of Co or Ni

Y02P 10/226

- of Mg

Y02P 10/228

- of Sn

Y02P 10/23

- of refractory metals

Y02P 10/232

- of Zn or ZnO

Y02P 10/234

- by hydro metallurgy

Y02P 10/236

- of Cu

Y02P 10/238

- by means other than pyro metallurgy or hydro metallurgy

Y02P 10/24	. . . . . powder metallurgy
Y02P 10/242	. . . Slag reuse in metallurgical processes
Y02P 10/25	. . by increasing the energy efficiency of the process
Y02P 10/253	. . . using induction furnaces
Y02P 10/256	. . . Design or operational measures for increasing the efficiency of electric conversion
Y02P 10/259	. . . . in electric arc furnaces
Y02P 10/262	. . . . in electrolytic cells
Y02P 10/265	. . . by heat recovery
Y02P 10/268	. . . . with by-product gas in energy cycle
Y02P 10/271	. . . . . low temperature heat recovery
Y02P 10/274	. . . . . medium temperature heat recovery
Y02P 10/277	. . . . . high temperature heat recovery
Y02P 10/28	. . . . using by-product gases
Y02P 10/283	. . . . using water, e.g. for cooling
Y02P 10/286	. . . by process control or by modelling
Y02P 10/29	. . . Additive manufacturing
Y02P 10/292	. . . . of casting moulds
Y02P 10/295	. . . . of metals
Y02P 10/30	. . characterised by the energy source
Y02P 10/32	. . . the energy source being renewable
Y02P 10/34	. . . Cogeneration with other industries

Y02P 20/00**Technologies relating to chemical industry**

Y02P 20/10	. General improvement of production processes causing greenhouse gases [GHG] emissions
Y02P 20/12	. . Energy input
Y02P 20/121	. . . Energy efficiency measures, e.g. energy management
Y02P 20/122	. . . . characterised by the type of apparatus
Y02P 20/123	. . . . . Motor systems
Y02P 20/124	. . . . . Boilers, furnaces, lighting or vacuum systems
Y02P 20/125	. . . . Process integration
Y02P 20/126	. . . . Membrane separation
Y02P 20/127	. . . . Reactive distillation
Y02P 20/128	. . . Alternative fuel sources, e.g. for process heat or steam
Y02P 20/129	. . . Energy recovery
Y02P 20/13	. . . . Cogeneration
Y02P 20/131	. . . . Pressure recovery turbines
Y02P 20/132	. . . . H ₂ recovery
Y02P 20/133	. . . Renewable energy sources
Y02P 20/134	. . . . Sunlight

Y02P 20/135	. . . . . Photoelectrochemical processes
Y02P 20/136	. . . . . of biological origin, e.g. biomass, biofuels, biogas
Y02P 20/14	. . Reagents; Educts; Products
Y02P 20/141	. . . Feedstock
Y02P 20/142	. . . . the feedstock being CO ₂
Y02P 20/143	. . . . the feedstock being recycled plastics
Y02P 20/144	. . . . . to generate syngas, i.e. H ₂ + CO
Y02P 20/145	. . . . the feedstock being materials of biological origin
Y02P 20/146	. . . Changing the product type or product distribution
Y02P 20/147	. . . Using materials efficiently
Y02P 20/148	. . . . Recycling
Y02P 20/149	. . . . Reduced process losses
Y02P 20/15	. . . . Reduced transportation losses
Y02P 20/151	. . . Reduction of greenhouse gas [GHG] emissions
Y02P 20/152	. . . . CO ₂
Y02P 20/153	. . . . N ₂ O
Y02P 20/154	. . . . Halogenated hydrocarbons
Y02P 20/155	. . . . . Perfluorocarbons [PFC]; Hydrofluorocarbons [HFC]; Hydrochlorofluorocarbons [HCFC]; Chlorofluorocarbons [CFC]
Y02P 20/156	. . . . Methane [CH ₄]
Y02P 20/20	. Improvements relating to chlorine production
Y02P 20/22	. . Optimization of Deacon process
Y02P 20/224	. . . by process design
Y02P 20/228	. . . by improving the materials, e.g. gauze composition or structure
Y02P 20/30	. Improvements relating to adipic acid or caprolactam production
Y02P 20/32	. . Technologies aiming at reducing N ₂ O emissions
Y02P 20/324	. . . by thermal destruction of N ₂ O
Y02P 20/328	. . . by catalytic reduction of N ₂ O
Y02P 20/40	. Improvements relating to chlorodifluoromethane [HCFC-22] production
Y02P 20/42	. . Reducing fluoroform [HFC-23] emissions
Y02P 20/424	. . . by capture and subsequent thermal oxidation
Y02P 20/50	. Improvements relating to the production of products other than chlorine, adipic acid, caprolactam, or chlorodifluoromethane, e.g. bulk or fine chemicals or pharmaceuticals
Y02P 20/51	. . Bulk chemicals
Y02P 20/514	. . . Aldehydes; Alcohols
Y02P 20/518	. . . Hydrocyanation products, e.g. adipodinitrile
Y02P 20/52	. . using catalysts, e.g. selective catalysts
Y02P 20/54	. . characterised by the solvent
Y02P 20/542	. . . the solvent being an ionic liquid

- Y02P 20/544 . . . Supercritical solvents, e.g. supercritical H₂O or CO₂
- Y02P 20/546 . . . Mixtures of ionic liquids and supercritical solvents
- Y02P 20/55 . . Synthetic design, e.g. reducing the use of auxiliary or protecting groups
- Y02P 20/57 . . Efficient separation techniques
- Y02P 20/572 . . . Membranes
- Y02P 20/58 . . Recycling
- Y02P 20/582 . . . of unreacted starting or intermediate materials
- Y02P 20/584 . . . of catalysts
- Y02P 20/586 . . . of reagents, e.g. co-catalysts, adjuvants
- Y02P 20/588 . . . involving immobilised starting materials, reagents or catalysts
- Y02P 20/59 . . Biological synthesis; Biological purification

Y02P 30/00**Technologies relating to oil refining and petrochemical industry**

- Y02P 30/10 . Reduction of greenhouse gas [GHG] emissions during production processes
- Y02P 30/20 . Bio-feedstock
- Y02P 30/30 . Carbon capture or storage [CCS] specific to hydrogen production
- Y02P 30/40 . Ethylene production
- Y02P 30/42 . . using bio-feedstock
- Y02P 30/44 . . Cracking, e.g. steam cracking
- Y02P 30/442 . . . Furnace or cracking tube materials, e.g. chemical composition of the tubes; Controlling or regulating the tube furnaces
- Y02P 30/444 . . . Cogeneration using furnace exhaust
- Y02P 30/446 . . . Catalytic cracking
- Y02P 30/46 . . Separation
- Y02P 30/462 . . . using low temperature distillation
- Y02P 30/464 . . . using absorption or adsorption techniques
- Y02P 30/48 . . Compression

Y02P 40/00**Technologies relating to the processing of minerals**

- Y02P 40/10 . Production of cement
- Y02P 40/12 . . Clinker production
- Y02P 40/121 . . . Energy efficiency measures, e.g. improving or optimising the production methods
- Y02P 40/123 Integrated production plants
- Y02P 40/125 . . . Fuels from renewable energy sources
- Y02P 40/126 Waste
- Y02P 40/128 Biomass
- Y02P 40/14 . . Reduction of clinker content in cement
- Y02P 40/141 . . . Blended cements
- Y02P 40/143 Clinker replacement by slag
- Y02P 40/145 Clinker replacement by combustion residues

Y02P 40/146	. . . . Clinker replacement by ground limestone
Y02P 40/148	. . . Belite cements
Y02P 40/16	. . Non-limestone based cements, e.g. alkali-activated cements
Y02P 40/165	. . . Geopolymers
Y02P 40/18	. . Carbon capture and storage [CCS]
Y02P 40/20	. Cement grinding
Y02P 40/30	. Manufacturing or processing of sand or stone
Y02P 40/40	. Production or processing of lime
Y02P 40/42	. . Limestone calcination
Y02P 40/44	. . Regeneration of lime in pulp and sugar mills
Y02P 40/45	. . using fuels from renewable energy sources
Y02P 40/47	. . Reduction of lime consumption, e.g. in sugar industry
Y02P 40/49	. . . Limestone grinding
Y02P 40/50	. Glass production
Y02P 40/51	. . Producing or shaping of glass
Y02P 40/52	. . Use of cullet or other waste
Y02P 40/53	. . Reusing waste heat during processing or shaping
Y02P 40/535	. . . Regenerative heating
Y02P 40/55	. . Oxy-fuel
Y02P 40/56	. . Batch or cullet pre-heating
Y02P 40/57	. . Reduction of reject rates; Improving the yield
Y02P 40/58	. . Fuels from renewable energy sources
Y02P 40/59	. . CO ₂ capture, e.g. for large oxy-fuel furnaces
Y02P 40/60	. Production of ceramic materials or ceramic elements
Y02P 40/61	. . Manufacturing of materials for construction e.g. beams, bricks or tiles
Y02P 40/615	. . . Bricks made from lime and sand
Y02P 40/63	. . Improving processing, storage or transport systems
Y02P 40/65	. . Improving kilns
Y02P 40/67	. . Fuels from renewable energy sources
Y02P 40/69	. . Substitution of clay or shale by alternative raw materials, e.g. ashes

Y02P 60/00**Technologies relating to agriculture, livestock or agroalimentary industries**

Y02P 60/10	. Agricultural machinery or equipment
Y02P 60/12	. . using renewable energies
Y02P 60/122	. . . for irrigation, e.g. solar water pumping
Y02P 60/124	. . . Collecting solar energy in greenhouses
Y02P 60/14	. . Measures for saving energy
Y02P 60/141	. . . in irrigation, i.e. motor control
Y02P 60/142	. . . Reduction of fuel consumption
Y02P 60/144	. . . Combined machines, e.g. seeder combined with fertilizers

Y02P 60/146	<ul style="list-style-type: none"> in greenhouses
Y02P 60/147	<ul style="list-style-type: none"> Heating, ventilation or air conditioning
Y02P 60/148	<ul style="list-style-type: none"> Constructive measures, e.g. light structures or improved insulation
Y02P 60/149	<ul style="list-style-type: none"> Efficient lighting e.g. LED lighting
Y02P 60/15	<ul style="list-style-type: none"> in preparing or milling grain
Y02P 60/16	<ul style="list-style-type: none"> Machines for direct seeding, i.e. sod or grassland seeding
Y02P 60/18	<ul style="list-style-type: none"> Activities not otherwise provided for, e.g. storage
Y02P 60/20	<ul style="list-style-type: none"> Reduction of greenhouse gas [GHG] emissions in agriculture
Y02P 60/21	<ul style="list-style-type: none"> N₂O
Y02P 60/212	<ul style="list-style-type: none"> Reducing the use of fertilizers
Y02P 60/214	<ul style="list-style-type: none"> Efficient applying machines
Y02P 60/215	<ul style="list-style-type: none"> Efficient spraying methods
Y02P 60/216	<ul style="list-style-type: none"> Aquaponics or hydroponics
Y02P 60/218	<ul style="list-style-type: none"> use of additives, e.g. nitrification inhibitors, biochar
Y02P 60/22	<ul style="list-style-type: none"> Reducing methane [CH₄] emissions from agricultural lands, e.g. from rice paddies
Y02P 60/23	<ul style="list-style-type: none"> Reduction of CO₂ emissions from biota and soils
Y02P 60/24	<ul style="list-style-type: none"> Enhancing carbon sequestration in biota and soils
Y02P 60/242	<ul style="list-style-type: none"> Roof greening
Y02P 60/244	<ul style="list-style-type: none"> Wall greening
Y02P 60/246	<ul style="list-style-type: none"> Use of plant growth regulators to improve carbon dioxide up-take by crop plants
Y02P 60/247	<ul style="list-style-type: none"> Plants with high carbon sequestration potential
Y02P 60/25	<ul style="list-style-type: none"> Biomass with low greenhouse gas [GHG] emissions
Y02P 60/30	<ul style="list-style-type: none"> Land use policy measures
Y02P 60/40	<ul style="list-style-type: none"> Afforestation or reforestation
Y02P 60/50	<ul style="list-style-type: none"> Livestock or poultry management
Y02P 60/52	<ul style="list-style-type: none"> use of renewable energies
Y02P 60/521	<ul style="list-style-type: none"> Solar lighting, e.g. for poultry
Y02P 60/524	<ul style="list-style-type: none"> for pumping or supplying water to livestock
Y02P 60/526	<ul style="list-style-type: none"> for electric energy supply
Y02P 60/528	<ul style="list-style-type: none"> for electric livestock fences
Y02P 60/54	<ul style="list-style-type: none"> Environmental control in livestock or poultry housing
Y02P 60/542	<ul style="list-style-type: none"> using renewable energy
Y02P 60/56	<ul style="list-style-type: none"> Methane [CH₄] capture
Y02P 60/60	<ul style="list-style-type: none"> Fishing
Y02P 60/62	<ul style="list-style-type: none"> Fishing equipment
Y02P 60/64	<ul style="list-style-type: none"> Aquaculture; Aquafarming
Y02P 60/642	<ul style="list-style-type: none"> combined with aquaponics or hydroponics
Y02P 60/70	<ul style="list-style-type: none"> Apiculture

Y02P 60/80	<ul style="list-style-type: none"> Food processing
Y02P 60/81	<ul style="list-style-type: none"> <ul style="list-style-type: none"> Use of renewable energies or variable speed drives in handling, conveying or stacking
Y02P 60/83	<ul style="list-style-type: none"> <ul style="list-style-type: none"> Warming or cooking
Y02P 60/831	<ul style="list-style-type: none"> <ul style="list-style-type: none"> <ul style="list-style-type: none"> using steam
Y02P 60/833	<ul style="list-style-type: none"> <ul style="list-style-type: none"> <ul style="list-style-type: none"> using microwave ovens
Y02P 60/835	<ul style="list-style-type: none"> <ul style="list-style-type: none"> <ul style="list-style-type: none"> by boiling
Y02P 60/85	<ul style="list-style-type: none"> <ul style="list-style-type: none"> Food storage or conservation
Y02P 60/851	<ul style="list-style-type: none"> <ul style="list-style-type: none"> <ul style="list-style-type: none"> Cooling, refrigeration or freezing
Y02P 60/853	<ul style="list-style-type: none"> <ul style="list-style-type: none"> <ul style="list-style-type: none"> Drying
Y02P 60/855	<ul style="list-style-type: none"> <ul style="list-style-type: none"> <ul style="list-style-type: none"> Ice production, e.g. for conservation purposes
Y02P 60/87	<ul style="list-style-type: none"> <ul style="list-style-type: none"> Re-use of by-products of food processing for fodder production
Y02P 60/871	<ul style="list-style-type: none"> <ul style="list-style-type: none"> <ul style="list-style-type: none"> from molasses
Y02P 60/873	<ul style="list-style-type: none"> <ul style="list-style-type: none"> <ul style="list-style-type: none"> from distillers' or brewers' waste
Y02P 60/875	<ul style="list-style-type: none"> <ul style="list-style-type: none"> <ul style="list-style-type: none"> from waste products of dairy plants
Y02P 60/877	<ul style="list-style-type: none"> <ul style="list-style-type: none"> <ul style="list-style-type: none"> from by-products of vegetal origin
Y02P 60/89	<ul style="list-style-type: none"> <ul style="list-style-type: none"> characterised by the product
Y02P 60/891	<ul style="list-style-type: none"> <ul style="list-style-type: none"> <ul style="list-style-type: none"> Dairy products
Y02P 70/00	Climate change mitigation technologies in the production process for final industrial or consumer products
Y02P 70/10	<ul style="list-style-type: none"> Greenhouse gas [GHG] capture, material saving, heat recovery or other energy efficient measures, e.g. motor control, characterised by manufacturing processes
Y02P 70/12	<ul style="list-style-type: none"> <ul style="list-style-type: none"> related technologies for improving processes or machines for shaping products
Y02P 70/121	<ul style="list-style-type: none"> <ul style="list-style-type: none"> <ul style="list-style-type: none"> Machines for rolling metal, e.g. rolling mills
Y02P 70/123	<ul style="list-style-type: none"> <ul style="list-style-type: none"> <ul style="list-style-type: none"> Motor control
Y02P 70/125	<ul style="list-style-type: none"> <ul style="list-style-type: none"> <ul style="list-style-type: none"> Removing fumes from rolling mills
Y02P 70/127	<ul style="list-style-type: none"> <ul style="list-style-type: none"> <ul style="list-style-type: none"> using heat shields
Y02P 70/129	<ul style="list-style-type: none"> <ul style="list-style-type: none"> <ul style="list-style-type: none"> Heat recovery during rolling
Y02P 70/131	<ul style="list-style-type: none"> <ul style="list-style-type: none"> <ul style="list-style-type: none"> using liquid recovering devices
Y02P 70/133	<ul style="list-style-type: none"> <ul style="list-style-type: none"> <ul style="list-style-type: none"> <ul style="list-style-type: none"> for recovering coolants
Y02P 70/135	<ul style="list-style-type: none"> <ul style="list-style-type: none"> <ul style="list-style-type: none"> <ul style="list-style-type: none"> for recovering lubricants
Y02P 70/137	<ul style="list-style-type: none"> <ul style="list-style-type: none"> relating to forging, hammering, pressing or riveting
Y02P 70/139	<ul style="list-style-type: none"> <ul style="list-style-type: none"> relating to the manufacture or working of metal sheets or profiles
Y02P 70/141	<ul style="list-style-type: none"> <ul style="list-style-type: none"> relating to pressing processes or machines therefore
Y02P 70/143	<ul style="list-style-type: none"> <ul style="list-style-type: none"> <ul style="list-style-type: none"> Optimisation of energy consumption
Y02P 70/145	<ul style="list-style-type: none"> <ul style="list-style-type: none"> <ul style="list-style-type: none"> by control of drive motors
Y02P 70/16	<ul style="list-style-type: none"> <ul style="list-style-type: none"> related technologies for metal working by removing or adding material
Y02P 70/161	<ul style="list-style-type: none"> <ul style="list-style-type: none"> <ul style="list-style-type: none"> Power management, e.g. limiting power to tools
Y02P 70/163	<ul style="list-style-type: none"> <ul style="list-style-type: none"> <ul style="list-style-type: none"> Power down for energy saving

Y02P 70/167	. . . relating to the design or operation of machining centres or machine tools
Y02P 70/169	. . . . using minimal quantities of coolants or lubricants
Y02P 70/171	. . . . Devices or processes for removing and reusing chips
Y02P 70/173	. . . . Machine centres provided for turning, boring or milling
Y02P 70/175	. . . relating to the design or operation of machines for dry cutting gears or toothed racks
Y02P 70/177	. . . Grinding or polishing
Y02P 70/179	. . . . Treatment of used abrasive materials aiming at a further reuse
Y02P 70/181	. . . relating to the design or operation of machines for soldering, welding or cutting by applying heat locally
Y02P 70/183	. . . relating to the design or operation of machines for machines for sawing, cutting, perforating, punching or severing
Y02P 70/185	. . . relating to the operation of machines combining different processes for working of metal
Y02P 70/187	. . . relating to the design or operation of machines for working metal not otherwise provided for
Y02P 70/20	. . related technologies for printing, lining or stamping machines
Y02P 70/22	. . Technologies for working on wood, veneer or plywood
Y02P 70/24	. . related technologies for saving energy and raw materials during the production of paper or paper articles
Y02P 70/26	. . related technologies for working on or processing of plastics
Y02P 70/261	. . . recovering energy or power from drive motors in injection moulding
Y02P 70/263	. . . recovering energy or reusing materials in extrusion moulding
Y02P 70/265	. . . relating to blow moulding
Y02P 70/267	. . . . Means for recycling or reusing auxiliaries or materials
Y02P 70/269	. . . . reducing blowing fluid consumption
Y02P 70/271	. . . . . by recycling blow fluid
Y02P 70/273	. . . . recycling reactive gas
Y02P 70/275	. . . . reusing heat
Y02P 70/277	. . . relating to thermoforming
Y02P 70/279	. . . . Recycling or reuse of materials
Y02P 70/281	. . . . Reuse of pressure or vacuum
Y02P 70/30	. . related to technologies for conveying, packing or storing of goods or handling thin or filamentary material
Y02P 70/32	. . relating to mixing
Y02P 70/34	. . relating to separation, flotation or differential sedimentation
Y02P 70/36	. . Recycling or reuse of a liquid sprayed or atomised
Y02P 70/38	. . Apparatus or processes for applying liquids or other fluent materials
Y02P 70/40	. . Drying by removing liquid
Y02P 70/405	. . . Drying with heating arrangements using waste heat
Y02P 70/50	. Manufacturing or production processes characterised by the final manufactured product

Y02P 70/52	• • Manufacturing of products or systems for producing renewable energy
Y02P 70/521	• • • Photovoltaic generators
Y02P 70/523	• • • Wind turbines
Y02P 70/525	• • • Hydropower turbines
Y02P 70/527	• • • • for tidal streams or dam-less hydropower, e.g. sea flood and ebb or stream current
Y02P 70/54	• • Manufacturing of lithium-ion, lead-acid or alkaline secondary batteries
Y02P 70/56	• • Manufacturing of fuel cells
Y02P 70/58	• • Greenhouse gas [GHG] capture, heat recovery or other energy efficient measures relating to manufacturing or assembling of vehicles, e.g. motor control
Y02P 70/585	• • • Aircraft Eco design, i.e. taking into account the full life cycle of the aircraft including re-use, recyclability and disposal
Y02P 70/60	• • Greenhouse gas [GHG] capture, heat recovery or other energy efficient measures relating to production or assembly of electric or electronic components or products, e.g. motor control
Y02P 70/601	• • • the product being a basic electric component or element, i.e. cables, resistors, capacitors, switches, connectors, relays or protections
Y02P 70/603	• • • the product being a lighting component
Y02P 70/605	• • • the product being a semiconductor or solid state device or parts thereof
Y02P 70/607	• • • • Manufacturing of electronic silicon based components
Y02P 70/609	• • • the product being a dynamo-electric machine, i.e. electrical generators or motors
Y02P 70/611	• • • the product being a printed circuit board [PCB]
Y02P 70/613	• • • involving the assembly of several electronic elements
Y02P 70/62	• • related technologies for production or treatment of textile or flexible materials or products thereof, including footwear
Y02P 70/621	• • • Production or treatment of artificial filaments or the like
Y02P 70/623	• • • • Energy efficient measures, e.g. motor control or heat recovery
Y02P 70/625	• • • • Recovery of starting material, waste material or solvents during the manufacturing process
Y02P 70/627	• • • • • of cellulose, cellulose derivatives or proteins
Y02P 70/629	• • • • • of synthetic polymers
Y02P 70/631	• • • Production or treatment of lace, e.g. knitting or braiding
Y02P 70/633	• • • • Saving materials
Y02P 70/635	• • • • Saving energy by reducing inertia of moving parts
Y02P 70/637	• • • Treatment of textiles
Y02P 70/639	• • • • Energy efficient measures, e.g. motor control or heat recovery
Y02P 70/641	• • • • Recovery of solvents
Y02P 70/643	• • • • Treatment of textiles using a short bath ratio
Y02P 70/645	• • • Manufacturing of wall or floor covering materials or the like
Y02P 70/647	• • • • Energy efficient measures, e.g. motor control or heat recovery
Y02P 70/649	• • • • using scraps or recycled materials

- Y02P 70/651 the materials being particles
- Y02P 70/653 . . . Footwear made at least partially of recyclable material
- Y02P 70/66 . . Greenhouse gas [GHG] capture, use of renewable energies, heat recovery or other energy efficient measures for manufacturing or preparation of tobacco products, e.g. motor control

Y02P 80/00**Climate change mitigation technologies for sector-wide applications**

- Y02P 80/10 . Efficient use of energy
- Y02P 80/11 . . of electric energy
- Y02P 80/112 . . . Power supplies with power electronics for efficient use of energy, e.g. power factor correction [PFC] or resonant converters
- Y02P 80/114 . . . Control systems or methods for efficient use of energy
- Y02P 80/116 Electronic drive motor controls
- Y02P 80/12 . . using compressed air as energy carrier, e.g. for pneumatic systems
- Y02P 80/13 . . using pressurized fluid as energy carrier, e.g. for hydraulic systems
- Y02P 80/14 . . District level solutions, i.e. local energy networks
- Y02P 80/15 . . On-site combined power, heat or cool generation or distribution, e.g. combined heat and power [CHP] supply
- Y02P 80/152 . . . for heat recovery
- Y02P 80/154 . . . for steam generation or distribution
- Y02P 80/156 . . in fluid distribution systems
- Y02P 80/158 . . . Solar or wind-powered water pumping not specially adapted for irrigation
- Y02P 80/20 . Sector-wide applications using renewable energy
- Y02P 80/21 . . Biomass as fuel
- Y02P 80/22 . . Wind energy
- Y02P 80/23 . . Solar energy
- Y02P 80/24 . . . Solar thermal energy
- Y02P 80/25 . . . Photovoltaic energy
- Y02P 80/30 . Reducing waste in manufacturing processes; Calculations of released waste quantities
- Y02P 80/40 . Minimising material used in manufacturing processes

Y02P 90/00**Enabling technologies with a potential contribution to greenhouse gas [GHG] emissions mitigation**

- Y02P 90/02 . Total factory control, e.g. smart factories, flexible manufacturing systems [FMS] or integrated manufacturing systems [IMS]
- Y02P 90/04 . . characterised by the assembly processes
- Y02P 90/06 . . characterised by direct numerical control [DNC]
- Y02P 90/08 . . characterised by the cooperation between machine tools, manipulators or work piece supply systems
- Y02P 90/083 . . . Manipulators cooperating with conveyers
- Y02P 90/087 . . . Manipulators cooperating with machine tools
- Y02P 90/10 . . characterised by identification, e.g. of work pieces or equipment

- Y02P 90/12 . . characterised by programme execution
- Y02P 90/14 . . characterised by fault tolerance, reliability of production system
- Y02P 90/16 . . characterised by system universality, i.e. configurability or modularity of production units
- Y02P 90/18 . . characterised by the network communication
- Y02P 90/185 . . . using local area networks [LAN]
- Y02P 90/20 . . characterised by job scheduling, process planning or material flow
- Y02P 90/205 . . . Tool management
- Y02P 90/22 . . characterised by quality surveillance of production
- Y02P 90/24 . . characterised by computer integrated manufacturing [CIM], planning or realisation
- Y02P 90/26 . . characterised by modelling or simulation of the manufacturing system
- Y02P 90/265 . . . Product design therefor
- Y02P 90/28 . . characterised by transport systems
- Y02P 90/285 . . . using automatic guided vehicles [AGV]
- Y02P 90/30 . Computing systems specially adapted for manufacturing
- Y02P 90/40 . Fuel cell technologies in production processes
- Y02P 90/45 . Hydrogen technologies in production processes
- Y02P 90/50 . Energy storage in industry with an added climate change mitigation effect
- Y02P 90/60 . Electric or hybrid propulsion means for production processes
- Y02P 90/70 . Combining sequestration of CO₂ and exploitation of hydrocarbons by injecting CO₂ or carbonated water in oil wells
- Y02P 90/80 . Management or planning
- Y02P 90/82 . . Energy audits or management systems therefor
- Y02P 90/84 . . Greenhouse gas [GHG] management systems
- Y02P 90/845 . . . Inventory and reporting systems for greenhouse gases [GHG]
- Y02P 90/86 . . Maintenance planning
- Y02P 90/90 . Financial instruments for climate change mitigation, e.g. environmental taxes, subsidies or financing
- Y02P 90/95 . . CO₂ emission certificates or credits trading