####  Appendix: Integration of sectors from date source GAINS and WIOD

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| NO. | Abbre-viation | Sector in this paper | Category of PM2.5 Emission (GAINS) | Category of IO table (WIOD) | Category of emission control cost (GAINS) |
| 1 | AG | Agriculture | Agriculture | Crop and animal production, hunting and related service activities |  |
| Other cattle | Forestry and logging |  |
| Dairy cattle | Fishing and aquaculture |  |
| Other livestock (sheep, horses) |  |  |
| Pigs |  |  |
| Poultry |  |  |
| Storage & handling of agricultural crops |  |  |
| Agricultural waste burning |  |  |
| Meat frying, food preparation, BBQ |  |  |
| 2 | PW | Supply of power, heat and water | Power & district heat plants - existing coal (>50 MWth) | Electricity, gas, steam and air conditioning supply | Power & district heat plants - existing coal (>50 MWth) |
| Power & district heat plants - existing (excl. coal) | Water collection, treatment and supply | Power & district heat plants - existing (excl. coal) |
| Power & district heat plants - existing coal (<50 MWth) |  | Power & district heat plants - existing coal (<50 MWth) |
| Power & district heat plants - IGCC |  | Modern power plants (coal: ultra & supercritical; gas: CCGT) |
| Modern power plants (coal: ultra & supercritical; gas: CCGT) |  | Power & district heat plants - new (excl. coal) |
| Power & district heat plants - new (excl. coal) |  | Power & district heat plants - new coal (>50 MWth) |
| Power & district heat plants - new coal (>50 MWth) |  |  |
| 3 | MN | Mining and quarrying | Mining: Bauxite, copper, iron ore, zinc ore, manganese ore, other | Mining and quarrying |  |
| Hard coal mining |  |  |
| 4 | FU | Fuels and coke | Fuel conversion - combustion | Manufacture of coke and refined petroleum products | Fuel conversion - combustion |
| Fuel conversion (grate firingr) |  | Fuel conversion (grate firingr) |
| Fuel conversion (pulverized bed boiler) |  | Fuel conversion (pulverized bed boiler) |
| Briquettes production |  |  |
| Nonenergy use of fuels |  |  |
| 5 | M\_MT | Metals | Primary aluminum | Manufacture of basic metals | Primary aluminum |
| Aluminum production - secondary | Manufacture of fabricated metal products, except machinery and equipment | Aluminum production - secondary |
| Cast iron (grey iron foundries) |  | Cast iron (grey iron foundries) |
| Cast iron (grey iron foundries) (fugitive) |  | Cast iron (grey iron foundries) (fugitive) |
| Pig iron, blast furnace |  | Pig iron, blast furnace |
| Pig iron, blast furnace (fugitive) |  | Pig iron, blast furnace (fugitive) |
| Non-ferrous metals |  | Non-ferrous metals |
| 6 | M\_NM | Non-metallic mineral products | Brick production | Manufacture of other non-metallic mineral products | Brick production |
| Carbon black production |  | Carbon black production |
| Cement production |  | Cement production |
| Glass production (flat, blown, container glass) |  | Glass production (flat, blown, container glass) |
| Lime production |  | Lime production |
| Agglomeration plant - sinter |  | Agglomeration plant - sinter |
| Agglomeration plant - sinter (fugitive) |  | Agglomeration plant - sinter (fugitive) |
| Agglomeration plant - pellets |  |  |
| 7 | M\_CH | Chemical products | Chemical industry (boilers) | Manufacture of chemicals and chemical products | Chemical industry (boilers) |
| 8 | M\_PP | Paper products and publishing activities | Paper & pulp (boilers) | Manufacture of paper and paper products | Paper & pulp (boilers) |
| Paper pulp mills | Printing and reproduction of recorded media | Paper pulp mills |
|  | Publishing activities |  |
|  | Motion picture, video and television programme production, sound recording and music publishing activities; programming and broadcasting activities |  |
| 9 | M\_TR | Transport equipment | Mopeds | Manufacture of motor vehicles, trailers and semi-trailers |  |
| Motorcycles | Manufacture of other transport equipment |  |
| Buses |  |  |
| Cars |  |  |
| Light duty vehicles |  |  |
| Heavy duty vehicles |  |  |
| 10 | M\_MF | Manufacture | Medium boilers (<50MW) - automatic | Manufacture of food products, beverages and tobacco products | Medium boilers (<50MW) - automatic |
| Medium boilers (<1MW) - manual | Manufacture of textiles, wearing apparel and leather products | Medium boilers (<1MW) - manual |
| Transformation sector (boilers) | Manufacture of wood and of products of wood and cork, except furniture; manufacture of articles of straw and plaiting materials | Transformation sector (boilers) |
| Industrial furnaces | Manufacture of basic pharmaceutical products and pharmaceutical preparations | Industrial furnaces |
| Industry: Other combustion, pulverized | Manufacture of rubber and plastic products | Industry: Other combustion, pulverized |
| Fertilizer production | Manufacture of computer, electronic and optical products | Fertilizer production |
| Coke oven | Manufacture of electrical equipment | Coke oven |
| Basic oxygen furnace | Manufacture of machinery and equipment n.e.c. | Basic oxygen furnace |
| Electric arc furnace | Manufacture of furniture; other manufacturing | Electric arc furnace |
| Open hearth furnace | Repair and installation of machinery and equipment | Open hearth furnace |
| Refineries |  | Refineries |
| Small industrial and business facilities - fugitive |  | Small industrial and business facilities - fugitive |
| Other industry (boilers; liquid and gaseous fuels) |  | Other industry (boilers; liquid and gaseous fuels) |
| Other industry (large coal boilers; > 50 MWth ) |  | Other industry (large coal boilers; > 50 MWth ) |
| Other industry (small coal boilers; < 50 MWth ) |  | Other industry (small coal boilers; < 50 MWth ) |
| Diesel generator sets |  |  |
| Three-stone stove |  |  |
| Other non-road machinery |  |  |
| 11 | CT | Construction | Construction activities | Construction |  |
| Construction machinery |  |  |
| 12 | TR | Transport | Railways | Land transport and transport via pipelines |  |
| Inland waterways | Water transport |  |
| Aviation - LTO | Air transport |  |
| 13 | WH | Warehousing | Storage & handling of coal | Warehousing and support activities for transportation |  |
| Storage & handling of iron ore |  |  |
| Storage & handling of N,P,K fertilizers |  |  |
| Storage & handling of other industrial bulk products |  |  |
| 14 | RC | Recycle | Trash burning | Sewerage; waste collection, treatment and disposal activities; materials recovery; remediation activities and other waste management services |  |
| 15 | CM | Commercial and scientific activities | Residential-commercial | Wholesale and retail trade and repair of motor vehicles and motorcycles | Residential-commercial |
| Fireworks | Wholesale trade, except of motor vehicles and motorcycles |  |
|  | Retail trade, except of motor vehicles and motorcycles |  |
|  | Computer programming, consultancy and related activities; information service activities |  |
|  | Financial service activities, except insurance and pension funding |  |
|  | Insurance, reinsurance and pension funding, except compulsory social security |  |
|  | Real estate activities |  |
|  | Scientific research and development |  |
|  | Advertising and market research |  |
|  | Other professional, scientific and technical activities; veterinary activities |  |
|  | Other service activities |  |
|  | Activities of extraterritorial organizations and bodies |  |
|  | Architectural and engineering activities; technical testing and analysis |  |
| 16 | RS | Residential activities | Residential - kerosene lamps | Postal and courier activities | Residential - kerosene lamps |
| Single house boilers (<50 kW) - manual | Accommodation and food service activities | Single house boilers (<50 kW) - manual |
| Cooking stoves | Telecommunications | Cooking stoves |
| Heating stoves | Activities auxiliary to financial services and insurance activities | Heating stoves |
| Cigarette smoking | Legal and accounting activities; activities of head offices; management consultancy activities |  |
|  | Administrative and support service activities |  |
|  | Public administration and defence; compulsory social security |  |
|  | Education |  |
|  | Human health and social work activities |  |
|  | Activities of households as employers; undifferentiated goods- and services-producing activities of households for own use |  |