Exposure Scenario provided in accordance with EU Directive 2004/37/EC, Regulation (EC) No 1907/2006 Annex I and the terms of the REACH authorisation No. REACH/19/32/1

1. TITLE SECTION

Substance	**Sodium chromate (CAS number 7775-11-3, EC number 231-889-5)**
ES/use name	Formulation of mixtures for sealing after anodizing, chemical conversion coating, pickling and etching applications by the aerospace sector[1] Sodium chromate may only be used for sealing after anodizing, chemical conversion coating, pickling and etching applications by the aerospace sector.

1.1. Scope

ENVIRONMENT (Environment Contributing Scenario – ECS)

ECS 1: Formulation of mixtures of sodium chromate.	ERC 2

WORKER (Worker Contributing Scenario – WCS)

WCS 1: Delivery and storage of raw material	PROC 1
WCS 2: Decanting and weighing of solids	PROC 8b
WCS 3: Transfer to mixing vessel - solids	PROC 8b
WCS 4: Mixing by dilution, dispersion (closed or open process)	PROC 2 - 5
WCS 5: Transfer to small containers (including filtering)	PROC 9
WCS 6: Cleaning of equipment	PROC 8b
WCS 7: Maintenance of equipment	PROC 8a
WCS 8: Storage of formulation	PROC 1
WCS 9: Sampling	PROC 8b
WCS 10: Waste management	PROC 8b

This ES includes relevant information provided in the Wesco Aircraft EMEA Chemical Safety Report (CSR) for Sodium chromate (see AfA No. 0099-01), in accordance with ECHA's illustrative example of an exposure scenario, and follows ECHA's guidance on extracting the relevant information from the comprehensive exposure scenarios in the CSR.

1.2. Explanation on the approach taken for the ES

All worker exposure estimates are given in terms of Cr(VI) and are expressed as 8-hour Time Weighted Average (TWA).

The frequency of a specific activity in the worker sub-scenarios is expressed as daily activity unless otherwise stated. ***As long-term exposure is the relevant period for long-term health effects, the duration of exposure per day as set out in the ES is expressed as average duration per day over a longer period (e.g. 2 hours each day are equal to 4 hours every second day). Therefore, the duration of exposure per day is not the same as the maximum allowed duration in any one day.***

Occupational exposure estimates are based on measured data and/or on modelled data, using the exposure model

[1] Aerospace sector includes companies principally engaged in carrying out the design, development, manufacture, maintenance, modification, overhaul, repair, or support of civil or military aerospace and defence equipment, systems, or structures.

'*Advanced REACH Tool 1.5' or 'ART'*[2]. ART is a second-tier model calibrated to assess exposure to inhalable dust, vapours, and mists; this Exposure Scenario is within the scope of ART.

Where the sample size and sampling strategy is adequate (i.e. personal sampling data), the risk characterisation relies on the measured exposure values. The results of exposure modelling were used for the risk characterisation when adequate measurement data were not available.

2. CONDITIONS OF USE AFFECTING EXPOSURE

This section includes the Operational Conditions (OCs) and Risk Management Measures (RMMs) for each contributing scenario.

2.1. ENVIRONMENT CONTRIBUTING SCENARIO: Formulation of mixtures of sodium chromate. (ECS 1) (ERC 2)

Amount used, frequency and duration of use (or from service life)	
▪ Daily use at site:	<= 6.5E-03 tonnes/day [as Cr(VI)]
▪ Annual use at a site:	<= 0.325 tonnes/year [as Cr(VI)]
▪ Percentage of tonnage used at regional scale:	= 100 %
Technical and organisational conditions and measures	
▪ Air emission abatement: at least 99% efficiency. For operations where exposure potential is low [i.e. operations are infrequent using only small quantities of Cr(VI)] air emission abatement may not be necessary. ▪ Negligible discharge of Cr(VI) in wastewater from the site ▪ All solid and any liquid waste is collected and either the collected waste is directly forwarded to an external waste management company, or Cr(VI) in wastewater is reduced to Cr(III) on-site, or treated by vacuum evaporation. The treated wastewater is discharged to municipal sewage system. Any solid or slurry waste is either recycled or forwarded to an external waste management company (licenced contractor) for disposal as hazardous waste.	
Conditions and measures related to sewage treatment plant	
▪ Not applicable – negligible discharge of Cr(VI) in wastewater from the site	
Conditions and measures related to treatment of waste (including article waste)	
▪ Collection of all solid and liquid waste, elimination of Cr(VI) from waste water, reuse disposal as hazardous waste by an external waste management company (licenced contractor)	
Other conditions affecting environmental exposure	
▪ When needed, exhaust air from LEV is passed through dry filters and/or wet scrubbers according to best available technique (see air emission abatement above).	

2.1.1. Specific Conditions of REACH authorisation C(2019) 7447 (Article 2, points 11(b), 12, 14 and 15)

- Implement at least annual monitoring programmes for chromium (VI) emissions to wastewater and air from local exhaust ventilation. Those programmes shall be based on relevant standard methodologies or protocols and be representative of the operational conditions and risk management measures (such as wastewater treatment systems, gaseous emission abatement techniques) used at the individual sites where measurements are carried out.

[2] The use of ART for workers exposure assessment under REACH is described in ECHA's updated Guidance on Information Requirements and chemical safety assessment R.14, Vers. 2, May 2010. Background information for ART are provided in: Fransman W., Cherrie J., van Tongeren M., Schneider T., Tischer M., Schinkel J., Marquart H., Warren, N.D., Spankie S., Kromhout H., Tielemans E. Development of a mechanistic model for the Advanced REACH Tool (ART). Version 1.5, January 2013.

- The information gathered via the measurements and related contextual information shall be used by the authorisation holder and by its downstream users to regularly review the effectiveness of the risk management measures and operational conditions in place and to introduce measures to further reduce exposure and emissions.
- The results of those measurements as well as of any action taken following the review shall be documented and be made available by the authorisation holder and their downstream users, upon request, to the competent authorities of the Member State where the authorised uses take place.
- The downstream users shall make available to the Agency the information from the monitoring programme, including the contextual information associated to each set of measurements, for the first time by 24 October 2020, for transmission to the authorisation holder for the purpose of validating the exposure scenarios and afterwards for the preparation of the review report according to Article 61(1) of Regulation (EC) No 1907/2006. That information shall also be maintained and be made available by the authorisation holder and downstream users, upon request, to the competent authority of the Member State where the authorised use takes place.
- Continuation of monitoring requirements
    - Downstream users may reduce the frequency of measurements once they can clearly demonstrate to the competent authority of the Member State where the use takes place that exposure to humans and releases to the environment have been reduced to as low a level as technically and practically possible and that the risk management measures and operational conditions correspond to the exposure scenarios and function appropriately.

2.2. WORKER CONTRIBUTING SCENARIOS 1 - 10

WCS 1: Delivery and Storage of raw material (PROC 1) in sealed containers	
Product (Article) characteristics	
▪ Substance type	Substance as such/in a mixture
▪ Concentration of Cr(VI)	< 53%
▪ Concentration of Na_2CrO_4	< 33%
Amount used (or contained in articles), frequency and duration of use/exposure	
▪ Duration of activity	< 1 hour
▪ Frequency of activity	Infrequent
Technical and organisational conditions and measures	
▪ General ventilation	Basic general ventilation (1-3 air changes per hour)
▪ Containment	Closed system (minimal contact during routine operations)
▪ Local exhaust ventilation	No localized controls
▪ Occupational Health and Safety Management System	Advanced[3]
Conditions and measures related to personal protection, hygiene and health evaluation	
▪ Respiratory Protection	Not required
Other conditions affecting workers exposure	
▪ Place of use	Indoor
▪ Temperature	Room temperature

[3] Such systems are consistent with the duty of care set out through general Health and Safety at Work legislation, as well as via more specific legislation, such as the Carcinogens Directive (2004/37/EC) and the Chemical Agents at Work Directive (98/24/EC) and include, for example: areas using Cr(VI) are restricted to essential workers with appropriate PPE; workers are informed of temporary, planned higher exposure and how to minimise exposure; appropriate hygienic procedures are in place; appropriate training is provided on potential risks to health, exposure prevention, hygiene requirements, PPE, etc.; appropriate warning and hazard labelling is provided; workers are informed on abnormal exposures as quickly as possible, etc.

WCS 1: Delivery and Storage of raw material (PROC 1) in sealed containers	
Exposure Concentration	
Inhalation, local, long-term	0 µg/m^3 – no potential for worker exposure

WCS 2: Decanting and weighing of solids (PROC 8b) (e.g. before transfer to the mixing vessel)	
Product (Article) characteristics	
▪ Substance product type	Substance as such
▪ Concentration of Cr(VI) in mixture	< 53%
▪ Concentration of Na_2CrO_4	< 33%
Amount used (or contained in articles), frequency and duration of use/exposure	
▪ Duration of activity	< 1 hr
Technical and organisational conditions and measures	
▪ General ventilation	Basic general ventilation (1-3 air changes per hour)
▪ Containment	No
▪ Local exhaust ventilation	Yes (90% reduction)
▪ Occupational Health and Safety Management System	Advanced[3]
Conditions and measures related to personal protection, hygiene and health evaluation	
▪ Respiratory Protection	Yes, at least half mask with P3 filter
▪ Other PPE	Protective clothing; chemical-resistant, impermeable gloves; and goggles. Section 8 of the applicable SDS contains supplier advice to inform PPE selection for this task, which may include additional considerations.
The RMM and OC specified above 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.	
Other conditions affecting workers exposure	
▪ Place of use	Indoor
▪ Process temperature (for solids)	Ambient
Specific Condition(s) imposed by the granted authorisation	
▪ The area in which activities with solid chromates are conducted shall be restricted either physically by means of barriers or through strict procedure during the activity and for a specified time after the operation.	
Exposure Concentration	
Inhalation, local, long-term	See end of WCS 7

WCS 3: Transfer to mixing vessel - solids (PROC 8b)	
Product (Article) characteristics	
▪ Substance product type	Substance as such
▪ Concentration of Cr(VI) in mixture	< 53%
▪ Concentration of Na_2CrO_4	< 33%
Amount used (or contained in articles), frequency and duration of use/exposure	
▪ Duration of activity	< 4 hrs
Technical and organisational conditions and measures	
▪ General ventilation	Basic general ventilation (1-3 air changes per hour)

WCS 3: Transfer to mixing vessel - solids (PROC 8b)	
▪ Containment	No
▪ Local exhaust ventilation	Yes (90% reduction)
▪ Occupational Health and Safety Management System	Advanced[3]
Conditions and measures related to personal protection, hygiene and health evaluation	
▪ Respiratory Protection	Yes, at least half mask with P3 filter
▪ Other PPE	Protective clothing; chemical-resistant, impermeable gloves; and goggles. Section 8 of the applicable SDS contains supplier advice to inform PPE selection for this task, which may include additional considerations.
The RMM and OC specified above 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.	
Other conditions affecting workers exposure	
▪ Place of use	Indoor
▪ Process temperature (for solids)	Ambient
Specific Condition(s) imposed by the granted authorisation	
▪ The area in which activities with solid chromates are conducted shall be restricted either physically by means of barriers or through strict procedure during the activity and for a specified time after the operation.	
Exposure Concentration	
Inhalation, local, long-term	See end of WCS 7

WCS 4: Mixing by dilution, dispersion (closed or open process) (PROC 2 to PROC 5) (e.g. within a mixing tank with automated mixing where sodium chromate is formed)	
Product (Article) characteristics	
▪ Concentration of Cr(VI)	< 1%
Amount used (or contained in articles), frequency and duration of use/exposure	
▪ Duration of activity	< 8 hrs
Technical and organisational conditions and measures	
▪ General ventilation	Basic general ventilation (1-3 air changes per hour)
▪ Containment	No
▪ Local exhaust ventilation	Yes (90% reduction)
▪ Occupational Health and Safety Management System	Advanced[3]
Conditions and measures related to personal protection, hygiene and health evaluation	
▪ PPE	Protective clothing; chemical-resistant, impermeable gloves; and goggles. Section 8 of the applicable SDS contains supplier advice to inform PPE selection for this task, which may include additional considerations.
The RMM and OC specified above 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.	
Other conditions affecting workers exposure	
▪ Place of use	Indoor
▪ Process temperature (for liquids)	Generally <= 40 °C; sometimes above

WCS 4: Mixing by dilution, dispersion (closed or open process) (PROC 2 to PROC 5) (e.g. within a mixing tank with automated mixing where sodium chromate is formed)	
Exposure Concentration	
Inhalation, local, long-term	See end of WCS 7

WCS 5: Transfer to small containers (including filtering) (PROC 9) (e.g. via manual or automatic process)	
Product (article) characteristics	
▪ Concentration of Cr(VI) in mixture	< 1%
Amount used (or contained in articles), frequency and duration of use/exposure	
▪ Duration of activity	< 8 hrs
Technical and organisational conditions and measures	
▪ General ventilation	Basic general ventilation (1-3 air changes per hour)
▪ Containment	No
▪ Local exhaust ventilation	Yes (90% reduction)
▪ Occupational Health and Safety Management System	Advanced[3]
Conditions and measures related to personal protection, hygiene and health evaluation	
▪ PPE	Protective clothing; chemical-resistant, impermeable gloves; and goggles. Section 8 of the applicable SDS contains supplier advice to inform PPE selection for this task, which may include additional considerations.
The RMM and OC specified above 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.	
Other conditions affecting workers exposure	
▪ Place of use	Indoor
▪ Process temperature (for liquids)	<= 40 °C
Exposure Concentration	
Inhalation, local, long-term	See end of WCS 7

WCS 6: Cleaning of equipment (PROC 8b)	
Product (article) characteristics	
▪ Concentration of Cr(VI) in mixture	< 1%
Amount used (or contained in articles), frequency and duration of use/exposure	
▪ Duration of activity	< 1 hr
Technical and organisational conditions and measures	
▪ General ventilation	Basic general ventilation (1-3 air changes per hour)
▪ Local exhaust ventilation	Yes (90% reduction)
▪ Occupational Health and Safety Management System	Advanced[3]
Conditions and measures related to personal protection, hygiene and health evaluation	
▪ Respiratory Protection	*In cases where exposure to solid, Cr(VI) containing substances may occur, at least half-mask with P3 filter is worn*

WCS 6: Cleaning of equipment (PROC 8b)	
▪ Other PPE	Protective clothing; chemical-resistant, impermeable gloves; and goggles. Section 8 of the applicable SDS contains supplier advice to inform PPE selection for this task, which may include additional considerations.
The RMM and OC specified above 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.	
Other conditions affecting workers exposure	
▪ Place of use	Indoor
▪ Process temperature (for liquids)	<= 40 °C
Exposure Concentration	
Inhalation, local, long-term	See end of WCS 7

WCS 7: Maintenance of formulation equipment (PROC 8a)	
Product (article) characteristics	
▪ Concentration of Cr(VI) in mixture	< 1%
Amount used (or contained in articles), frequency and duration of use/exposure	
▪ Duration of activity	< 30 min
Technical and organisational conditions and measures	
▪ General ventilation	Basic general ventilation (1-3 air changes per hour)
▪ Local exhaust ventilation	Yes (90% reduction)
▪ Occupational Health and Safety Management System	Advanced[3]
Conditions and measures related to personal protection, hygiene and health evaluation	
▪ Respiratory Protection	Yes, at least half mask with P3 filter
▪ Other PPE	Protective clothing; chemical-resistant, impermeable gloves; and goggles. Section 8 of the applicable SDS contains supplier advice to inform PPE selection for this task, which may include additional considerations.
The RMM and OC specified above 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.	
Other conditions affecting workers exposure	
▪ Place of use	Indoor
▪ Process temperature (for liquids and solids)	Room temperature
Specific Condition(s) imposed by the granted authorisation	
▪ The area in which activities with solid chromates are conducted shall be restricted either physically by means of barriers or through strict procedure during the activity and for a specified time after the operation.	
Exposure Concentration	
Inhalation, local, long-term for WCS 2 - 7 (adjusted for RPE[4])	**0.26 µg/m³** (measurement data, 90th percentile)

[4] Based on aggregated measurement data individually adjusted for specific APF

WCS 8: Storage of formulation (PROC 1) (e.g. in containers)	
Product (article) characteristics	
▪ Concentration of Cr(VI) in mixture	< 1%
Amount used (or contained in articles), frequency and duration of use/exposure	
▪ Duration of activity	< 8 hours
Technical and organisational conditions and measures	
▪ General ventilation	Basic general ventilation (1-3 air changes per hour)
▪ Containment	Closed system (minimal contact during routine operations)
▪ Local exhaust ventilation	No localized controls
▪ Occupational Health and Safety Management System	Advanced[3]
Conditions and measures related to personal protection, hygiene and health evaluation	
▪ PPE	Not required
Other conditions affecting workers exposure	
▪ Place of use	Indoor/outdoors
▪ Process temperature	Room temperature
Exposure Concentration	
Inhalation, local, long-term	0 µg/m^3 – no potential for worker exposure

WCS 9: Sampling (PROC 8b)	
Product (article) characteristics	
▪ Substance product type	Liquid
▪ Concentration of Cr(VI) in mixture	Very small (0.5 - 1%)
▪ Vapour pressure of substance	< 0.01 Pa
▪ Viscosity	Low
Amount used (or contained in articles), frequency and duration of use/exposure	
▪ Duration of activity	< 15 min
Technical and organisational conditions and measures	
▪ General ventilation	Good natural ventilation (0 – 2 air changes per hour)
▪ Local exhaust ventilation	Fixed capturing hood[5] (90.00 % reduction)
Conditions and measures related to personal protection, hygiene and health evaluation	
▪ PPE	Protective clothing; chemical-resistant, impermeable gloves; and goggles. Section 8 of the applicable SDS contains supplier advice to inform PPE selection for this task, which may include additional considerations.
The RMM and OC specified above 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.	
Other conditions affecting workers exposure	
▪ Process temperature	Room temperature
▪ Process fully enclosed?	No
▪ Effective housekeeping practices in place?	Yes
▪ Work area	Indoors

[5] Or equivalent LEV to achieve the specified percent reduction.

WCS 9: Sampling (PROC 8b)	
▪ Room size	Any size workroom
Exposure Concentration	
Inhalation, local, long-term	**1.4E-03 µg/m³** (modelled with ART 1.5)

WCS 10: Waste management (PROC 8b) (e.g. of process waste generated from cleaning activities of the mixing vessel)	
Product (article) characteristics	
▪ Substance product type	Paste, slurry or clearly (soaked) wet powder
▪ Dustiness	Firm granules, flakes or pellets
▪ Powder weight fraction [Cr(VI)]	Small (1 – 5%)
Amount used (or contained in articles), frequency and duration of use/exposure	
▪ Duration of activity	< 30 min
▪ Frequency of activity	1 time/week (reduction factor of 0.2 applied)
Technical and organisational conditions and measures	
▪ General ventilation	Good natural ventilation (0 – 2 air changes per hour)
▪ Primary	No localized controls (See specific conditions below)
Conditions and measures related to personal protection, hygiene and health evaluation	
▪ Respiratory Protection	Yes, at least half mask with P3 filter
▪ Other PPE	Protective clothing; chemical-resistant, impermeable gloves; and goggles. Section 8 of the applicable SDS contains supplier advice to inform PPE selection for this task, which may include additional considerations.
The RMM and OC specified above 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.	
Other conditions affecting workers exposure	
▪ Process fully enclosed?	No
▪ Effective housekeeping practices in place?	Yes
▪ Work area	Indoors
▪ Room size	Any size workroom
Specific Condition(s) imposed by the granted authorisation	
▪ Where technically and practically possible, waste management activities shall be conducted under LEV.	
▪ The area in which activities with solid chromates are conducted shall be restricted either physically by means of barriers or through strict procedure during the activity and for a specified time after the operation.	
Exposure Concentration	
Inhalation, local, long-term	**0.22 µg/m³** (modelled with ART 1.5)
Inhalation, local, long-term (adjusted for frequency)	**0.044 µg/m³** (modelled with ART 1.5)
Inhalation, local, long-term (adjusted for frequency and RPE[6])	**1.47E-03 µg/m³** (modelled with ART 1.5)

[6] A factor of 30 was applied, based on an APF 30 assigned for this RPE according to the German BG rule 190

2.2.1. Risk characterization related to combined exposure

In for formulation process, there is no further combined potential exposure apart from what already has been shown in the respective sub-scenarios. Even in the case that one worker would conduct all activities, estimated combined potential exposure would remain below 0.3 µg Cr(VI)/m³.

2.2.2. Other Specific Conditions of REACH authorisation C(2019) 7447 (Article 2, points 8, 11(a), 12, 14 and 15)

- Downstream users shall implement best practices to reduce workplace exposure to sodium chromate and its emissions to the environment to as low a level as technically and practically feasible, including by using closed systems and automation, when possible. Where use of closed systems and automation is not possible, downstream users shall use appropriately designed and installed local exhaust ventilation (LEV) systems that are dimensioned, located and maintained so as to capture and remove sodium chromate. Where closed systems and automation are not used downstream users shall be permitted not to use LEV only exceptionally, where its use is technically impossible. Information on LEV systems put in place in the installations where the authorised uses take place, as well as of their maintenance, shall be made available to the competent authorities of Member States.
- Where respiratory protective equipment (RPE) is needed to control exposure to sodium chromate, downstream users shall use it in accordance with standard procedures for use and maintenance, including procedures for fit testing of RPE masks, applied in accordance with relevant standards.
- Implement at least annual air monitoring programmes on occupational exposure to chromium (VI) in accordance with Article 5(5)(e) of Directive 2004/37/EC. The first measurements shall be performed without delay and at the latest by 24 April 2020. Those programmes shall be based on relevant standard methodologies or protocols and be representative of:
    - the range of tasks undertaken where exposure to chromium (VI) is possible, including tasks involving process and maintenance workers;
    - the operational conditions and risk management measures typical for each of these tasks;
    - the number of workers potentially exposed
- The information gathered via the measurements and related contextual information shall be used by the authorisation holder and by its downstream users to regularly review the effectiveness of the risk management measures and operational conditions in place and to introduce measures to further reduce exposure and emissions.
- The results of those measurements as well as of any action taken following the review shall be documented and be made available by the authorisation holder and their downstream users, upon request, to the competent authorities of the Member State where the authorised uses take place.
- The downstream users shall make available to the Agency the information from the monitoring programme, including the contextual information associated to each set of measurements, for the first time by 24 October 2020, for transmission to the authorisation holder for the purpose of validating the exposure scenarios and afterwards for the preparation of the review report according to Article 61(1) of Regulation (EC) No 1907/2006. That information shall also be maintained and be made available by the authorisation holder and downstream users, upon request, to the competent authority of the Member State where the authorised use takes place.
- Continuation of monitoring requirements
    - Downstream users may reduce the frequency of measurements once they can clearly demonstrate to the competent authority of the Member State where the use takes place that exposure to humans and releases to the environment have been reduced to as low a level as technically and practically possible and that the risk management measures and operational conditions correspond to the exposure scenarios and function appropriately.

2.3. Exposure estimation and reference to its source

2.3.1. Environmental release and exposure

Local releases to the environment

Release	Release factor estimation method	Explanation / Justification
Air	Release factor	**Initial release factor:** 2.5% **Final release factor:** 0.025% **Local release rate:** 2.0E-03 kg/day

Exposure and risks for the environment and man via the environment

Protection target	Exposure concentration	Risk characterisation
Freshwater	Not relevant	-
Sediment (freshwater)	Not relevant	-
Marine water	Not relevant	-
Sediment (marine water)	Not relevant	-
Predator (freshwater)	Not relevant	-
Predator (marine water)	Not relevant	-
Top predator (marine water)	Not relevant	-
Sewage treatment plant	Not relevant	-
Air	**Local PEC:** 6.19E-08 mg/m³	-
Agricultural soil	Not relevant	-
Predator (terrestrial)	Not relevant	-
Man via Environment – Inhalation	**Local PEC:** 6.19E-08 mg/m³	Based on the dose-response relationship derived by the RAC, considering a 70 year exposure time (24h/day, 7d/week), the following excess lifetime risk for the general population is derived based on the estimated exposure: 1.8E-03 per 1000 exposed
Man via Environment - Oral	Not relevant	-

2.3.2. Worker exposure

Exposure concentrations and risks for worker

Worker Contributing Scenario	Route of exposure and type of effects	Exposure Concentration	Risk Characterisation[7]
WCS 1: Delivery and storage of raw material	Inhalation, local, long-term (qualitative)	0 µg/m³ – no worker exposure	Not applicable

[7] Based on the dose-response relationship for lung cancer mortality derived by the RAC, considering a 40-year working life (8h/day, 5d/week), the excess lifetime lung cancer mortality risk up to age 89 is derived based on the estimated exposure.

Worker Contributing Scenario	Route of exposure and type of effects	Exposure Concentration	Risk Characterisation[7]
WCS 2: Decanting and weighing of solids	Inhalation, local, long-term, adjusted for RPE (90th percentile, Measurement data)	0.26 µg/m³	1.04 per 1000 exposed workers
WCS 3: Transfer to mixing vessel - solid			
WCS 4: Mixing by dilution, dispersion (closed or open process)			
WCS 5: Transfer to small containers (including filtering)			
WCS 6: Cleaning of equipment			
WCS 7: Maintenance of equipment			
WCS 8: Storage of formulation	Inhalation, local, long-term (qualitative)	0 µg/m³ – no worker exposure	Not applicable
WCS 9: Sampling	Inhalation, local, long-term (90th percentile, ART 1.5)	1.4E-03 µg/m³	5.6E-03 per 1000 exposed workers
WCS 10: Waste management	Inhalation, local, long-term, further adjusted for frequency and RPE (90th percentile, ART 1.5)	1.47E-03 µg/m³	5.88E-03 per 1000 exposed workers