

Table S1 Category description of IPC Classification

Section	Class	Explanation
A	01	AGRICULTURE; FORESTRY; ANIMAL HUSBANDRY; HUNTING; TRAPPING; FISHING
A	23	FOODS OR FOODSTUFFS; TREATMENT THEREOF, NOT COVERED BY OTHER CLASSES
A	61	MEDICAL OR VETERINARY SCIENCE; HYGIENE
A	62	LIFE-SAVING; FIRE-FIGHTING
B	01	PHYSICAL OR CHEMICAL PROCESSES OR APPARATUS IN GENERAL
B	02	CRUSHING, PULVERISING, OR DISINTEGRATING; PREPARATORY TREATMENT OF GRAIN FOR MILLING
B	03	SEPARATION OF SOLID MATERIALS USING LIQUIDS OR USING PNEUMATIC TABLES OR JIGS; MAGNETIC OR ELECTROSTATIC SEPARATION OF SOLID MATERIALS FROM SOLID MATERIALS OR FLUIDS; SEPARATION BY HIGH-VOLTAGE ELECTRIC FIELDS
B	04	CENTRIFUGAL APPARATUS OR MACHINES FOR CARRYING-OUT PHYSICAL OR CHEMICAL PROCESSES
B	05	SPRAYING OR ATOMISING IN GENERAL; APPLYING FLUENT MATERIALS TO SURFACES, IN GENERAL
B	07	SEPARATING SOLIDS FROM SOLIDS; SORTING
B	08	CLEANING
B	09	DISPOSAL OF SOLID WASTE; RECLAMATION OF CONTAMINATED SOIL
B	22	CASTING; POWDER METALLURGY
B	26	HAND CUTTING TOOLS; CUTTING; SEVERING
B	29	WORKING OF PLASTICS; WORKING OF SUBSTANCES IN A PLASTIC STATE IN GENERAL
B	30	PRESSES
B	32	LAYERED PRODUCTS
B	60	VEHICLES IN GENERAL
B	62	LAND VEHICLES FOR TRAVELLING OTHERWISE THAN ON RAILS
B	65	CONVEYING; PACKING; STORING; HANDLING THIN OR FILAMENTARY MATERIAL
B	82	NANOTECHNOLOGY
C	01	INORGANIC CHEMISTRY
C	02	TREATMENT OF WATER, WASTE WATER, SEWAGE, OR SLUDGE
C	03	GLASS; MINERAL OR SLAG WOOL
C	04	CEMENTS; CONCRETE; ARTIFICIAL STONE; CERAMICS; REFRACTORIES
C	05	FERTILISERS; MANUFACTURE THEREOF
C	07	ORGANIC CHEMISTRY
C	08	ORGANIC MACROMOLECULAR COMPOUNDS; THEIR PREPARATION OR CHEMICAL WORKING-UP; COMPOSITIONS BASED THEREON
C	09	DYES; PAINTS; POLISHES; NATURAL RESINS; ADHESIVES; COMPOSITIONS NOT OTHERWISE PROVIDED FOR; APPLICATIONS OF MATERIALS NOT OTHERWISE PROVIDED FOR
C	10	PETROLEUM, GAS OR COKE INDUSTRIES; TECHNICAL GASES CONTAINING CARBON MONOXIDE; FUELS; LUBRICANTS; PEAT
C	11	ANIMAL OR VEGETABLE OILS, FATS, FATTY SUBSTANCES OR WAXES; FATTY ACIDS THEREFROM; DETERGENTS; CANDLES
C	12	BIOCHEMISTRY; BEER; SPIRITS; WINE; VINEGAR; MICROBIOLOGY; ENZYMOLOGY; MUTATION OR GENETIC ENGINEERING
C	14	SKINS; HIDES; PELTS OR LEATHER
C	22	METALLURGY; FERROUS OR NON-FERROUS ALLOYS; TREATMENT OF

ALLOYS OR NONFERROUS METALS		
C	25	ELECTROLYTIC OR ELECTROPHORETIC PROCESSES; APPARATUS THEREFOR
D	01	NATURAL OR MAN-MADE THREADS OR FIBRES; SPINNING
D	04	BRAIDING; LACE-MAKING; KNITTING; TRIMMINGS; NON-WOVEN FABRICS TREATMENT OF TEXTILES OR THE LIKE; LAUNDERING; FLEXIBLE
D	06	MATERIALS NOT OTHERWISE PROVIDED FOR
D	21	PAPER-MAKING; PRODUCTION OF CELLULOSE
E	01	CONSTRUCTION OF ROADS, RAILWAYS, OR BRIDGES
E	02	HYDRAULIC ENGINEERING; FOUNDATIONS; SOIL-SHIFTING
E	03	WATER SUPPLY; SEWERAGE
E	04	BUILDING
E	21	EARTH OR ROCK DRILLING; MINING COMBUSTION ENGINES; HOT-GAS OR COMBUSTION-PRODUCT ENGINE
F	02	PLANTS POSITIVE-DISPLACEMENT MACHINES FOR LIQUIDS; PUMPS FOR LIQUIDS OR
F	04	ELASTIC FLUIDS
F	15	FLUID-PRESSURE ACTUATORS; HYDRAULICS OR PNEUMATICS IN GENERAL ENGINEERING ELEMENTS OR UNITS; GENERAL MEASURES FOR PRODUCING AND MAINTAINING EFFECTIVE FUNCTIONING OF MACHINES OR
F	16	INSTALLATIONS; THERMAL INSULATION IN GENERAL
F	22	STEAM GENERATION
F	23	COMBUSTION APPARATUS; COMBUSTION PROCESSES
F	24	HEATING; RANGES; VENTILATING
F	26	DRYING
F	27	FURNACES; KILNS, OVENS OR RETORTS
F	28	HEAT EXCHANGE IN GENERAL
G	01	MEASURING; TESTING
G	05	CONTROLLING; REGULATING
G	06	COMPUTING; CALCULATING OR COUNTING
G	08	SIGNALLING
G	09	EDUCATING; CRYPTOGRAPHY; DISPLAY; ADVERTISING; SEALS INFORMATION AND COMMUNICATION TECHNOLOGY [ICT] SPECIALLY
G	16	ADAPTED FOR SPECIFIC APPLICATION FIELDS
G	21	NUCLEAR PHYSICS; NUCLEAR ENGINEERING
H	01	ELECTRIC ELEMENTS
H	02	GENERATION, CONVERSION, OR DISTRIBUTION OF ELECTRIC POWER
H	03	ELECTRONIC CIRCUITRY
H	04	ELECTRIC COMMUNICATION TECHNIQUE
H	05	ELECTRIC TECHNIQUES NOT OTHERWISE PROVIDED FOR
