

6. ES 6: Use at industrial sites; Industrial use of cobalt containing catalysts

6.1. Title section

Product category: Other (PC 0), Products such as ph-regulators, flocculants, precipitants, neutralization agents (PC 20), Laboratory Chemicals (PC 21)

Sector of use: Manufacture of bulk, large scale chemicals (including petroleum products) (SU 8), Manufacture of fine chemicals (SU 9)

Environment	
1: Industrial use of cobalt containing catalysts	ERC 4
2: Industrial use of cobalt containing catalysts	ERC 6b
Worker	
3: Industrial use of cobalt containing catalysts in closed conditions	PROC 1, PROC 2
4: Industrial use of cobalt containing catalysts in semi-closed conditions	PROC 3, PROC 9, PROC 4, PROC 8b
5: Cleaning and maintenance	PROC 28

6.2. Conditions of use affecting exposure

6.2.1. Control of environmental exposure: Industrial use of cobalt containing catalysts (ERC 4)

Amount used, frequency and duration of use (or from service life)
Daily amount per site <= 75 tonnes/day
Annual amount per site <= 75 tonnes/year
Conditions and measures related to external treatment of waste (including article waste)
Dispose of waste product or used containers according to local regulations.

6.2.2. Control of environmental exposure: Industrial use of cobalt containing catalysts (ERC 6b)

Amount used, frequency and duration of use (or from service life)
Daily amount per site <= 75 tonnes/day
Annual amount per site <= 75 tonnes/year
Conditions and measures related to external treatment of waste (including article waste)
Dispose of waste product or used containers according to local regulations.

6.2.3. Control of worker exposure: Industrial use of cobalt containing catalysts in closed conditions (PROC 1, PROC 2)

Product (article) characteristics
Maximum emission potential covered in this ES: High.
Physical form covered in this ES: Solid, powder / dust, shaped catalysts.
Concentration of the substance in mixture is not restricted.
Amount used (or contained in articles), frequency and duration of use/exposure
Duration of exposure: Not restricted.
Technical and organisational conditions and measures
Limit the process temperature to 600 °C.

Ensure full containment of the process.
Use of an integrated local exhaust ventilation with an efficiency of at least 90% is required.
Conditions and measures related to personal protection, hygiene and health evaluation
Wear suitable gloves tested to EN374.; For further specification, refer to section 8 of the SDS.
Use suitable eye protection.; For further specification, refer to section 8 of the SDS.
APF of RPE = 20 (95% respiratory protection).
Wear protective suit conforming to EN 13982 in cases where direct contact with the substance cannot be avoided.

6.2.4. Control of worker exposure: Industrial use of cobalt containing catalysts in semi-closed conditions (PROC 3, PROC 9, PROC 4, PROC 8b)

Product (article) characteristics
Maximum emission potential covered in this ES: High.
Physical form covered in this ES: Solid, powder / dust, shaped catalysts.
Concentration of the substance in mixture is not restricted.
Amount used (or contained in articles), frequency and duration of use/exposure
Duration of exposure: Not restricted.
Technical and organisational conditions and measures
Limit the process temperature to 160 °C.
Ensure containment of the process as far as technically feasible.
Use of an integrated local exhaust ventilation with an efficiency of at least 90% is required.
Conditions and measures related to personal protection, hygiene and health evaluation
Wear suitable gloves tested to EN374.; For further specification, refer to section 8 of the SDS.
Use suitable eye protection.; For further specification, refer to section 8 of the SDS.
APF of RPE = 20 (95% respiratory protection).
Wear protective suit conforming to EN 13982 in cases where direct contact with the substance cannot be avoided.

6.2.5. Control of worker exposure: Cleaning and maintenance (PROC 28)

Product (article) characteristics
Concentration of the substance in mixture is not restricted.
Physical form covered in this ES: Various.
Maximum emission potential covered in this ES: Low.
Amount used (or contained in articles), frequency and duration of use/exposure
Typical duration per shift = 120 min
Typical number of shifts per year = 48 Shifts/year
Technical and organisational conditions and measures
Process is carried out at ambient temperature.
Process is carried out at ambient pressure.
Conditions and measures related to personal protection, hygiene and health evaluation
APF of RPE = 10 (90% respiratory protection).
Use suitable eye protection.; For further specification, refer to section 8 of the SDS.

Wear suitable gloves tested to EN374.; For further specification, refer to section 8 of the SDS.
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Wear protective suit conforming to EN 13982 in cases where direct contact with the substance cannot be avoided.

6.3. Exposure estimation and reference to its source

6.3.1. Environmental release and exposure: Industrial use of cobalt containing catalysts (ERC 4)

Release route	Release rate	Release estimation method
Water	0 kg/day	Estimated release factor
Air	0 kg/day	Estimated release factor
Soil	0 kg/day	Estimated release factor

6.3.2. Environmental release and exposure: Industrial use of cobalt containing catalysts (ERC 6b)

Release route	Release rate	Release estimation method
Water	0 kg/day	Estimated release factor
Air	0 kg/day	Estimated release factor
Soil	0 kg/day	Estimated release factor

6.3.3. Worker exposure: Industrial use of cobalt containing catalysts in closed conditions (PROC 1, PROC 2)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, local, long term	19.2 µg/m ³ (Measured data)	0.48

6.3.4. Worker exposure: Industrial use of cobalt containing catalysts in semi-closed conditions (PROC 3, PROC 9, PROC 4, PROC 8b)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, local, long term	19.2 µg/m ³ (Measured data)	0.48

6.3.5. Worker exposure: Cleaning and maintenance (PROC 28)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, local, long term	2.4 µg/m ³ (Measured data)	0.06

6.4. Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Guidance: Please refer to Section 0.3 of this "ES for Communication".