

Succinct summary of representative risk management measures (RMMs) and operational conditions (OCs)

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Legal name of applicant:

Rimex Metals (UK) Ltd.

Substance:

Chromium trioxide

CAS number: 1333-82-0; EC number: 215-607-8

(Annex XIV entry number: 16)

Uses title:

Use of chromium trioxide as an oxidising and hardening agent in the manufacture of coloured stainless steel

Uses number:

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1. SUMMARY OF RISK MANAGEMENT MEASURES

Succinct summary table of the risk management measures, and operational conditions as they apply to the use of chromium trioxide as an oxidising and hardening agent in the manufacture of coloured stainless steel

ECS and WCS	Task (ERC/spERC or PROC)	Annual amount per site (tonnes/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	Effectiveness of waste water and waste air treatment (for ERC)	Release factors: water, air and soil (for ERC)	Detailed info. in CSR (section)
ECS 1	Industrial use resulting in inclusion into or onto a matrix (ERC 5)	■ CT (range 1-10); ■ Cr(VI) (range 1-10)					Waste water is treated with sodium metabisulphite (Na ₂ S ₂ O ₅) to reduce Cr(VI) to Cr(III) which is subsequently precipitated with lime; no waste air treatment	Release factors Water: 2.35 x 10 ⁻⁶ Air: 4.78 x 10 ⁻³ Soil: #0	9.1.1.3. and 9.2.3
Task 1	Decanting of a solid (PROC 8b)		General ventilation system: ≥ 10 ACH	Duration: 16 min Frequency: 72 days per year Specific activity training	Overall 1, Gloves 1 + 3, RPE 1, Footwear 1	Indoors; handling of pure substance (flakes)			9.1.1.5 and 9.2.8
Task 2	Dissolution of solid CrO ₃ in tanks (PROC 8b)		General ventilation system: ≥ 10 ACH	Duration: 20 min Frequency: 72 days per year Specific activity training	Overall 1, Gloves 1 + 3, RPE 1, Footwear 1	Indoors; handling of pure substance (flakes)			9.1.1.5 and 9.2.8
Task 3	Re-filling of bath-liquids (PROC 8b)		General ventilation system: ≥ 10 ACH	Duration: 15 min Frequency: 72 days per year Specific activity training	Overall 1, Gloves 1 + 3, RPE 1, Footwear 1	Indoors; no handling of Cr(VI) containing liquids			9.1.1.5 and 9.2.8

¹ Confidential information is shaded in grey or marked as such

Task 4	Cleaning of solid CrO ₃ with a hose (PROC 28)		General ventilation system: ≥ 10 ACH	Duration: 30 min Frequency: 30 days per year Specific activity training	Overall 1, Gloves 1 + 3, RPE 1, Footwear 1	Indoors; handling of pure substance			9.1.1.5 and 9.2.8
Task 5	Cleaning of equipment (PROC 28)		General ventilation system: ≥ 10 ACH	Duration: 30 min Frequency: 30 days per year Specific activity training	Depends on the task which is performed in combination with this one, cleaning of glass pipettes: same PPE as in Task 6; cleaning of hand pump: same PPE as in Task 3	Indoors; Cr(VI) concentration in liquids < 50%			9.1.1.5 and 9.2.8
Task 6	Tank sampling (PROC 9)		General ventilation system: ≥ 10 ACH	Duration: 15 min Frequency: 48 days per year Specific activity training	Overalls 2, RPE 1, Gloves 3, Footwear 2	Indoors; Cr(VI) concentration in liquids < 50%			9.1.1.5 and 9.2.8
Task 7	Laboratory analyses (PROC 15)		Fume hood (at least 50% reduction; only for dilution of concentrated solutions)	Duration: 15 min Frequency: 48 days per year (only dilution of concentrated solution) Duration: 240 min Frequency: 240 days per year (total activities in laboratory) Specific activity training	Overalls 2, Eye wear 1, Gloves 3, Footwear 2	Indoors; Cr(VI) concentration in liquids < 50%			9.1.1.5 and 9.2.8
Task 8	Addition of mist suppressant (PROC 8b)		General ventilation system: ≥ 10 ACH	Duration: 2 min Frequency: 48 days per year (total activities in laboratory) Specific activity training	Overalls 2, Eye wear 1, Gloves 3, Footwear 2	Indoors; no handling of Cr(VI) containing liquids			9.1.1.5 and 9.2.8
Task 9	Operating effluent treatment plant (PROC 4)		General ventilation system: ≥ 10 ACH	Duration: max. 240 min Frequency: max. 240 days per year Specific activity training	Overalls 2, Eye wear 1, Gloves 3, Footwear 2	Indoors; Cr(VI) concentration in liquids < 50%; usually no handling of Cr(VI)			9.1.1.5 and 9.2.8

						containing liquids			
Task 10	Tank fill up (PROC 4)		General ventilation system: ≥ 10 ACH	Duration: 45 min Frequency: 240 days per year Specific activity training	Overalls 2, Eye wear 1, Gloves 3, Footwear 2	Indoors; no handling of Cr(VI) containing liquids			9.1.1.5 and 9.2.8
Task 11	Maintenance (PROC 28)		General ventilation system: ≥ 10 ACH	Duration: up to 480 min Frequency: 240 days per year Specific activity training	At least Overalls 2, Eye wear 1, Gloves 3, Footwear 2 (adaption due to situation)	Indoors; Cr(VI) concentration in liquids < 50%; usually activities are not related to the handling of Cr(VI) containing liquids			9.1.1.5 and 9.2.8
Task 12	Waste handling (filter press) (PROC 8b)			Duration: 60 min Frequency: 240 days per year Specific activity training	Overalls 2 + 4 Gloves 3, Footwear 2	Outdoors; Cr(VI) concentration in liquids < 0.1 mg/L			9.1.1.5 and 9.2.8
Task 13	Operating colouring line – controller (PROC 13)		General ventilation system: ≥ 10 ACH; LEV on colouring and black colouring tank	Duration: up to 480 min (overall work at colouring line) Frequency: 240 days per year Specific activity training	Overalls 3, Gloves 3, Footwear 2	Indoors; no handling of Cr(VI) containing liquids			9.1.1.5 and 9.2.5
Task 14	Operating colouring line – loading (PROC 13)		General ventilation system: ≥ 10 ACH; LEV on colouring and black colouring tank	Duration: up to 480 min (overall work at colouring line) Frequency: 240 days per year Specific activity training	Overalls 3, Gloves 2, Footwear 2	Indoors; no handling of Cr(VI) containing liquids			9.1.1.5 and 9.2.5
Task 15	Operating colouring line – rinsing (PROC 13)		General ventilation system: ≥ 10 ACH; LEV on colouring and black colouring tank	Duration: up to 480 min (overall work at colouring line; rinsing up to 180 min) Frequency: 240 days per year Specific activity training	Overalls 3, Gloves 3, Eye wear 1, Footwear 2	Indoors; Cr(VI) concentration in liquids < 50%			9.1.1.5 and 9.2.5
Task 16	Operating colouring line – off loading		General ventilation system: ≥ 10 ACH; LEV	Duration: up to 480 min (overall work at colouring line)	Overalls 3, Gloves 2, Footwear 2	Indoors; no handling of Cr(VI)			9.1.1.5 and 9.2.5

	(PROC 13)		on colouring and black colouring tank	Frequency: 240 days per year Specific activity training		containing liquids			
Task 17	Operating colouring line – colour control (PROC 13)		General ventilation system: ≥ 10 ACH; LEV on colouring and black colouring tank	Duration: up to 480 min (overall work at colouring line) Frequency: 240 days per year Specific activity training	Overalls 3, Gloves 3, Eye wear 1, Footwear 2	Indoors; Cr(VI) concentration in liquids < 50%			9.1.1.5 and 9.2.5
Task 18	Activities in packaging area (no PROC assigned) ¹		Basic general ventilation: 1-3 ACH	Duration: 480 min Frequency: 240 days per year	No PPE to protect from chemicals; Overalls 3, Gloves 2, Footwear 2	Indoors; only indirect exposure via workplace air, no direct contact to Cr(VI)			9.1.1.5 and 9.2.7

Abbreviations: WCS=Worker contributing scenario, ECS=Environmental Contributing Scenario,* ERC=Environmental Release Category (or spERC if available) , PROC= Process category, LEV=Local Exhaust Ventilation, PPE=Personal Protective Equipment, RPE=Respiratory Protective Equipment

1) no PROC assigned, as exposure is to Cr(VI) in workplace air but not related to specific task

- RPE – 1. 3M Versaflo TR600 series powered air respirator with full hood. Filter type A2B2E2K 1Hg P
- Gloves - 1. Chemically resistant gloves – SKYTEC XENON PLUS Triple dipped Nitrile 0.48 mm, EN374-1:2016 Type A-J,K,L,O,P,T EN388 :2016 +A1 :2008 4,4,3,C
2. ATG Maxicut Ultra dotted. Abrasion 4, Blade 4, Tear 4, Puncture 2, Cut C. 1.10mm
3. ATG powerform S6 nitrile disposable. 0.14mm
- Overalls - 1. Dupont Tychem 6000F hooded chemical suit
2. Chemical splash coverall EN13034-6
3. Work wear long sleeve polo top and ballistic trousers
4. Paper overall - Chemsplash AV max Cat III type 4B, 5B & 6B
- Foot wear - 1. Dunlop Hazguard S5 Wellington boot
2. Cofra Ethyl chemical resistant S3 safety boot
- Eye wear - 1. Bolle Tracker safety glasses worn with strap