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

Public Version

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Legal name of applicant(s):	Tata Steel UK Ltd. Tata Steel IJmuiden B.V.
Submitted by:	Tata Steel IJmuiden BV
Substances:	Sodium Dichromate, CAS No: 10588-01-9, 7789-12-0 (dihydrate), EC No: 234-190-3, 616-541-6 (dihydrate) (Annex XIV entry number: 18) Chromium Trioxide, CAS No: 1333-82-0, EC No: 215-607-8 (Annex XIV entry number: 16)
Use title:	Use of Chromium (VI) Trioxide and Sodium Dichromate for Passivation of Electrolytic Tinplate (ETP)
Use number:	1

1. SUMMARY OF RISK MANAGEMENT MEASURES

Trostre Site

ECS and WCS	Task (ERC/spERC or PROC)	Annual amount per site (tonnes 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	Effectiveness of wastewater and waste air treatment (for ERC)	Release factors: water, air and soil (for ERC)	Detailed info. in CSR (page)
ECS 1	Industrial use resulting in inclusion into or onto a matrix (ERC 5)	[redacted] (range: 5-15 tonnes)					Wastewater is treated with reducing agents (ferrous sulphate/ ferric chloride solution in excess) to reduce Cr(VI) to Cr(III) which is subsequently precipitated; treatment of exhaust air in scrubber, fume extraction efficiency readings conducted weekly	Release factors Water: [redacted] (range: 1.09E-5 - 1.37E-3; sites A - J) Air: [redacted] (range: 6.65E-10 - 7.88E-4; sites A - J) Soil: 0	Section 9.1.1

WCS 1	Changing IBC containers (PROC 8b)		Closed IBC containers stored at dedicated places, careful transport of closed containers to dedicated place ACH: 3 assumed for modelling; normal ventilation Empty IBC containers are sent back to supplier	Duration: 15 min Frequency: 48 days per year Specific activity training for dedicated operators	Protective apron or chemical resistant coverall, chemically resistant gloves (tested to EN374) RPE (half mask with P3 filter or full mask with P3 filter or P3 combination filter)	Conc. of substance: max. 32% Cr(VI)			Section 9.1.2
WCS 2	Sampling of passivation tank (PROC 9)		Dedicated sampling points Baths with high level of containment LEV with scrubber installed above passivation bath ACH: 3 assumed for modelling; normal ventilation	Duration: 15 min Frequency: 240 days per year (daily activity) Specific activity training for dedicated operators	Protective clothing, chemically resistant gloves (tested to EN374), safety goggles or face shield	Conc. of substance: 1% Cr(VI)			Section 9.1.3
WCS 3	Sampling of Wastewater (PROC 9)		Dedicated sampling points	Duration: 15 min Frequency: 240 days per year (daily	Protective clothing, chemically resistant gloves	Conc. of substance: max. 0.37% Cr(VI)			Section 9.1.4

			ACH: 3 assumed for modelling; normal ventilation	activity) Specific activity training for dedicated operators	(tested to EN374), safety goggles or face shield	(worst case assumption for sampling before WW-reduction)			
WCS 4	Maintenance (PROC 28)		ACH: 3 assumed for modelling; normal ventilation	Duration: 60 min Frequency: 48 days per year Specific activity training for dedicated operators	Protective clothing or chemically resistant overall (depending on the place of activity), chemically resistant gloves (tested to EN374), RPE (half mask with P3 filter or full mask with P3 filter or P3 combination filter)	Conc. of substance: 1% Cr(VI) (worst case assumption, in case that no cleaning of the equipment has been performed before the maintenance)			Section 9.1.5
WCS 5	Cleaning (PROC 28)		ACH: 3, normal ventilation	Duration: 15 min Frequency: 240 days per year (daily activity) Specific activity training for dedicated operators	RPE (half mask or full mask with P3 filter or full mask with P3 combination filter); gloves (tested to EN374) tight, long apron and boots or suitable chemical protection suit	Concentration not relevant as this task cannot be modelled within ART; rapid dilution during cleaning			Section 9.1.6
WCS 6	Filter Press/Sludge removal (PROC 28)		ACH: 3 assumed for modelling; normal ventilation	Duration: 15 min Frequency: 48 days per year	Protective clothing or chemically resistant overall	Conc. of substance: 5% Cr(VI)			Section 9.1.7

				Specific activity training for dedicated operators	(depending on the place of activity), chemically resistant gloves (tested to EN374), RPE (half mask with P3 filter or full mask with P3 filter or P3 combination filter)				
WCS 7	Addition of solid CT (PROC 8b)		ACH: 3 assumed for modelling; normal ventilation Delivery of substance in clip-top drums, careful transport of closed containers to dedicated place	Duration: 1 min Frequency: 240 days per year Specific activity training	Chemical resistant overall, apron, chemically resistant gloves (DIN EN 374), RPE (half mask with P3 filter or full mask with P3 filter or P3 combination filter)	Indoors; handling of pure substance (flakes), max. 52% Cr(VI)			Section 9.1.8
WCS 8	Dissolution of solid CT /SD (PROC 5) Theoretical scenario, not yet in place		ACH: 3 assumed for modelling; normal ventilation Delivery of substance in clip-top drums, careful transport of closed containers to dedicated place	Duration: 20 min Frequency: 240 days per year Specific activity training	Chemical resistant overall, chemically resistant gloves (DIN EN 374), RPE (half mask with P3 filter or full mask with P3 filter or P3 combination filter)	Indoors; handling of pure substance (flakes)			Section 9.1.9
WCS 9	Activities close to the ETP line without handling of		No direct contact to Cr(VI) Basic general ventilation, 1-3	Duration: up to 480 min/day Frequency: 240 days per year	Standard PPE set: protective clothing, safety glasses, protective				Section 9.1.10

	Cr(VI) containing solutions (e.g. sanding or changing of rolls) (PROC 4)		ACH	Specific activity training	helmet, ear protection and safety shoes				
WCS 10	Control-Room activities (no PROC assigned)		No direct contact to Cr(VI) Separate room on the shop flor	Duration: up to 480 min/day Frequency: 240 days per year	Standard PPE set: protective clothing, and safety shoes				Section 9.1.11

Type of respiratory filter typically used: 3M 2135 EN 243:2000 P3 R or 3M 2128 EN 243:2000 P2 R, P3R
Type of gloves typically used: Nitrile gloves (minimum 0.35 mm), e.g. AlphaTec® Solvex 37-675 (0.38 mm)

IJmuiden Site

ECS and WCS	Task (ERC/spERC or PROC)	Annual amount per site (tonnes 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	Effectiveness of wastewater and waste air treatment (for ERC)	Release factors: water, air and soil (for ERC)	Detailed info. in CSR (page)
ECS 1	Industrial use resulting in inclusion into or onto a matrix (ERC 5)	[redacted] (range: 10-40 tonnes)					Wastewater is treated with reducing agents (ferrous chloride solution in excess) to reduce Cr(VI) to Cr(III) which is subsequently precipitated; treatment of exhaust air in scrubber	Release factors Water: [redacted] (range: 1.09E-5 - 1.37E-3; sites A - J) Air: [redacted] (range: 6.65E-10 - 7.88E-4; sites A - J) Soil: 0	Section 9.1.1
WCS 1	Changing IBC containers (PROC 8b)		Closed IBC containers stored at dedicated places, careful transport of closed containers to dedicated place ACH: 3 assumed for modelling; normal ventilation	Duration: 15 min Frequency: 48 days per year Specific activity training for dedicated operators	Protective apron or chemical resistant coverall, chemically resistant gloves (tested to EN374) RPE (half mask with P3 filter or full mask with	Conc. of substance: max. 32% Cr(VI)			Section 9.1.2

			Empty IBC containers are sent back to supplier		P3 filter or P3 combination filter)				
WCS 2	Sampling of passivation tank (PROC 9)		Dedicated sampling points Baths with high level of containment LEV with scrubber installed above passivation bath ACH: 3 assumed for modelling; normal ventilation	Duration: 15 min Frequency: 240 days per year (daily activity) Specific activity training for dedicated operators	Protective clothing, chemically resistant gloves (tested to EN374), safety goggles or face shield	Conc. of substance: 1% Cr(VI)			Section 9.1.3
WCS 3	Sampling of Wastewater (PROC 9)		Dedicated sampling points ACH: 3 assumed for modelling; normal ventilation	Duration: 15 min Frequency: 240 days per year (daily activity) Specific activity training for dedicated operators	Protective clothing, chemically resistant gloves (tested to EN374), safety goggles or face shield	Conc. of substance: max. 0.37% Cr(VI) (worst case assumption for sampling before WW-reduction)			Section 9.1.4
WCS 4	Maintenance (PROC 28)		ACH: 3 assumed for modelling; normal ventilation	Duration: 60 min Frequency: 48 days per year Specific activity	Protective clothing or chemically resistant overall (depending on	Conc. of substance: 1% Cr(VI) (worst case			Section 9.1.5

				training for dedicated operators	the place of activity), chemically resistant gloves (tested to EN374), RPE (half mask with P3 filter or full mask with P3 filter or P3 combination filter)	assumption, in case that no cleaning of the equipment has been performed before the maintenance)			
WCS 5	Cleaning (PROC 28)		ACH: 3, normal ventilation	Duration: 15 min Frequency: 240 days per year (daily activity) Specific activity training for dedicated operators	RPE (half mask or full mask with P3 filter or full mask with P3 combination filter); gloves (tested to EN374) tight, long apron and boots or suitable chemical protection suit	Concentration not relevant as this task cannot be modelled within ART; rapid dilution during cleaning			Section 9.1.6
WCS 6	Filter Press/Sludge removal (PROC 28)		ACH: 3 assumed for modelling; normal ventilation	Duration: 15 min Frequency: 48 days per year Specific activity training for dedicated operators	Protective clothing or chemically resistant overall (depending on the place of activity), chemically resistant gloves (tested to EN374), RPE (half mask with P3 filter or full mask with P3 filter or P3 combination filter)	Conc. of substance: 5% Cr(VI)			Section 9.1.7

WCS 7	Addition of solid CT (PROC 8b)		ACH: 3 assumed for modelling; normal ventilation Delivery of substance in clip-top drums, careful transport of closed containers to dedicated place	Duration: 1 min Frequency: 240 days per year Specific activity training	Chemical resistant overall, apron, chemically resistant gloves (DIN EN 374), RPE (half mask with P3 filter or full mask with P3 filter or P3 combination filter)	Indoors; handling of pure substance (flakes), max. 52% Cr(VI)			Section 9.1.8
WCS 8	Dissolution of solid CT /SD (PROC 5) Theoretical scenario, not yet in place		ACH: 3 assumed for modelling; normal ventilation Delivery of substance in clip-top drums, careful transport of closed containers to dedicated place	Duration: 20 min Frequency: 240 days per year Specific activity training	Chemical resistant overall, chemically resistant gloves (DIN EN 374), RPE (half mask with P3 filter or full mask with P3 filter or P3 combination filter)	Indoors; handling of pure substance (flakes)			Section 9.1.9
WCS 9	Activities close to the ETP line without handling of Cr(VI) containing solutions (e.g. sanding or changing of rolls) (PROC 4)		No direct contact to Cr(VI) Basic general ventilation, 1-3 ACH	Duration: up to 480 min/day Frequency: 240 days per year Specific activity training	Standard PPE set: protective clothing, safety glasses, protective helmet, ear protection and safety shoes				Section 9.1.10
WCS 10	Control-Room activities (no PROC assigned)		No direct contact to Cr(VI) Separate room on the shop flor	Duration: up to 480 min/day Frequency: 240 days per year	Standard PPE set: protective clothing, and safety shoes				Section 9.1.11

Type of respiratory filter typically used: P3 mask 3M filters and airsteam helmets

Type of gloves typically used: Nitrile gloves 0.38 mm (AlphaTec® Solvex®, 37-675)