

Exposure Scenario (ES) for Use 1: "Formulation of primer products with strontium chromate and/or potassium hydroxyoctaoxodizincate dichromate for use in aerospace and defence industry and its supply chains"

ECS and WCS	Task (ERC/ spERC or PROC)	Annual total amount used in GB (t 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 2	Comp. A: 0.5 - 10 (StC) 0.1 - 5 (PHD) Comp. B: 0.1 - 1 (StC)	<p>Air</p> <ul style="list-style-type: none"> - Air abatement by air filters <p>Wastewater</p> <ul style="list-style-type: none"> - sent to external company certified for disposing of liquid hazardous waste <p>Soil</p> <ul style="list-style-type: none"> - Surfaces where chemicals are handled are sealed - Chemicals/ solid waste containing Cr(VI) stored outside in closed containers <p>Waste</p> <ul style="list-style-type: none"> - solid Cr(VI) waste collected, stored in closed drums, and forwarded to external company certified for disposal as hazardous waste 	<ul style="list-style-type: none"> - Up to 365 days/year - process type: batch process - Emissions to air monitored regularly 	n.a.	<p>Air</p> <ul style="list-style-type: none"> - Process temperature: RT - Coverage of mixing tanks for transport <p>Water</p> <p>n.a.</p>	n.a.	<p>Air</p> <p>0.016 kg/a Comp. B: 0.00055 kg/a</p> <p>Water</p> <p>n.a.</p> <p>Soil:</p> <p>0 kg/a (no release to soil)</p>	Sections 9.2.3.1 and 9.2.4.1

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WCS 1 - Operators handling solid chromates	PROC 5, PROC 8a, PROC 8b, PROC 28 Comp. B: add. PROC 9	n.a.	<ul style="list-style-type: none"> - Weighing of solid material with LEV - Charging mixing vessels under LEV - Folding empty bags under LEV <p>Company A (additional RMMs):</p> <ul style="list-style-type: none"> - Mechanical ventilation (≥4 ACH) <p>Company B (additional RMMs):</p> <ul style="list-style-type: none"> - Sampling from mixing vessel under LEV 	<p>Company A</p> <p>Large batches (1000 - 4000 kg/d StC or PHD):</p> <ul style="list-style-type: none"> - Duration/Frequency: up to 8 h/d at up to 15 d/y - Bags are lifted to level of tank opening by device - Waste container directly adjacent to tank - Restriction of access: spatial separation; restriction of access via signage or physical barrier <p>Small batches (up to 250 kg/d StC or PHD):</p> <ul style="list-style-type: none"> - Duration/Frequency: up to 4 h/d at up to 10 d/y - Waste container directly adjacent to tank - Restriction of access via signage or physical barrier <p>Company B</p> <ul style="list-style-type: none"> - Up to 500 kg/d dispersed product 	<ul style="list-style-type: none"> - Chemical resistant gloves according to EN 374 as per relevant risk assessment - RPE ^a - Eye protection as per relevant risk assessment - Disposable protective clothing (coverall) 	<ul style="list-style-type: none"> - Up to 26% Cr(VI) - Indoors - RT 	n.a.	n.a.	9.2.3.2 and 9.2.4.2

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				<ul style="list-style-type: none"> - Duration/Frequency: up to 8 h/d at up to 15 d/y - Restriction of access: spatial separation; restriction of access via signage or physical barrier Any batch size: <ul style="list-style-type: none"> - Open bags are stored in sealed buckets - Procedures in place to minimize dust generation during weighing - Coverage of mixing tanks for transport - Advanced occupational health and safety management system ^b 					
WCS 2 - Operators preparing liquid products	PROC 5, PROC 8b, PROC 28 PROC 9 Comp. A: add. PROC 9	n.a.	<ul style="list-style-type: none"> - Charging mixing vessels with liquid material, milling and dispersion under LEV - Natural ventilation - Filling of product containers under LEV 	<p>Company A</p> <ul style="list-style-type: none"> - Duration/Frequency: up to 8 h/d at up to 25 d/y - Only complete tanks or containers are used - Advanced occupational health and safety management system ^b <p>Company B</p> <ul style="list-style-type: none"> - Duration/Frequency: up to 4 h/d at up to 8 d/y 	<ul style="list-style-type: none"> - Chemical resistant gloves according to EN 374 as per relevant risk assessment - Eye protection as per relevant risk assessment 	<ul style="list-style-type: none"> - Up to 18% Cr(VI) - Indoors - RT 	n.a.	n.a.	9.2.3.3 and 9.2.4.3

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				- Only complete tanks or containers are used - Advanced occupational health and safety management system ^b	- Chemical protective clothing				
WCS 3 – Laboratory technicians	PROC 15	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	9.2.3.4 and 9.2.4.4
WCS 4 - Maintenance and/or cleaning workers	PROC 28	n.a.	- (if exposure to dust) Mechanical ventilation (≥4 ACH) or LEV - Natural ventilation	Company A Potential dust exposure - Duration: up to 6 h/d - Frequency: up to 10 d/y Liquid products only - Duration: up to 64h/d - Frequency: up to 5 d/y - Advanced occupational health and safety management system ^b Company B Potential dust exposure - Duration: up to 40 min/d - Frequency: up to 24 d/y - Advanced occupational health and safety management system ^b	- Chemical resistant gloves according to EN 374 as per relevant risk assessment - RPE (if exposure to dust) ^a - Eye protection as per relevant risk assessment - Chemical protective clothing as per relevant risk assessment	- Up to 26% Cr(VI) - Indoors - RT	n.a.	n.a.	9.2.3.5 and 9.2.4.5
WCS 9 -	PROC 0	n.a.	- Natural ventilation	- Duration: up to 8 h/d	- Standard PPE	- Up to 8% Cr(VI)	n.a.	n.a.	9.2.3.6

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Incidentally exposed workers				- Frequency: up to 240 d/y - Advanced occupational health and safety management system ^b		- Indoors - RT			

Notes:

^a Powered filtering device with hood, helmet or full mask (APF 40) or better

^b The advanced occupational health and safety management system includes: a) Regular exposure monitoring, b) Workers' training, c) Instructions available at workplaces, d) PPE management system, e) Maintenance of RPE in accordance with standard procedure and periodical checks of RPE (including fit testing), f) Donning/doffing of protective clothing is organised in a separate changing room, g) Effective cleaning practices are implemented to prevent surface contamination in the vicinity where machining activities take place, h) Inspection and maintenance of LEV, i) Hazardous waste management procedures are in place, j) Chemical products stored in designated area

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, ACH = Air Changes per Hour, PPE=Personal Protective Equipment, RPE=Respiratory Protective Equipment, RT=Room temperature, n.a.=not applicable