

# Specific Taxonomy – Coke & Petroleum

| Level 1            | Level 2                         | Level 3                                |
|--------------------|---------------------------------|--|
| Process Technology | Desalting                       | Mixer                                  |
|                    |                                 | Desalter                               |
|                    |                                 | Pressurised cross flow plate separator |
|                    | Distillation                    | Heater                                 |
|                    |                                 | Distillation                           |
|                    |                                 | Fractionator                           |
|                    |                                 | Furnace / vacuum                       |
|                    |                                 | Stripper                               |
|                    | Base oil production             | Refining                               |
|                    |                                 | De waxing                              |
|                    |                                 | Finishing                              |
|                    | Bitumen production              | Furnace                                |
|                    |                                 | Oxidiser                               |
|                    |                                 | Vent gas scrubber                      |
|                    | Coking (delayed & fluid coking) | Fractionator                           |
|                    |                                 | Furnace                                |
|                    |                                 | Cracking                               |
|                    | Coking (flexicoking)            | Purging                                |
|                    |                                 | Reactor                                |
|                    |                                 | Heater                                 |
|                    |                                 | Gasifier                               |
|                    |                                 | Fractionator                           |

| Level 1            | Level 2             | Level 3                           |
|--------------------|---------------------|-----------------------------------|
| Process Technology | Catalytic cracking  | Catalyst regenerator              |
|                    |                     | Reactor                           |
|                    |                     | Fractionator                      |
|                    |                     | Gas compressor                    |
|                    |                     | Steam generation                  |
|                    |                     | Charge pre-heating                |
|                    |                     | Hydrocracking                     |
|                    |                     | Catalytic cracking                |
|                    | Catalytic reforming | Furnace                           |
|                    |                     | Reactors                          |
|                    |                     | Compressor                        |
|                    |                     | Seperators                        |
|                    | Alkylation          | Dehydration                       |
|                    |                     | Reactor (heat generation)         |
|                    |                     | Isostripper                       |
|                    |                     | Distillation                      |
|                    |                     | Decomposition of organic fluoride |
|                    |                     | Deisobuthaniser                   |
|                    | Isomerisation       | Dryer                             |
|                    |                     | Reactor                           |
|                    |                     | Stabiliser                        |
|                    | Polymerisation      | Catalyst chamber                  |
|                    |                     | Depropaniser                      |
|                    |                     | Debutaniser                       |
|                    | Product treatment   | Extraction                        |
|                    |                     | Oxidiser                          |
|                    |                     | Sulphur removal                   |
|                    |                     | Incinerator                       |
|                    | Gas separation      | Absorber/stripper                 |
|                    |                     | Fractionator (de-ethaniser)       |
|                    |                     | depropaniser                      |

| Level 1            | Level 2  | Level 3   |
|--------------------|--|---|
| Process Technology | Hydrotreating  | Hydrodesulphurization   |
|                    |  | Hydrodeoxygenation  |
|                    |  | Hydrogenation   |
|                    |  | Hydrodenitrogenation  |
|                    |  | Hydrometallization  |
|                    | Waste discharge  | Blowdown system   |
|                    | Production of coke and agglomerate in Coke Oven Plants | Coke production plant   |
|                    |  | Automation and Process Control System                             |
|                    |  | Coke dry quenching  |
|                    |  | Coke Stabilization Quenching                                      |
|                    |  | Non-recovery coke oven  |
|                    |  | Gas recirculation system (reuse of gas - COG- as a fuel)          |
|                    |  | Coke Stamp charging   |
|                    |  | Reuse of COG as reducing agent or for the production of chemicals |

| Level 1            | Level 2                         | Level 3                                |
|--------------------|---------------------------------|--|
| Service Technology | Waste discharge                 | Blowdown system                        |
|                    | Desalting                       | Mixer                                  |
|                    |                                 | Desalter                               |
|                    |                                 | Pressurised cross flow plate separator |
|                    | Distillation                    | Heater                                 |
|                    |                                 | Distillation                           |
|                    |                                 | Fractionator                           |
|                    |                                 | Furnace / vacuum                       |
|                    |                                 | Stripper                               |
|                    | Base oil production             | Refining                               |
|                    |                                 | De waxing                              |
|                    |                                 | Finishing                              |
|                    | Bitumen production              | Furnace                                |
|                    |                                 | Oxidiser                               |
|                    |                                 | Vent gas scrubber                      |
|                    | Coking (delayed & fluid coking) | Fractionator                           |
|                    |                                 | Furnace                                |
|                    |                                 | Cracking                               |
|                    | Coking (flexicoking)            | Purging                                |
|                    |                                 | Reactor                                |
|                    |                                 | Heater                                 |
|                    |                                 | Gasifier                               |
|                    |                                 | Fractionator                           |
|                    | Catalytic cracking              | Catalyst regenerator                   |
|                    |                                 | Reactor                                |
|                    |                                 | Fractionator                           |
|                    |                                 | Gas compressor                         |
|                    |                                 | Steam generation                       |
|                    |                                 | Charge pre-heating                     |
|                    |                                 | Hydrocracking                          |
|                    |                                 | Catalytic cracking                     |

| Level 1            | Level 2             | Level 3                           |
|--------------------|---------------------|-----------------------------------|
| Service Technology | Catalytic reforming | Furnace                           |
|                    |                     | Reactors                          |
|                    |                     | Compressor                        |
|                    |                     | Seperators                        |
|                    | Alkylation          | Dehydration                       |
|                    |                     | Reactor (heat generation)         |
|                    |                     | Isostripper                       |
|                    |                     | Distillation                      |
|                    |                     | Decomposition of organic fluoride |
|                    |                     | Deisobuthaniser                   |
|                    | Isomerisation       | Dryer                             |
|                    |                     | Reactor                           |
|                    |                     | Stabiliser                        |
|                    | Polymerisation      | Catalyst chamber                  |
|                    |                     | Depropaniser                      |
|                    |                     | Debutaniser                       |
|                    | Hydrogen plant      | Steam reforming                   |
|                    |                     | Gasification                      |
|                    |                     | Purification                      |
|                    | Product treatment   | Extraction                        |
|                    |                     | Oxidiser                          |
|                    |                     | Sulphur removal                   |
|                    |                     | Incinerator                       |
|                    | Gas separation      | Absorber/stripper                 |
|                    |                     | Fractionator (de-ethaniser)       |
|                    |                     | depropaniser                      |
|                    | Hydrotreating       | Hydrodesulphurization             |
|                    |                     | Hydrodeossigenation               |
|                    |                     | Hydrogenation                     |
|                    |                     | Hydrodenitrogenation              |
|                    |                     | Hidrodemetallization              |

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|                    |  | Automation and Process Control System                             |
|                    |  | Coke dry quenching  |
|                    |  | Coke Stabilization Quenching                                      |
|                    |  | Non-recovery coke oven  |
|                    |  | Gas recirculation system (reuse of gas - COG- as a fuel)          |
|                    |  | Coke Stamp charging   |
|                    |  | Reuse of COG as reducing agent or for the production of chemicals |
|                    |  |   |

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| Alternative Energy | Desalting                       | Mixer                                  |
|                    |                                 | Desalter                               |
|                    |                                 | Pressurised cross flow plate separator |
|                    | Distillation                    | Heater                                 |
|                    |                                 | Distillation                           |
|                    |                                 | Fractionator                           |
|                    |                                 | Furnace / vacuum                       |
|                    |                                 | Stripper                               |
|                    | Base oil production             | Refining                               |
|                    |                                 | De waxing                              |
|                    |                                 | Finishing                              |
|                    | Bitumen production              | Furnace                                |
|                    |                                 | Oxidiser                               |
|                    |                                 | Vent gas scrubber                      |
|                    | Coking (delayed & fluid coking) | Fractionator                           |
|                    |                                 | Furnace                                |
|                    |                                 | Cracking                               |
|                    | Coking (flexicoking)            | Purging                                |
|                    |                                 | Reactor                                |
|                    |                                 | Heater                                 |
|                    |                                 | Gasifier                               |
|                    |                                 | Fractionator                           |
|                    | Catalytic cracking              | Catalyst regenerator                   |
|                    |                                 | Reactor                                |
|                    |                                 | Fractionator                           |
|                    |                                 | Gas compressor                         |
|                    |                                 | Steam generation                       |
|                    |                                 | Charge pre-heating                     |
|                    |                                 | Hydrocracking                          |
|                    |                                 | Catalytic cracking                     |

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|                    |                     | Compressor                        |
|                    |                     | Seperators                        |
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|                    |                     | Isostripper                       |
|                    |                     | Distillation                      |
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|                    | Isomerisation       | Dryer                             |
|                    |                     | Reactor                           |
|                    |                     | Stabiliser                        |
|                    | Polymerisation      | Catalyst chamber                  |
|                    |                     | Depropaniser                      |
|                    |                     | Debutaniser                       |
|                    | Hydrogen plant      | Steam reforming                   |
|                    |                     | Gasification                      |
|                    |                     | Purification                      |
|                    | Product treatment   | Extraction                        |
|                    |                     | Oxidiser                          |
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|                    |                     | Incinerator                       |
|                    | Gas separation      | Absorber/stripper                 |
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|                    |                     | depropaniser                      |
|                    | Hydrotreating       | Hydrodesulphurization             |
|                    |                     | Hydrodeossigenation               |
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|                    |  | Coke Stabilization Quenching                                      |
|                    |  | Non-recovery coke oven  |
|                    |  | Gas recirculation system (reuse of gas - COG- as a fuel)          |
|                    |  | Coke Stamp charging   |
|                    |  | Reuse of COG as reducing agent or for the production of chemicals |
|                    |  | Coke oven gas treatment   |
|                    |  | Automation and Process Control System                             |
|                    |  |   |