

Exposure Scenario (ES) for Use 1: "Treatment of components used in industrial gas turbines and associated components using coating products containing chromium trioxide to enhance corrosion resistance, chemical resistance, high temperature oxidation resistance, adhesion to components which produce a smooth finish and enhance the technical performance of turbines "

ECS and WCS	Task (ERC/ spERC or PROC)	Annual amount per site (kg Cr(VI)/ year)	Technical RMMs, including: *Containment, *Ventilation (general, LEV...) *customized technical installation, etc	Organisational RMMs, including: *Duration and Frequency of exposure *OSH management system *Supervision *Monitoring arrangements *Training, etc	PPE (characteristics)	Other conditions	Effective-ness of waste water and waste air treatment (for ERC)	Release factors: water, air and soil (for ERC)	Detailed info. in CSR (section)
ECS 1	ERC 5	Up to 40	<p>Air</p> <ul style="list-style-type: none"> - Exhaust air treated by wash water (water curtains), wet scrubbers, or air filters <p>Wastewater</p> <ul style="list-style-type: none"> - Sites either do not produce wastewater - or gather it in closed containers sent to a certified external company - or treat it onsite in a reduction facility (reduced wastewater sent to external STP or WWTP) <p>Soil:</p> <ul style="list-style-type: none"> - Indoor and outdoor surfaces where chemicals are handled are sealed <p>Waste:</p> <ul style="list-style-type: none"> - Solid Cr(VI) waste collected and forwarded to certified external company 	<ul style="list-style-type: none"> - Up to 365 days/year - Emissions to air and water monitored regularly 	n.a.	<p>Air:</p> <ul style="list-style-type: none"> - Surface treatment at RT <p>Water:</p> <ul style="list-style-type: none"> - STP removal rate: 50% to sludge assumed 	n.a.	<p>Air:</p> <p>2.06E-04 - 9.86E-01 kg/a ^a</p> <p>Water:</p> <p>0 - 1.55E-01 kg/a</p> <p>Soil:</p> <p>0 kg/a (no release to soil)</p>	9.2.3.1
WCS 1 - Spray operators	PROC 5, PROC 7, PROC 8a,	n.a.	- Surface treatment by manual spraying (Task 1): in spray booth with LEV	- Duration and frequency task-dependent	- Gloves ^b - RPE ^c	- <3.1% Cr(VI)	n.a.	n.a.	9.2.3.2

	PROC 8b, PROC 9, PROC 10, PROC 28		<ul style="list-style-type: none"> - Surface treatment by brushing (Task 2): with LEV - Stirring paint, loading/unloading spray gun, and decanting of product (Task 3): with LEV - Cleaning of equipment and workplace (Task 4): with LEV - Ventilation rate: > 10 ACH (Task 1, Task 4 inside spray booth) - Natural ventilation (outside spray booth) 	<ul style="list-style-type: none"> - Duration: 10 - 240 min/task/shift - Frequency: <1 - 240 days/task/year <p>Advanced occupational health and safety management system:</p> <ul style="list-style-type: none"> - Regular exposure monitoring - Workers' training - Instructions available at workplaces - PPE management system - Chemical products stored in designated area - Inspection and maintenance of LEV - Access control to paint area where slurry coating products are handled 	<ul style="list-style-type: none"> - Eye protection - chemical protective clothing or coverall, for spraying coverall obligatory 	<ul style="list-style-type: none"> - Indoors - RT 			
WCS 2 - Maintenance and/or cleaning workers	PROC 28	n.a.	<ul style="list-style-type: none"> - Cleaning of spray booth: with LEV - For cleaning spray booth, ventilation rate: > 10 ACH - Natural ventilation 	<ul style="list-style-type: none"> - Duration and frequency task-dependent - Duration and frequency of task: variable (480 min/up to 4 times/year or 160 min/up to 12 times/year or 30 min/up to 52 times/year) <p>Advanced occupational health and safety management system:</p> <ul style="list-style-type: none"> - Regular exposure monitoring - Workers' training - Instructions available at workplaces - PPE management system - Chemical products stored in designated area - Inspection and maintenance of LEV - Access control to paint area where slurry coating products are handled 	<ul style="list-style-type: none"> - Gloves ^b - RPE ^d - Eye protection - chemical protective clothing 	<ul style="list-style-type: none"> - <3.1% Cr(VI) - Indoors - RT 	n.a.	n.a.	9.2.3.3

WCS 3 - Incidentally exposed workers	PROC 0	n.a.	- For quality control: local LEV arms - Natural ventilation	- Duration: up to 480 min/shift - Frequency: 240 days/year Advanced occupational health and safety management system: - Workers' training - Instructions available at workplaces - PPE management system - Access control to paint area where slurry coating products are handled	- Standard PPE	- <3.1% Cr(VI) - Indoors - RT	n.a.	n.a.	9.2.3.4
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Notes:

^a Total release per site (one site with only a certain share generated by this use).

^b Gloves (tested to EN374), material and thickness depending on task, see WCS 1 - 2.

^c RPE according to EN 529:2005 is obligatory for Task 1, Task 4 (except semi-automatic filling), and Task 5 (except for cleaning equipment/spray gun in closed system) and for all tasks not performed under LEV for which industrial hygiene exposure assessment confirms RPE use is required: Full mask with P3 filter/P3 combination filter or powered filtering device incorporating a hood, helmet or full mask, or fresh air hose breathing apparatus - full mask, hood or helmet.

^d RPE according to EN 529:2005 is worn during all tasks not performed under a LEV for which industrial hygiene exposure assessment confirms RPE use is required: Half mask FFP3, half mask with P3 filter/P3 combination filter or full mask with P3 filter/P3 combination filter

Abbreviations: WCS=Worker contributing scenario, ECS=Environmental Contributing Scenario, ERC=Environmental Release Category, STP=Sewage Treatment Plant, WWTP=Wastewater Treatment Plant, PROC=Process category, LEV=Local Exhaust Ventilation, PPE=Personal Protective Equipment, RPE=Respiratory Protective Equipment, RT=Room temperature, n.a.=not applicable