**Table 2** Detailed source/fuel categories

| No | Source category | Fuel/activity | Sector | Quality | $CO_2$ | CO | PM | BC | OC | $SO_2$ | $NO_x$ | $NH_3$ | PAH |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | anthracite | energy production | fuel consumption | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 2 | | coking coal | energy production | fuel consumption | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 3 | | bituminous coal | energy production | fuel consumption | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 4 | | lignite | energy production | fuel consumption | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 5 | | peat | energy production | fuel consumption | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 21 | | anthracite | industry | fuel consumption | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 22 | | coking coal | industry | fuel consumption | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 23 | | bituminous coal | industry | fuel consumption | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 24 | Coal | lignite | industry | fuel consumption | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 25 | | peat | industry | fuel consumption | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 35 | | anthracite | residential/commercial | fuel consumption | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 36 | | coking coal | residential/commercial | fuel consumption | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 37 | | bituminous coal | residential/commercial | fuel consumption | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 38 | | lignite | residential/commercial | fuel consumption | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 39 | | peat | residential/commercial | fuel consumption | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 81 | | patent fuel | residential/commercial | fuel consumption | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 80 | | honeycomb/coal briquettes | residential/commercial | fuel consumption | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 6 | | gas/diesel | energy production | fuel consumption | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 7 | | residue fuel oil | energy production | fuel consumption | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 13 | | natural gas liquid | energy production | fuel consumption | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 19 | | gas/diesel | agriculture | fuel consumption | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 20 | | gas/diesel | industry | fuel consumption | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 26 | | residue fuel oil | industry | fuel consumption | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 31 | | crude oil | industry | fuel consumption | ✓ | | | ✓ | | ✓ | | | |
| 33 | | natural gas liquid | industry | fuel consumption | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 42 | | natural gas liquid | residential/commercial | fuel consumption | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | |
| 43 | | kerosene | residential/commercial | fuel consumption | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 82 | | gas/diesel | residential/commercial | fuel consumption | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 83 | Oil | fuel oil | residential/commercial | fuel consumption | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 48 | | vehicle gasoline | transportation | fuel consumption | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 52 | | vehicle diesel | transportation | fuel consumption | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 49 | | aviation gasoline | transportation | fuel consumption | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 51 | | jet kerosene | transportation | fuel consumption | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 59 | | ocean tanker | transportation | fuel consumption | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 60 | | ocean container | transportation | fuel consumption | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 61 | | ocean bulk/combined carries | transportation | fuel consumption | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 62 | | general-cargo vessels | transportation | fuel consumption | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 63 | | non-cargo vessels | transportation | fuel consumption | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 64 | | auxiliary engines | transportation | fuel consumption | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 65 | | military vessels | transportation | fuel consumption | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 12 | | dry natural gas | energy production | fuel consumption | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 18 | | gas flaring | industry | gas flaring mass | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 32 | | dry natural gas | industry | fuel consumption | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 40 | Gas | liquid petroleum gas | residential/commercial | fuel consumption | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 41 | | dry natural gas | residential/commercial | fuel consumption | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 84 | | gas works gas | residential/commercial | fuel consumption | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 85 | | coke oven gas | residential/commercial | fuel consumption | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 10 | | municipal waste | energy production | fuel consumption | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 11 | | industrial waste | energy production | fuel consumption | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 29 | Waste | municipal waste | industry | fuel consumption | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 30 | | industrial waste | industry | fuel consumption | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 34 | | non-organized waste burning | residential/commercial | waste burned | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 53 | | agriculture waste burning | agriculture | crop residue burned | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 8 | | solid biomass | energy production | fuel consumption | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 9 | | biogas | energy production | fuel consumption | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 27 | | solid biomass | industry | fuel consumption | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 28 | | biogas | industry | fuel consumption | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 44 | | biogas | residential/commercial | fuel consumption | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 45 | Biomass | indoor firewood burning | residential/commercial | fuel consumption | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 88 | | indoor brush wood burning | residential/commercial | fuel consumption | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 86 | | charcoal | residential/commercial | fuel consumption | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 46 | | indoor crop residue burning | residential/commercial | fuel consumption | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 87 | | indoor corncob burning | residential/commercial | fuel consumption | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 47 | | indoor dung cake burning | residential/commercial | fuel consumption | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 50 | | vehicle liquid biofuels | transportation | fuel consumption | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 14 | Non-combustion | coke production | industry | coke production | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 15 | processes | brick production | industry | brick production | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | ✓ |
| 16 | | primary Al production | industry | aluminum production | ✓ | ✓ | ✓ | ✓ | | ✓ | ✓ | | ✓ |
| 17 | | hydraulic cement production | industry | cement production | ✓ | ✓ | ✓ | | ✓ | ✓ | ✓ | ✓ | |
| 66 | | iron sintering | industry | pig iron production | | ✓ | ✓ | | ✓ | | ✓ | | ✓ |
| 67 | | electric arc furnace | industry | crude steel production | | ✓ | ✓ | | ✓ | | ✓ | | ✓ |
| 68 | | open hearth furnace | industry | crude steel production | | ✓ | ✓ | | ✓ | | ✓ | ✓ | ✓ |
| 69 | | oxygen blown converter | industry | crude steel production | | ✓ | ✓ | | | | ✓ | | ✓ |
| 70 | | hot rolling | industry | hot rolled steel production | | ✓ | ✓ | | ✓ | | ✓ | | ✓ |
| 71 | | petroleum catalytic cracking | industry | catalytic cracking capacity | | ✓ | ✓ | | | | ✓ | ✓ | ✓ |
| 72 | | lime production | industry | lime production | | ✓ | ✓ | | | | ✓ | ✓ | |
| 73 | | glass production | industry | glass production | | | ✓ | | | | ✓ | | |
| 74 | | fertilizer production | industry | fertilizer production | | | ✓ | | | | | | |
| 75 | | ferroalloy production | industry | ferroalloy production | | | ✓ | | | | ✓ | | |
| 76 | | lead production | industry | lead production | | | ✓ | | | | ✓ | | |
| 77 | | magnesium production | industry | magnesium production | | | ✓ | | | | ✓ | | |
| 78 | | zinc production | industry | zinc production | | | ✓ | | | | ✓ | | |
| 79 | | ammonia production | industry | synthetic ammonia production | | ✓ | | | | | ✓ | ✓ | |
| 89 | | nickel and copper production | industry | nickel and copper production | | | | | | ✓ | | | |
| 90 | | natural gas production | industry | natural gas production | | | | | | ✓ | | | |
| 54 | | forest fire | deforestation/wildfire | dry matter burned | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 55 | | deforestation fire | deforestation/wildfire | dry matter burned | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 56 | Open fires | peat fire | deforestation/wildfire | dry matter burned | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 57 | | woodland fire | deforestation/wildfire | dry matter burned | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 58 | | savanna fire | deforestation/wildfire | dry matter burned | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |