# **CPC** COOPERATIVE PATENT CLASSIFICATION

Y

# GENERAL TAGGING OF NEW TECHNOLOGICAL DEVELOPMENTS; GENERAL TAGGING OF CROSS-SECTIONAL TECHNOLOGIES SPANNING OVER SEVERAL SECTIONS OF THE IPC; TECHNICAL SUBJECTS COVERED BY FORMER USPC CROSS-REFERENCE ART COLLECTIONS [XRACs] AND DIGESTS (NOTES omitted)

## Y02 TECHNOLOGIES OR APPLICATIONS FOR MITIGATION OR ADAPTATION AGAINST CLIMATE CHANGE (NOTES omitted)

# Y02P CLIMATE CHANGE MITIGATION TECHNOLOGIES IN THE PRODUCTION OR PROCESSING OF GOODS

#### NOTE

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

10/10       Reduction of greenhouse gas [GHG] emissions         10/122       by avoiding CO <sub>2</sub> , e.g. using hydrogen       30/00       Technologies relating to oil refining and petrochemical industry         10/143       of methane [CH <sub>4</sub> ]       30/00       Using bio-feedstock         10/146       Perfluorocarbons [FFC]; Hydrofhuorocarbons       30/00       Technologies relating to oil refining and petrochemical industry         10/20       Recycling       40/10       Ethylene production         10/23       using renewable energy sources       40/10       Energy efficiency measures, e.g. improving or optimising the production arehods; Cement Hods         20/10       Process efficiency       40/125       Fuels from renewable energy sources, e.g. waste or biomass         20/10       Renewable energy sources, e.g. sunlight       40/18       Carbon capture and storage [CCS]         20/141       Feedstock       40/18       Carbon capture and storage [CCS]         20/143       the feedstock being materials of biological origin       40/57       Improving the yield, e.g. reduction of reject rates c.O.2         20/155       Perfluorocarbons [PFC]: Hydrofhuorocarbons [HCFC];       60/20       Improving the yield, e.g. ashes         20/156       Methane [CH_1]       using renewable energys ources       using renewable energies, e.g.	10/00	Technologies related to metal processing	20/59	. Biological synthesis; Biological purification
10/122       by avoiding CO <sub>2</sub> , e.g. using hydrogen       30/20       using checkenskip         10/143       of methane [CH <sub>4</sub> ]       30/20       using bio-feedstock         10/143       of methane [CH <sub>4</sub> ]       30/20       using bio-feedstock         10/143       of methane [CH <sub>4</sub> ]       30/20       using checkenskip         10/20       Recycling       40/10       Energy efficiency         10/23       using renewable energy sources       40/12       Energy efficiency measures, e.g. improving or optimising the production methods         20/10       Process efficiency       40/12       Energy efficiency measures, e.g., improving or optimising the production methods         20/112       Energy recovery, e.g. by cogeneration, Hyrecovery or pressure recovery turbines       40/18       Carbon capture and storage [CCS]         20/143       the feedstock being materials of biological origin       40/45       using relation of regient and turing processing or shaping         20/155       Perfluorocarbons [PFC]: Hydrofluorocarbons [HCC]       40/57       Improving the yield, e-g- reduction of reject rates choor of greenhouse gas [GHG] emissions, e.g. chorodition of greenhouse gas [GHG] emissions, e.g. chorodition of greenhouse gas [GHG] emissions, e.g. dottion of crainer insertable energies, e.g. solar water pumping moduction         20/155       Methane [CH <sub>4</sub> ]       .			30/00	Technologies relating to oil refining and
101134       by avoiding CO <sub>2</sub> , e.g. using hydrogen       30/20       using bio-feedstock         10143       of methane [CH <sub>4</sub> ]       30/40       Enropy encodes of minerals         1020       Recycling       40/10       Technologies relating to the processing of minerals         10215       Process efficiency       40/121       Energy efficiency measures, e.g. improving or optimising the production methods; Cement e.g. improving or optimising the production or processing of line, e.g. improving or optimising the production or generating is oblogical origin         20/129       Renewable energy sources, e.g. sullight       40/18       the feedstock being metrials of biological origin         20/141       the feedstock being repreduction       40/50       Improving the yie			20,00	
10/146       . Perfluorocarbons [PFC]; Hydrofluorocarbons [HFC]; Sulfur hexafluoride [SF <sub>a</sub> ]       30/40       . Eurylethe production         10/20       . Recycling       40/10       Technologies relating to the processing of minerals         10/21       . using renewable energy sources       40/12       . Energy efficiency measures, e.g. improving or optimising the production methods; Cement grinding         20/00       Technologies relating to chemical industry       40/12       . Fuels from renewable energy sources, e.g. waste or biomass         20/10       . Process efficiency       40/12       . Fuels from renewable energy sources, e.g. waste or biomass         20/133       . Renewable energy sources, e.g. sunlight       . Using fuels from renewable energy sources       . using fuels from renewable energy sources         20/143       . the feedstock being materials of biological origin       40/45       . using fuels from renewable energy sources         20/151       . Reduction of greenhouse gas [GHG] emissions, e.g. CO2       40/57       . Improving the yidul, e.g. reaking to adjor or carbons (HFC): Hydrochlorofluorocarbons [HCC): Chlorofluorocarbons [PCC]       40/00       Technologies relating to adjor asid or caprolactam production         20/155       . Perfluorocarbons [PCC]: Hydrofluorocarbons (HFC): Hydrochlorofluorocarbons [HCC): Chlorofluorocarbons [PCC]       60/00       Technologies cellating to agriculture, livestock or agroalimentary industries         20/20       .			30/20	• using bio-feedstock
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<ul> <li>20/20</li> <li>20/30</li> <li>Improvements relating to chromic production</li> <li>20/30</li> <li>Improvements relating to adipic acid or caprolactam production</li> <li>20/40</li> <li>Improvements relating to fluorochloro hydrocarbon, e.g. chlorodifluoromethane [HCFC-22] production</li> <li>20/50</li> <li>Improvements relating to the production of bulk chemicals</li> <li>20/52</li> <li>using catalysts, e.g. selective catalysts</li> <li>20/54</li> <li>using solvents, e.g. supercritical solvents or ionic liquids</li> <li>20/55</li> <li>Design of synthesis routes, e.g. reducing the use of auxiliary or protecting groups</li> <li>20/52</li> <li>Recycling of unreacted starting or intermediate materials</li> </ul>	20/156	Methane [CH <sub>4</sub> ]	60/00	
<ul> <li>20/30 1. Improvements relating to adapte action of captonactania production</li> <li>20/40 1. Improvements relating to fluorochloro hydrocarbon, e.g. chlorodifluoromethane [HCFC-22] production</li> <li>20/50 20/50 20/50 1. Improvements relating to the production of bulk chemicals</li> <li>20/52 20/52 20/52 20/54 20/54 20/54 20/54 20/55 20/54 20/55 20/582 20/5</li></ul>	20/20	<ul> <li>Improvements relating to chlorine production</li> </ul>	co (1 <b>0</b>	•
<ul> <li>20/40 Improvements relating to fluorochloro hydrocarbon, e.g. chlorodifluoromethane [HCFC-22] production</li> <li>20/50 Improvements relating to the production of bulk chemicals</li> <li>20/52 . using catalysts, e.g. selective catalysts</li> <li>20/54 . using solvents, e.g. supercritical solvents or ionic liquids</li> <li>20/55 . Design of synthesis routes, e.g. reducing the use of auxiliary or protecting groups</li> <li>20/52 . Recycling of unreacted starting or intermediate materials</li> <li>20/54 . Recycling of unreacted starting or intermediate materials</li> <li>60/20 . Reduction of greenhouse gas [GHG] emissions in agriculture, e.g. CO<sub>2</sub></li> <li>20/54 . Using solvents, e.g. supercritical solvents or ionic for auxiliary or protecting groups</li> <li>20/50 . Recycling of unreacted starting or intermediate materials</li> <li>60/20 . Reduction of greenhouse gas [GHG] emissions in agriculture, e.g. CO<sub>2</sub></li> <li>20/54 . Using solvents, e.g. reducing the use of auxiliary or protecting groups</li> <li>60/50 . Livestock or poultry management materials</li> </ul>	20/30			
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<ul> <li>20/50 . Improvements relating to the production of bulk chemicals</li> <li>20/52 . using catalysts, e.g. selective catalysts</li> <li>20/54 . using solvents, e.g. supercritical solvents or ionic liquids</li> <li>20/55 . Design of synthesis routes, e.g. reducing the use of auxiliary or protecting groups</li> <li>20/52 . Recycling of unreacted starting or intermediate materials</li> <li>60/21 . Dinitrogen oxide [N<sub>2</sub>O], e.g. using aquaponics, hydroponics or efficiency measures</li> <li>60/22 . Methane [CH<sub>4</sub>], e.g. from rice paddies</li> <li>60/30 . Land use policy measures</li> <li>60/40 . Afforestation or reforestation</li> <li>20/55 . Design of synthesis routes, e.g. reducing the use of auxiliary or protecting groups</li> <li>60/52 . use of renewable energies</li> <li>20/582 . Recycling of unreacted starting or intermediate materials</li> </ul>	20/40		60/20	
20/50       Improvements rotating to the production of outly chemicals       hydroponics or efficiency measures         20/52       . using catalysts, e.g. selective catalysts       60/22       . Methane [CH <sub>4</sub> ], e.g. from rice paddies         20/54       . using solvents, e.g. supercritical solvents or ionic liquids       60/30       . Land use policy measures         20/55       . Design of synthesis routes, e.g. reducing the use of auxiliary or protecting groups       60/50       . Livestock or poultry management         20/582       . Recycling of unreacted starting or intermediate materials       60/60       . Fishing; Aquaculture; Aquafarming	20/50		60/21	
20/54       • using solvents, e.g. supercritical solvents or ionic liquids       60/30       • Land use policy measures         20/54       • using solvents, e.g. supercritical solvents or ionic liquids       60/40       • Afforestation or reforestation         20/55       • Design of synthesis routes, e.g. reducing the use of auxiliary or protecting groups       60/50       • Livestock or poultry management         20/582       • Recycling of unreacted starting or intermediate materials       60/60       • Fishing; Aquaculture; Aquafarming	20/50		00/21	
<ul> <li>20/54 . using solvents, e.g. supercritical solvents or ionic liquids</li> <li>20/55 . Design of synthesis routes, e.g. reducing the use of auxiliary or protecting groups</li> <li>20/582 . Recycling of unreacted starting or intermediate materials</li> <li>60/40 . Afforestation or reforestation</li> <li>60/50 . Livestock or poultry management</li> <li>60/52 . use of renewable energies</li> <li>60/60 . Fishing; Aquaculture; Aquafarming</li> </ul>	20/52	• • using catalysts, e.g. selective catalysts	60/22	
liquids60/40Afforestation or reforestation20/55• Design of synthesis routes, e.g. reducing the use of auxiliary or protecting groups60/50• Livestock or poultry management20/582• Recycling of unreacted starting or intermediate materials60/60• Fishing; Aquaculture; Aquafarming			60/30	• Land use policy measures
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20/582 • Recycling of unreacted starting or intermediate 60/60 • Fishing; Aquaculture; Aquafarming materials	20/55			
materials				-
20/584 Recycling of catalysts	20/582		60/60	• Fishing; Aquaculture; Aquafarming
	20/584	Recycling of catalysts		

## Y02P

60/80	<ul> <li>Food processing, e.g. use of renewable energies or variable speed drives in handling, conveying or stacking</li> </ul>
60/85	Food storage or conservation, e.g. cooling or drying
60/87	• Re-use of by-products of food processing for fodder production
70/00	Climate change mitigation technologies in the production process for final industrial or
70/10	<ul> <li>consumer products</li> <li>Greenhouse gas [GHG] capture, material saving, heat recovery or other energy efficient measures, e.g. motor control, characterised by manufacturing processes, e.g. for rolling metal or metal working</li> </ul>
70/50	• Manufacturing or production processes characterised by the final manufactured product
70/62	• related technologies for production or treatment of textile or flexible materials or products thereof, including footwear
80/00	Climate change mitigation technologies for sector- wide applications
80/10	• Efficient use of energy, e.g. using compressed air or pressurized fluid as energy carrier
80/14	• District level solutions, i.e. local energy networks
80/15	• On-site combined power, heat or cool generation or distribution, e.g. combined heat and power [CHP] supply
80/20	• using renewable energy
80/30	Reducing waste in manufacturing processes;     Calculations of released waste quantities
80/40	• Minimising material used in manufacturing processes
90/00	Enabling technologies with a potential contribution to greenhouse gas [GHG] emissions mitigation
90/02	<ul> <li>Total factory control, e.g. smart factories, flexible manufacturing systems [FMS] or integrated manufacturing systems [IMS]</li> </ul>
90/30	<ul> <li>Computing systems specially adapted for manufacturing</li> </ul>
90/40	
90/45	Fuel cell technologies in production processes
	Hydrogen technologies in production processes
90/50	<ul> <li>Hydrogen technologies in production processes</li> <li>Energy storage in industry with an added climate change mitigation effect</li> </ul>
90/50 90/60	<ul><li>Hydrogen technologies in production processes</li><li>Energy storage in industry with an added climate</li></ul>
	<ul> <li>Hydrogen technologies in production processes</li> <li>Energy storage in industry with an added climate change mitigation effect</li> <li>Electric or hybrid propulsion means for production processes</li> <li>Combining sequestration of CO<sub>2</sub> and exploitation of hydrocarbons by injecting CO<sub>2</sub> or carbonated water in oil wells</li> </ul>
90/60	<ul> <li>Hydrogen technologies in production processes</li> <li>Energy storage in industry with an added climate change mitigation effect</li> <li>Electric or hybrid propulsion means for production processes</li> <li>Combining sequestration of CO<sub>2</sub> and exploitation of hydrocarbons by injecting CO<sub>2</sub> or carbonated water in oil wells</li> <li>Management or planning</li> </ul>
90/60 90/70	<ul> <li>Hydrogen technologies in production processes</li> <li>Energy storage in industry with an added climate change mitigation effect</li> <li>Electric or hybrid propulsion means for production processes</li> <li>Combining sequestration of CO<sub>2</sub> and exploitation of hydrocarbons by injecting CO<sub>2</sub> or carbonated water in oil wells</li> <li>Management or planning <ul> <li>Energy audits or management systems therefor</li> </ul> </li> </ul>
90/60 90/70 90/80	<ul> <li>Hydrogen technologies in production processes</li> <li>Energy storage in industry with an added climate change mitigation effect</li> <li>Electric or hybrid propulsion means for production processes</li> <li>Combining sequestration of CO<sub>2</sub> and exploitation of hydrocarbons by injecting CO<sub>2</sub> or carbonated water in oil wells</li> <li>Management or planning <ul> <li>Energy audits or management systems therefor</li> <li>Greenhouse gas [GHG] management systems</li> </ul> </li> </ul>
90/60 90/70 90/80 90/82	<ul> <li>Hydrogen technologies in production processes</li> <li>Energy storage in industry with an added climate change mitigation effect</li> <li>Electric or hybrid propulsion means for production processes</li> <li>Combining sequestration of CO<sub>2</sub> and exploitation of hydrocarbons by injecting CO<sub>2</sub> or carbonated water in oil wells</li> <li>Management or planning <ul> <li>Energy audits or management systems therefor</li> <li>Greenhouse gas [GHG] management systems for greenhouse gases [GHG]</li> </ul> </li> </ul>
90/60 90/70 90/80 90/82 90/84	<ul> <li>Hydrogen technologies in production processes</li> <li>Energy storage in industry with an added climate change mitigation effect</li> <li>Electric or hybrid propulsion means for production processes</li> <li>Combining sequestration of CO<sub>2</sub> and exploitation of hydrocarbons by injecting CO<sub>2</sub> or carbonated water in oil wells</li> <li>Management or planning <ul> <li>Energy audits or management systems therefor</li> <li>Greenhouse gas [GHG] management systems</li> <li>Inventory and reporting systems for greenhouse</li> </ul> </li> </ul>