Succinct Summary of Representative Risk Management Measures (RMMs) and Operational Conditions (OCs)

Legal name of applicant(s):	*AKZO Nobel Car Refinishes B.V.;* *Habich GmbH;* *Henkel Global Supply Chain B.V.;* *Indestructible Paint Ltd;* *Finalin GmbH;* *Mapaero;* *PPG Central (UK) Ltd in its legal capacity as Only Representative of PRC DeSoto International Inc. - OR5;* *PPG Industries (UK) Ltd;* *PPG Coatings SA;* *Aviall Services Inc.*
Submitted by:	*AKZO Nobel Car Refinishes B.V.*
Substance:	*Strontium chromate, EC Number: 232-142-6, CAS Number: 7789-06-2*
Use title:	*Formulation of Mixtures* *Application of paints, primers and specialty coatings containing Strontium Chromate in the construction of aerospace and aeronautical parts, including aeroplanes / helicopters, spacecraft, satellites, launchers, engines, and for the maintenance of such constructions, as well as for such aerospace and aeronautical parts, used elsewhere, where the supply chain and exposure scenarios are identical*
Use number:	*Use 1, 2*
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Formulation of Mixtures and Application of paints, primers and specialty coatings containing Strontium Chromate in the construction of aerospace and aeronautical parts, including aeroplanes / helicopters, spacecraft, satellites, launchers, engines, and for the maintenance of such constructions, as well as for such aerospace and aeronautical parts, used elsewhere, where the supply chain and exposure scenarios are identical

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 (page)**
ECS 1	ERC 2: Formulation of Mixtures	25 tonnes/year [as Cr(VI)]	All solid and any liquid waste is collected. The collected waste is either directly forwarded to an external licensed waste management company for disposal, or Cr(VI) in wastewater is treated on-site by reduction to Cr(III). In the case of on-site treatment, the treated waste is either recycled or forwarded to an external licensed waste management company for disposal Exhaust air is passed through filters or wet scrubbers according to best available technique before being released to atmosphere				Negligible release to waste water Air emission abatement: at least 99% efficiency§	Water: Negligible Air: 5.0E-05 Soil: 0 (no release to soil)	16-25

WCS 1	PROC 1: Delivery and storage of raw material		General ventilation: Basic (1-3 ACH per hour) Containment: Closed system (sealed containers or bags)	Duration of activity: < 8 hours Occupational Health and Safety Management System: Advanced		Concentration of Cr(VI): < 25% Place of use: Indoor			24
WCS 2	PROC 8b: Decanting and weighing of solids		General ventilation: Basic (1-3 ACH per hour) Local exhaust ventilation	Duration of activity: < 1 hour Occupational Health and Safety Management System: Advanced	PPE* RPE**: Yes (with APF 30)	Concentration of Cr(VI): < 25% Place of use: Indoor			25/26
WCS 3	PROC 8b: Transfer to mixing vessel		General ventilation: Basic (1-3 ACH per hour) Local exhaust ventilation	Duration of activity: < 4 hours Occupational Health and Safety Management System: Advanced	PPE RPE: Yes (with APF 30)	Concentration of Cr(VI): < 25% Place of use: Indoor			26
WCS 4	PROC 2-5, PROC 26: Mixing by dilution, dispersion, wet-grinding (closed or open process)		General ventilation: Basic (1-3 ACH per hour) Local exhaust ventilation	Duration of activity: < 8 hours Occupational Health and Safety Management System: Advanced	PPE RPE: Yes (with APF 30)	Concentration of Cr(VI): < 25% Place of use: Indoor			26/27
WCS 5	PROC 9: Transfer to small containers (including filtering)		General ventilation: Basic (1-3 ACH per hour) Local exhaust ventilation	Duration of activity: < 8 hours Occupational Health and Safety Management System: Advanced	PPE	Concentration of Cr(VI): < 10% Place of use: Indoor			27/28

WCS 6	PROC 8b: Cleaning of equipment		General ventilation: Basic (1-3 ACH per hour) Local exhaust ventilation	Duration of activity: < 1 hour Occupational Health and Safety Management System: Advanced	PPE RPE: Yes (with APF 30)	Concentration of Cr(VI): < 25% Place of use: Indoor			28
WCS 7	PROC 8b: Maintenance of equipment		General ventilation: Basic (1-3 ACH per hour) Local exhaust ventilation	Duration of activity: < 30 min Occupational Health and Safety Management System: Advanced	PPE RPE: Yes (with APF 30)	Concentration of Cr(VI): < 25% Place of use: Indoor			28/29
WCS 8	PROC 1: Storage of formulation		General ventilation: Basic (1-3 ACH per hour) Containment: Closed system	Duration of activity: < 8 hours Occupational Health and Safety Management System: Advanced		Concentration of Cr(VI): < 10% Place of use: Indoor/outdoors			30/31
WCS 9	PROC 15, PROC 7: Laboratory analysis (sampling, laboratory analysis, test spraying)		General ventilation: Good natural ventilation Fixed capturing hood (90% efficiency)	Duration of activity: < 2.5 hours	PPE for spray booth RPE: Yes (with APF 30)	Concentration of Cr(VI): 5-10% Place of use: Indoor			31-33
WCS 10	PROC 8b: Waste management		General ventilation: Good natural ventilation Low level containment *"Physical containment or enclosure of the source of emission. The air within the enclosure is not actively ventilated or extracted. The enclosure is not opened during the activity."* Advanced REACH Tool (ART) version 1.5	Duration of activity: < 30 min	PPE RPE: Yes (with APF 30)	Concentration of Cr(VI): < 25% Place of use: Indoor			34/35

ECS 2	ERC 5: Application of paints, primers and specialty coatings containing Strontium Chromate in the construction of aerospace and aeronautical parts, including aeroplanes / helicopters, spacecraft, satellites, launchers, engines, and for the maintenance of such constructions, as well as for such aerospace and aeronautical parts, used elsewhere, where the supply chain and exposure scenarios are identical	10 tonnes/year [as Cr(VI)]	All solid and any liquid waste is collected. The collected waste is either directly forwarded to an external licensed waste management company for disposal, or Cr(VI) in wastewater is treated on-site by reduction to Cr(III). In the case of on-site treatment, the treated waste is either recycled or forwarded to an external licensed waste management company for disposal Exhaust air is passed through filters or wet scrubbers according to best available technique before being released to atmosphere				Negligible release to waste water Air emission abatement: at least 99% efficiency§	Water: Negligible Air: 5.0E-03§ Soil: 0 (no release to soil)	37-40
WCS 1	PROC 1: Delivery and storage of raw material		General ventilation: Basic (1-3 ACH per hour) Closed system (minimal contact during routine operations)	Duration of activity: < 8 hours Occupational Health and Safety Management System: Advanced		Concentration of Cr(VI): Minor (5 - 10%) Place of use: Indoor			40/41
WCS 2	PROC 5: Decanting, mixing and filling of guns, cups or small containers		General ventilation: Good natural ventilation Fixed capturing hood (90% efficiency)	Duration of activity: < 60 min	PPE	Concentration of Cr(VI): Minor (5 – 10%) Place of use: Indoor			41/42

WCS 3	PROC 7: Surface treatment by spraying (large sized parts) in a purpose-designed room		Downward laminar flow booth	Duration of activity: < 240 min	PPE RPE: Yes (with APF 1000)	Concentration of Cr(VI): Minor (5 - 10%) Spray room			43
WCS 4	PROC 7: Surface treatment by spraying in spray cabin/spray booth		Fixed capturing hood (90% efficiency)	Duration of activity: < 120 min	PPE RPE: Yes (with APF 30)	Concentration of Cr(VI): Minor (5 - 10%) Spray room			44/45
WCS 5	PROC 7: Surface treatment by spraying outside of paint-booth		General ventilation: Good natural ventilation	Duration of activity: < 30 min Frequency of activity: 2 days/week	PPE RPE: Yes (with APF 30)	Concentration of Cr(VI): Minor (5 - 10%) Place of use: Indoor/ outdoors			46/47

WCS 6	PROC 10: Surface treatment by brushing/rolling (small to medium sized parts)		General ventilation: Good natural ventilation Fixed capturing hood (90% efficiency)	Duration of activity: < 240 min	PPE RPE: Yes (with APF 30)	Concentration of Cr(VI): Minor (5 - 10%) Place of use: Indoor			47/48
WCS 7	PROC 10: Surface treatment by brushing (very small parts/touch-up)		General ventilation: Good natural ventilation	Duration of activity: < 30 min	PPE	Concentration of Cr(VI): Minor (5 - 10%) Place of use: Indoor/outdoors			49/50
WCS 8	PROC 26: Drying/self-curing		General ventilation: Good natural ventilation	Duration of activity: < 120 min (< 30 min for activities of workers within 1 m distance;<90 min for activities of workers outside 1 m distance)	PPE	Concentration of Cr(VI): Small (1 – 5 %) Place of use: Indoor			50-52
WCS 9	PROC 26: Drying/heat-curing		General ventilation: Good natural ventilation Fixed capturing hood (90% efficiency) Fully enclosed process	Duration of activity: < 480 min	PPE	Concentration of Cr(VI): Small (1 – 5 %) Place of use: Indoor			52/53
WCS 10	PROC 26: Drying/self-curing of large sized parts		General ventilation: Good natural ventilation	Duration of activity: < 360 min	PPE	Concentration of Cr(VI): Small (1 – 5 %) Place of use: Indoor			54/55
WCS 11	PROC 8b: Cleaning of equipment – tools cleaning (closed system)		General ventilation: Good natural ventilation Fixed capturing hood (90% efficiency) Fully enclosed process	Duration of activity: < 60 min	PPE	Concentration of Cr(VI): Minor (5 - 10%) Place of use: Indoor			56/57

WCS 12	PROC 8b: Cleaning and maintenance of equipment – tools cleaning		Specialised room ventilation with more than 10 ACH	Duration of activity: < 60 min	PPE	Concentration of Cr(VI): Minor (5 - 10%) Place of use: Indoor (Spray room/paint mixing room)			58
WCS 13	PROC 8b: Cleaning – paint cabin and ancillary areas		General ventilation: Good natural ventilation	Duration of activity: < 60 min	PPE	Concentration of Cr(VI): Minor (5 - 10%) Place of use: Indoor			59/60
WCS 14	PROC 8a: Infrequent maintenance activities		General ventilation: Good natural ventilation	Duration of activity: < 240 min Frequency of activity: 1 time/month	PPE RPE: Yes (with APF 30)	Concentration of Cr(VI): Minor (5 - 10%) Place of use: Indoor			60/61
WCS 15	PROC 21, 24: Machining operations on small to medium sized parts containing Cr(VI) on an extracted bench/extraction booth including cleaning		General ventilation: Good natural ventilation Fixed capturing hood/Vacuum cleaner *(HEPA filter with at least 99.00 % reduction)*	Duration of activity: < 180 min	PPE RPE: Yes (with APF 10) *If individual workplace monitoring data do not confirm negligible exposure below 1 µg/m³*	The Cr(VI) weight fraction of the part is assumed to be < 0.1%) *In case of lower or higher Cr(VI) content, OCs and RMMs could be adjusted for that different situation* Place of use: Indoor			62/63

WCS 16	PROC 21, 24: Machining operations on small to medium sized surfaces containing Cr(VI) on an extracted bench/extraction booth including cleaning		General ventilation: Good natural ventilation Fixed capturing hood/Vacuum cleaner *(HEPA filter with at least 99.00 % reduction)*	Duration of activity: < 180 min	PPE RPE: Yes (with APF 400) *If individual workplace monitoring data do not confirm negligible exposure below 1 µg/m³*	The Cr(VI) content of the surface is assumed to be < 13 %. *In case of lower or higher Cr(VI) content, OCs and RMMs could be adjusted for that different situation* Place of use: Indoor			64
WCS 17	PROC 21, 24: Machining operations in large work areas on parts containing Cr(VI) including cleaning		General ventilation: Good natural ventilation Wetting at the point of release/on-tool extraction/vacuum cleaning (90.00 % reduction)	Duration of activity: < 60 min	PPE RPE: Yes (with APF 10) *If individual workplace monitoring data do not confirm negligible exposure below 1 µg/m³*	The Cr(VI) weight fraction of the part is assumed to be < 0.1%) *In case of lower or higher Cr(VI) content, OCs and RMMs could be adjusted for that different situation* Place of use: Indoor			66
WCS 18	PROC 21, 24: Machining operations in large work areas on surfaces containing Cr(VI) including cleaning		General ventilation: Good natural ventilation Wetting at the point of release/on-tool extraction/vacuum cleaning (90.00 % reduction)	Duration of activity: < 60 min	PPE RPE: Yes (with APF 400) *If individual workplace monitoring data do not confirm negligible exposure below 1 µg/m³*	The Cr(VI) content of the surface is assumed to be < 13 %. *In case of lower or higher Cr(VI) content, OCs and RMMs could be adjusted for that different situation* Place of use: Indoor			67/68

WCS 19	PROC 21, 24: Machining operations on parts containing Cr(VI) in small work areas including cleaning		General ventilation: Good natural ventilation	Duration of activity: < 60 min	PPE RPE: Yes (with APF 400) *If individual workplace monitoring data do not confirm negligible exposure below 1 µg/m³*	The Cr(VI) weight fraction of the part is assumed to be < 0.1%) *In case of lower or higher Cr(VI) content, OCs and RMMs could be adjusted for that different situation* Place of use: Indoor			69/70
WCS 20	PROC 21, 24: Machining operations on surfaces containing Cr(VI) in small work areas including cleaning		General ventilation: Good natural ventilation Wetting at the point of release (90.00 % reduction)	Duration of activity: < 60 min	PPE RPE: Yes (with APF 1000) *If individual workplace monitoring data do not confirm negligible exposure below 1 µg/m³*	The Cr(VI) content of the surface is assumed to be < 13 %. *In case of lower or higher Cr(VI) content, OCs and RMMs could be adjusted for that different situation* Place of use: Indoor			70/71
WCS 21	PROC 21, 24: Sanding of large surfaces containing Cr(VI) in large work areas including cleaning		Wetting at the point of release/on-tool extraction/vacuum cleaning (90.00 % reduction)	Duration of activity: < 120 min	PPE RPE: Yes (with APF 1000) *When sanding large parts (e.g. airplanes, helicopters etc.)*	The Cr(VI) content of the surface is assumed to be < 13 %. *In case of lower or higher Cr(VI) content, OCs and RMMs could be adjusted for that different situation* Place of use: Indoor			72/73

WCS 22	PROC 8b: Waste management		General ventilation: Good natural ventilation Low level containment: *"Physical containment or enclosure of the source of emission. The air within the enclosure is not actively ventilated or extracted. The enclosure is not opened during the activity." Advanced REACH Tool (ART) version 1.5*	Duration of activity: < 30 min	PPE RPE: Yes (with APF 30)	Concentration of Cr(VI): Minor (5 – 10%) Place of use: Indoor			73/74

† The RMM and OC specified represent good industry practice for this task. DUs may adapt or improve RMM and OC selection in order to most appropriately and efficiently control worker exposure and maintain compliance with national regulations.
§ Estimated Clocal based on measured data: 1.61E-06 mg Cr(VI)/m^3
* Adequate protective clothing, chemical-resistant gloves, goggles in case of potential exposure to chromium trioxide.
**RPE is specified in cases where exposure to chromium trioxide in solid form may occur

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, ACH=Air Changes per Hour, RPE=Respiratory Protective Equipment, APF=Assigned Protection Factor, DU=Downstream User