**ESCENARIO DE EXPOSICIÓN PARA LA COMUNICACIÓN**

**Nombre de la sustancia:** calcium chloride

**número CE:** 233-140-8

**Número de registro CAS:** 10043-52-4

**Número de Registro:**

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**Capítulo 1. ES 1: Fabricación**

**1.1. Sección del título**

Nombre del EE: Manufacture

|  |  |
| --- | --- |
| **Medio ambiente** |  |
| 1: *Manufacturing of substances* | ERC 1 |
| **Trabajador** |  |
| 2: *Chemical production in closed process without likelihood of exposure or in containment conditions or processes with equivalent containment condition* | PROC 1 |
| 3: *Chemical production in closed continuous process with occasional controlled exposure or processes with equivalent containment condition* | PROC 2 |
| 4: *Manufacture in closed batch processes with occasional controlled exposure or processes with equivalent containment condition* | PROC 3 |
| 5: Chemical production where opportunity for exposure arises | PROC 4 |
| 6: *Transfer of a substance or mixture during process sampling at dedicated facilities* | PROC 8b, PROC 26 |
| 7: *Transfer of a substance or mixture during process sampling at non-dedicated facilities* | PROC 8a, PROC 26 |
| 8: *Transfer of substance or mixture into small containers (dedicated filling line, including weighing)* | PROC 9, PROC 26 |
| 9: Tabletting, compression, extrusion, pelettisation, granulation | PROC 14 |
| 10: Use as laboratory reagent | PROC 15, PROC 26 |
| 11: *Transfer of substance or mixture (charging/discharging) at non dedicated-facilities* | PROC 8a, PROC 26 |
| 12: *Transfer of substance or mixture (charging/discharging) at dedicated-facilities* | PROC 8b, PROC 26 |
| 13: *Equipment cleaning and maintenance at non-dedicated facility* | PROC 8a, PROC 28 |
| 14: Handling of solid inorganic substances at ambient temperature | PROC 26 |
| 15: *Manual maintenance (cleaning and repair) of machinery at non-dedicated facility* | PROC 28 |

**1.2. Condiciones de uso que afectan a la exposición**

**1.2.1. Control de la exposición de los trabajadores**

**Condiciones de uso aplicables a todos los escenarios de contribución**

|  |
| --- |
| **Características del producto (artículo)** |
| Covers concentrations up to 100 % |
| *Solid, medium dustiness. Covers also liquid form* |
| **Cantidad utilizada (o contenida en artículos), frecuencia y duración de la utilización/exposición** |
| Covers use up to 8 h/day |
| **Condiciones y medidas técnicas y organizativas** |
| Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). |
| Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision. |
| **Condiciones y medidas relacionadas con la protección individual, la higiene y la evaluación del estado de salud** |
| Use suitable eye protection. |
| Wear chemically resistant gloves (tested to EN374) in combination with ‘basic’ employee training.; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands.; For further specification, refer to section 8 of the SDS. |
| **Otras condiciones que afecten a la exposición de los trabajadores** |
| Indoor use |
| Assumes process temperature up to 20 °C |

**1.3. Estimación de la exposición y referencia a su fuente**

**1.3.1. Exposición de los trabajadores: *Chemical production in closed process without likelihood of exposure or in containment conditions or processes with equivalent containment condition* (PROC 1)**

| **Vía de exposición y tipo de efectos** | **Estimación de la exposición** | **CCR** |
| --- | --- | --- |
| Inhalación, local, a largo plazo | 1.774 mg/m³ (Datos medidos) | 0.355 |
| Inhalación, local, agudo | 1.774 mg/m³ (Datos medidos) | 0.177 |

**1.3.2. Exposición de los trabajadores: *Chemical production in closed continuous process with occasional controlled exposure or processes with equivalent containment condition* (PROC 2)**

| **Vía de exposición y tipo de efectos** | **Estimación de la exposición** | **CCR** |
| --- | --- | --- |
| Inhalación, local, a largo plazo | 1.774 mg/m³ (Datos medidos) | 0.355 |
| Inhalación, local, agudo | 1.774 mg/m³ (Datos medidos) | 0.177 |

**1.3.3. Exposición de los trabajadores: *Manufacture in closed batch processes with occasional controlled exposure or processes with equivalent containment condition* (PROC 3)**

| **Vía de exposición y tipo de efectos** | **Estimación de la exposición** | **CCR** |
| --- | --- | --- |
| Inhalación, local, a largo plazo | 1.774 mg/m³ (Datos medidos) | 0.355 |
| Inhalación, local, agudo | 1.774 mg/m³ (Datos medidos) | 0.177 |

**1.3.4. Exposición de los trabajadores: Chemical production where opportunity for exposure arises (PROC 4)**

| **Vía de exposición y tipo de efectos** | **Estimación de la exposición** | **CCR** |
| --- | --- | --- |
| Inhalación, local, a largo plazo | 1.881 mg/m³ (Datos medidos) | 0.376 |
| Inhalación, local, agudo | 1.881 mg/m³ (Datos medidos) | 0.188 |

**1.3.5. Exposición de los trabajadores: *Transfer of a substance or mixture during process sampling at dedicated facilities* (PROC 8b, PROC 26)**

| **Vía de exposición y tipo de efectos** | **Estimación de la exposición** | **CCR** |
| --- | --- | --- |
| Inhalación, local, a largo plazo | 2.742 mg/m³ (Datos medidos) | 0.548 |
| Inhalación, local, agudo | 2.742 mg/m³ (Datos medidos) | 0.274 |

**1.3.6. Exposición de los trabajadores: *Transfer of a substance or mixture during process sampling at non-dedicated facilities* (PROC 8a, PROC 26)**

| **Vía de exposición y tipo de efectos** | **Estimación de la exposición** | **CCR** |
| --- | --- | --- |
| Inhalación, local, a largo plazo | 2.742 mg/m³ (Datos medidos) | 0.548 |
| Inhalación, local, agudo | 2.742 mg/m³ (Datos medidos) | 0.274 |

**1.3.7. Exposición de los trabajadores: *Transfer of substance or mixture into small containers (dedicated filling line, including weighing)* (PROC 9, PROC 26)**

| **Vía de exposición y tipo de efectos** | **Estimación de la exposición** | **CCR** |
| --- | --- | --- |
| Inhalación, local, a largo plazo | 2.742 mg/m³ (Datos medidos) | 0.548 |
| Inhalación, local, agudo | 2.742 mg/m³ (Datos medidos) | 0.274 |

**1.3.8. Exposición de los trabajadores: Tabletting, compression, extrusion, pelettisation, granulation (PROC 14)**

| **Vía de exposición y tipo de efectos** | **Estimación de la exposición** | **CCR** |
| --- | --- | --- |
| Inhalación, local, a largo plazo | 2.742 mg/m³ (Datos medidos) | 0.548 |
| Inhalación, local, agudo | 2.742 mg/m³ (Datos medidos) | 0.274 |

**1.3.9. Exposición de los trabajadores: Use as laboratory reagent (PROC 15, PROC 26)**

| **Vía de exposición y tipo de efectos** | **Estimación de la exposición** | **CCR** |
| --- | --- | --- |
| Inhalación, local, a largo plazo | 1.774 mg/m³ (Datos medidos) | 0.355 |
| Inhalación, local, agudo | 1.774 mg/m³ (Datos medidos) | 0.177 |

**1.3.10. Exposición de los trabajadores: *Transfer of substance or mixture (charging/discharging) at non dedicated-facilities* (PROC 8a, PROC 26)**

| **Vía de exposición y tipo de efectos** | **Estimación de la exposición** | **CCR** |
| --- | --- | --- |
| Inhalación, local, a largo plazo | 2.742 mg/m³ (Datos medidos) | 0.548 |
| Inhalación, local, agudo | 2.742 mg/m³ (Datos medidos) | 0.274 |

**1.3.11. Exposición de los trabajadores: *Transfer of substance or mixture (charging/discharging) at dedicated-facilities* (PROC 8b, PROC 26)**

| **Vía de exposición y tipo de efectos** | **Estimación de la exposición** | **CCR** |
| --- | --- | --- |
| Inhalación, local, a largo plazo | 2.742 mg/m³ (Datos medidos) | 0.548 |
| Inhalación, local, agudo | 2.742 mg/m³ (Datos medidos) | 0.274 |

**1.3.12. Exposición de los trabajadores: *Equipment cleaning and maintenance at non-dedicated facility* (PROC 8a, PROC 28)**

| **Vía de exposición y tipo de efectos** | **Estimación de la exposición** | **CCR** |
| --- | --- | --- |
| Inhalación, local, a largo plazo | 2.742 mg/m³ (Datos medidos) | 0.548 |
| Inhalación, local, agudo | 2.742 mg/m³ (Datos medidos) | 0.274 |

**1.3.13. Exposición de los trabajadores: Handling of solid inorganic substances at ambient temperature (PROC 26)**

| **Vía de exposición y tipo de efectos** | **Estimación de la exposición** | **CCR** |
| --- | --- | --- |
| Inhalación, local, a largo plazo | 2.742 mg/m³ (Datos medidos) | 0.548 |
| Inhalación, local, agudo | 2.742 mg/m³ (Datos medidos) | 0.274 |

**1.3.14. Exposición de los trabajadores: *Manual maintenance (cleaning and repair) of machinery at non-dedicated facility* (PROC 28)**

| **Vía de exposición y tipo de efectos** | **Estimación de la exposición** | **CCR** |
| --- | --- | --- |
| Inhalación, local, a largo plazo | 2.742 mg/m³ (Datos medidos) | 0.548 |
| Inhalación, local, agudo | 2.742 mg/m³ (Datos medidos) | 0.274 |

**1.4. Orientación para el UI con el fin de determinar si opera dentro de los límites fijados por el escenario de exposición (EE)**

**Capítulo 2. ES 2: Formulación o reenvasado**

**2.1. Sección del título**

Nombre del EE: Formulation or re-packing; Distribution of substance

|  |  |
| --- | --- |
| **Medio ambiente** |  |
| 1: Formulation into mixture | ERC 2 |
| **Trabajador** |  |
| 2: *Chemical production in closed process without likelihood of exposure or in containment conditions.* | PROC 1 |
| 3: *Chemical production in closed continuous process with occasional controlled exposure.* | PROC 2 |
| 4: *Formulation in closed batch processes with occasional controlled exposure.* | PROC 3 |
| 5: *Chemical production where opportunity for exposure arises* | PROC 4 |
| 6: Mixing or blending in batch processes | PROC 5 |
| 7: *Transfer of a substance or mixture during process sampling at dedicated facilities* | PROC 8b, PROC 26 |
| 8: *Transfer of a substance or mixture during process sampling at non-dedicated facilities* | PROC 8a, PROC 26 |
| 9: *Transfer of substance or mixture into small containers (dedicated filling line, including weighing)* | PROC 9, PROC 26 |
| 10: Use as laboratory reagent | PROC 15, PROC 26 |
| 11: Tabletting, compression, extrusion, pelettisation, granulation | PROC 14 |
| 12: *Transfer of substance or mixture (charging/discharging) at non dedicated-facilities* | PROC 8a, PROC 26 |
| 13: *Transfer of substance or mixture (charging/discharging) at dedicated-facilities* | PROC 8b, PROC 26 |
| 14: *Equipment cleaning and maintenance at non-dedicated facility* | PROC 8a, PROC 28 |
| 15: Manual maintenance (cleaning and repair) of machinery | PROC 28 |

**2.2. Condiciones de uso que afectan a la exposición**

**2.2.1. Control de la exposición de los trabajadores**

**Condiciones de uso aplicables a todos los escenarios de contribución**

|  |
| --- |
| **Características del producto (artículo)** |
| Covers concentrations up to 100 % |
| *Solid, medium dustiness. Covers also liquid form* |
| **Condiciones y medidas técnicas y organizativas** |
| Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision. |
| **Condiciones y medidas relacionadas con la protección individual, la higiene y la evaluación del estado de salud** |
| Wear chemically resistant gloves (tested to EN374) in combination with ‘basic’ employee training.; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands.; For further specification, refer to section 8 of the SDS. |
| *Use suitable eye protection.* |
| **Otras condiciones que afecten a la exposición de los trabajadores** |
| Indoor use |
| Assumes process temperature up to 20 °C |

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**Condiciones específicas de uso por escenario de contribución**

|  |  |
| --- | --- |
| **Escenario coadyuvante** | **Se necesitan medidas específicas** |
| ***Chemical production in closed process without likelihood of exposure or in containment conditions.* (PROC 1)** | Covers use up to 8 h/day  Provide a basic standard of general ventilation (1 to 3 air changes per hour). |
| ***Chemical production in closed continuous process with occasional controlled exposure.* (PROC 2)** | Covers use up to 8 h/day  Provide a basic standard of general ventilation (1 to 3 air changes per hour). |
| ***Formulation in closed batch processes with occasional controlled exposure.* (PROC 3)** | Covers use up to 8 h/day  Provide a basic standard of general ventilation (1 to 3 air changes per hour). |
| ***Chemical production where opportunity for exposure arises* (PROC 4)** | Covers use up to 8 h/day  Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).  *Respiratory protection (APF of 10) is to be worn in those case where there is potential for peak exposure. Alternatively, good general ventilation with a minimum of 5-10 air changes per air can be applied.* |
| **Mixing or blending in batch processes (PROC 5)** | Covers use up to 8 h/day  Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).  *Respiratory protection (APF of 10) is to be worn in those case where there is potential for peak exposure. Alternatively, good general ventilation with a minimum of 5-10 air changes per air can be applied.* |
| ***Transfer of a substance or mixture during process sampling at dedicated facilities* (PROC 8b, PROC 26)** | Covers use up to 8 h/day  Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). |
| ***Transfer of a substance or mixture during process sampling at non-dedicated facilities* (PROC 8a, PROC 26)** | Covers use up to 1 h/day  Provide a basic standard of general ventilation (1 to 3 air changes per hour).  *Respiratory protection (APF of 10) is to be worn in those case where there is potential for peak exposure. Alternatively, good general ventilation with a minimum of 5-10 air changes per air can be applied.* |
| ***Transfer of substance or mixture into small containers (dedicated filling line, including weighing)* (PROC 9, PROC 26)** | Covers use up to 8 h/day  Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).  *Respiratory protection (APF of 10) is to be worn in those case where there is potential for peak exposure. Alternatively, good general ventilation with a minimum of 5-10 air changes per air can be applied.* |
| **Use as laboratory reagent (PROC 15, PROC 26)** | Covers use up to 8 h/day  Provide a basic standard of general ventilation (1 to 3 air changes per hour). |
| **Tabletting, compression, extrusion, pelettisation, granulation (PROC 14)** | Covers use up to 8 h/day  Provide a basic standard of general ventilation (1 to 3 air changes per hour). |
| ***Transfer of substance or mixture (charging/discharging) at non dedicated-facilities* (PROC 8a, PROC 26)** | Covers use up to 8 h/day  Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).  *Respiratory protection (APF of 10) is to be worn in those case where there is potential for peak exposure. Alternatively, good general ventilation with a minimum of 5-10 air changes per air can be applied.* |
| ***Transfer of substance or mixture (charging/discharging) at dedicated-facilities* (PROC 8b, PROC 26)** | Covers use up to 8 h/day  Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). |
| ***Equipment cleaning and maintenance at non-dedicated facility* (PROC 8a, PROC 28)** | Covers use up to 8 h/day  Provide a basic standard of general ventilation (1 to 3 air changes per hour).  *Handle substance within a closed system [ES47] Drain down and flush system prior to equipment break-in or maintenance [E55] Transfer via enclosed lines [E52]*  *Respiratory protection (APF of 10) is to be worn in those case where there is potential for peak exposure. Alternatively, good general ventilation with a minimum of 5-10 air changes per air can be applied.* |
| **Manual maintenance (cleaning and repair) of machinery (PROC 28)** | Covers use up to 8 h/day  Provide a basic standard of general ventilation (1 to 3 air changes per hour).  *Handle substance within a closed system [ES47] Drain down and flush system prior to equipment break-in or maintenance [E55] Transfer via enclosed lines [E52]*  *Respiratory protection (APF of 10) is to be worn in those case where there is potential for peak exposure. Alternatively, good general ventilation with a minimum of 5-10 air changes per air can be applied.* |

**2.3. Estimación de la exposición y referencia a su fuente**

**2.3.1. Exposición de los trabajadores: *Chemical production in closed process without likelihood of exposure or in containment conditions.* (PROC 1)**

| **Vía de exposición y tipo de efectos** | **Estimación de la exposición** | **CCR** |
| --- | --- | --- |
| Inhalación, local, a largo plazo | 0.01 mg/m³ (TRA Workers 3.0) | < 0.01 |
| Inhalación, local, agudo | 0.04 mg/m³ (TRA Workers 3.0) | < 0.01 |

**2.3.2. Exposición de los trabajadores: *Chemical production in closed continuous process with occasional controlled exposure.* (PROC 2)**

| **Vía de exposición y tipo de efectos** | **Estimación de la exposición** | **CCR** |
| --- | --- | --- |
| Inhalación, local, a largo plazo | 0.5 mg/m³ (TRA Workers 3.0) | 0.1 |
| Inhalación, local, agudo | 2 mg/m³ (TRA Workers 3.0) | 0.2 |

**2.3.3. Exposición de los trabajadores: *Formulation in closed batch processes with occasional controlled exposure.* (PROC 3)**

| **Vía de exposición y tipo de efectos** | **Estimación de la exposición** | **CCR** |
| --- | --- | --- |
| Inhalación, local, a largo plazo | 1 mg/m³ (TRA Workers 3.0) | 0.2 |
| Inhalación, local, agudo | 4 mg/m³ (TRA Workers 3.0) | 0.4 |

**2.3.4. Exposición de los trabajadores: *Chemical production where opportunity for exposure arises* (PROC 4)**

| **Vía de exposición y tipo de efectos** | **Estimación de la exposición** | **CCR** |
| --- | --- | --- |
| Inhalación, local, a largo plazo | 0.35 mg/m³ (TRA Workers 3.0) | 0.07 |
| Inhalación, local, agudo | 1.4 mg/m³ (TRA Workers 3.0) | 0.14 |

**2.3.5. Exposición de los trabajadores: Mixing or blending in batch processes (PROC 5)**

| **Vía de exposición y tipo de efectos** | **Estimación de la exposición** | **CCR** |
| --- | --- | --- |
| Inhalación, local, a largo plazo | 0.35 mg/m³ (TRA Workers 3.0) | 0.07 |
| Inhalación, local, agudo | 1.4 mg/m³ (TRA Workers 3.0) | 0.14 |

**2.3.6. Exposición de los trabajadores: *Transfer of a substance or mixture during process sampling at dedicated facilities* (PROC 8b, PROC 26)**

| **Vía de exposición y tipo de efectos** | **Estimación de la exposición** | **CCR** |
| --- | --- | --- |
| Inhalación, local, a largo plazo | 0.7 mg/m³ (TRA Workers 3.0) | 0.14 |
| Inhalación, local, agudo | 2.8 mg/m³ (TRA Workers 3.0) | 0.28 |

**2.3.7. Exposición de los trabajadores: *Transfer of a substance or mixture during process sampling at non-dedicated facilities* (PROC 8a, PROC 26)**

| **Vía de exposición y tipo de efectos** | **Estimación de la exposición** | **CCR** |
| --- | --- | --- |
| Inhalación, local, a largo plazo | 0.1 mg/m³ (TRA Workers 3.0) | 0.02 |
| Inhalación, local, agudo | 2 mg/m³ (TRA Workers 3.0) | 0.2 |

**2.3.8. Exposición de los trabajadores: *Transfer of substance or mixture into small containers (dedicated filling line, including weighing)* (PROC 9, PROC 26)**

| **Vía de exposición y tipo de efectos** | **Estimación de la exposición** | **CCR** |
| --- | --- | --- |
| Inhalación, local, a largo plazo | 0.35 mg/m³ (TRA Workers 3.0) | 0.07 |
| Inhalación, local, agudo | 1.4 mg/m³ (TRA Workers 3.0) | 0.14 |

**2.3.9. Exposición de los trabajadores: Use as laboratory reagent (PROC 15, PROC 26)**

| **Vía de exposición y tipo de efectos** | **Estimación de la exposición** | **CCR** |
| --- | --- | --- |
| Inhalación, local, a largo plazo | 0.5 mg/m³ (TRA Workers 3.0) | 0.1 |
| Inhalación, local, agudo | 2 mg/m³ (TRA Workers 3.0) | 0.2 |

**2.3.10. Exposición de los trabajadores: Tabletting, compression, extrusion, pelettisation, granulation (PROC 14)**

| **Vía de exposición y tipo de efectos** | **Estimación de la exposición** | **CCR** |
| --- | --- | --- |
| Inhalación, local, a largo plazo | 1 mg/m³ (TRA Workers 3.0) | 0.2 |
| Inhalación, local, agudo | 4 mg/m³ (TRA Workers 3.0) | 0.4 |

**2.3.11. Exposición de los trabajadores: *Transfer of substance or mixture (charging/discharging) at non dedicated-facilities* (PROC 8a, PROC 26)**

| **Vía de exposición y tipo de efectos** | **Estimación de la exposición** | **CCR** |
| --- | --- | --- |
| Inhalación, local, a largo plazo | 0.35 mg/m³ (TRA Workers 3.0) | 0.07 |
| Inhalación, local, agudo | 1.4 mg/m³ (TRA Workers 3.0) | 0.14 |

**2.3.12. Exposición de los trabajadores: *Transfer of substance or mixture (charging/discharging) at dedicated-facilities* (PROC 8b, PROC 26)**

| **Vía de exposición y tipo de efectos** | **Estimación de la exposición** | **CCR** |
| --- | --- | --- |
| Inhalación, local, a largo plazo | 0.7 mg/m³ (TRA Workers 3.0) | 0.14 |
| Inhalación, local, agudo | 2.8 mg/m³ (TRA Workers 3.0) | 0.28 |

**2.3.13. Exposición de los trabajadores: *Equipment cleaning and maintenance at non-dedicated facility* (PROC 8a, PROC 28)**

| **Vía de exposición y tipo de efectos** | **Estimación de la exposición** | **CCR** |
| --- | --- | --- |
| Inhalación, local, a largo plazo | 0.5 mg/m³ (TRA Workers 3.0) | 0.1 |
| Inhalación, local, agudo | 2 mg/m³ (TRA Workers 3.0) | 0.2 |

**2.3.14. Exposición de los trabajadores: Manual maintenance (cleaning and repair) of machinery (PROC 28)**

| **Vía de exposición y tipo de efectos** | **Estimación de la exposición** | **CCR** |
| --- | --- | --- |
| Inhalación, local, a largo plazo | 0.5 mg/m³ (PROC 8a estimate used to cover PROC 28) | 0.1 |
| Inhalación, local, agudo | 2 mg/m³ (PROC 8a estimate used to cover PROC 28) | 0.2 |

**2.4. Orientación para el UI con el fin de determinar si opera dentro de los límites fijados por el escenario de exposición (EE)**

**Capítulo 3. ES 3: Usos en emplazamientos industriales; Varios sectores (SU 1, SU 2a, SU 2b, SU 4, SU 5, SU 6b, SU 8, SU 9, SU 11, SU 12, SU 13, SU 14, SU 15, SU 16, SU 17)**

**3.1. Sección del título**

Nombre del EE: *Use at industrial site (e.g. Industrial Indoor use as Chemical Intermediate and Process aid, Industrial Outdoor use)*

Sector de uso: Agricultura, silvicultura, pesca (SU 1), Industrias extractivas (sin incluir las industrias en mar abierto) (SU 2a), Industrias en mar abierto (SU 2b), Industrias de la alimentación (SU 4), Industria textil, del cuero y de la peletería (SU 5), Fabricación de pasta papelera, papel y artículos de papel (SU 6b), Fabricación de productos químicos a granel a gran escala (incluidos los productos del petróleo) (SU 8), Fabricación de productos químicos finos (SU 9), Fabricación de productos de caucho (SU 11), Fabricación de productos plásticos, incluidos la composición y la conversión (SU 12), Fabricación de otros productos minerales no metálicos diversos, por ejemplo, yeso o cemento (SU 13), Fabricación de metales básicos, incluidas aleaciones (SU 14), Fabricación de productos metálicos, excepto maquinaria y equipos (SU 15), Fabricación de equipos informáticos, material electrónico y óptico y equipos eléctricos (SU 16), Fabricación de maquinaria, equipos, vehículos, otros equipos de transporte, etc. de uso general (SU 17)

|  |  |
| --- | --- |
| **Medio ambiente** |  |
| 1: Use as an intermediate | ERC 6a |
| 2: Use of non-reactive processing aid at industrial site (no inclusion into or onto article) | ERC 4 |
| **Trabajador** |  |
| 3: *Chemical production in closed process without likelihood of exposure or in containment conditions or processes with equivalent containment conditions* | PROC 1 |
| 4: *Chemical production in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions* | PROC 2 |
| 5: *Manufacture or formulation in closed batch processes with occasional controlled exposure or processes with equivalent containment condition* | PROC 3 |
| 6: Chemical production where opportunity for exposure arises | PROC 4 |
| 7: Mixing or blending in batch processes | PROC 5 |
| 8: Calendering operations | PROC 6 |
| 9: Indoor use; Industrial spraying; Solid in solution | PROC 7 |
| 10: Outdoor use; Industrial spraying | PROC 7 |
| 11: Outdoor use; Industrial spraying | PROC 7 |
| 12: *Transfer of a substance or mixture during process sampling at non-dedicated facilities with a local exhaust ventilation* | PROC 8a, PROC 26 |
| 13: *Transfer of a substance or mixture during process sampling at non-dedicated facilities without a local exhaust ventilation* | PROC 8a, PROC 26 |
| 14: *Transfer of a substance or mixture during process sampling at dedicated facilities with a local exhaust ventilation* | PROC 8b, PROC 26 |
| 15: *Transfer of a substance or mixture during process sampling at dedicated facilities without a local exhaust ventilation* | PROC 8b, PROC 26 |
| 16: *Transfer of substance or mixture (charging/discharging) at non-dedicated facilities with a local exhaust ventilation.* | PROC 8a, PROC 26 |
| 17: *Transfer of substance or mixture (charging/discharging) at non-dedicated facilities without a local exhaust ventilation.* | PROC 8a, PROC 26 |
| 18: *Transfer of substance or mixture (charging/discharging) at dedicated facilities with a local exhaust ventilation.* | PROC 8b, PROC 26 |
| 19: *Transfer of substance or mixture (charging/discharging) at dedicated facilities without a local exhaust ventilation.* | PROC 8b, PROC 26 |
| 20: *Equipment cleaning and maintenance at non-dedicated facility* | PROC 8a, PROC 28 |
| 21: *Transfer of substance or mixture into small containers (dedicated filling line, including weighing) at facilities with a local exhaust ventilation* | PROC 9, PROC 26, PROC 27b |
| 22: *Transfer of substance or mixture into small containers (dedicated filling line, including weighing) at facilities without a local exhaust ventilation* | PROC 9, PROC 26 |
| 23: Roller application or brushing | PROC 10 |
| 24: Treatment of articles by dipping and pouring | PROC 13 |
| 25: Tabletting, compression, extrusion, pelettisation, granulation | PROC 14 |
| 26: Use as laboratory reagent | PROC 15, PROC 26, PROC 27b |
| 27: *Manufacturing and processing of minerals and/or metals at substantially elevated temperature (> melting point - High fugacity)* | PROC 22, PROC 27a |
| 28: *Manufacturing and processing of minerals and/or metals at substantially elevated temperature (>= melting point. Medium fugacity)* | PROC 22, PROC 27a |
| 29: *Open processing and transfer operations at substantially elevated temperature (=< melting point - Medium fugacity)* | PROC 23, PROC 27a |
| 30: *Open processing and transfer operations at substantially elevated temperature (> melting point - High fugacity)* | PROC 23, PROC 27a |
| 31: *Manual maintenance (cleaning and repair) of machinery at noon-dedicated facilities* | PROC 28 |

**3.2. Condiciones de uso que afectan a la exposición**

**3.2.1. Control de la exposición de los trabajadores**

**Condiciones de uso aplicables a todos los escenarios de contribución**

|  |
| --- |
| **Condiciones y medidas técnicas y organizativas** |
| Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision. |
| **Condiciones y medidas relacionadas con la protección individual, la higiene y la evaluación del estado de salud** |
| Wear chemically resistant gloves (tested to EN374) in combination with ‘basic’ employee training.; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands.; For further specification, refer to section 8 of the SDS. |
| *Use suitable eye protection.* |
| **Otras condiciones que afecten a la exposición de los trabajadores** |
| Assumes process temperature up to 20 °C |

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**Condiciones específicas de uso por escenario de contribución**

|  |  |
| --- | --- |
| **Escenario coadyuvante** | **Se necesitan medidas específicas** |
| ***Chemical production in closed process without likelihood of exposure or in containment conditions or processes with equivalent containment conditions* (PROC 1)** | Covers concentrations up to 100 %  *Solid, medium dustiness. Covers also liquid form*  Covers use up to 8 h/day  Provide a basic standard of general ventilation (1 to 3 air changes per hour).  Indoor use |
| ***Chemical production in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions* (PROC 2)** | Covers concentrations up to 100 %  *Solid, medium dustiness. Covers also liquid form*  Covers use up to 8 h/day  Provide a basic standard of general ventilation (1 to 3 air changes per hour).  Indoor use |
| ***Manufacture or formulation in closed batch processes with occasional controlled exposure or processes with equivalent containment condition* (PROC 3)** | Covers concentrations up to 100 %  *Solid, medium dustiness. Covers also liquid form*  Covers use up to 8 h/day  Provide a basic standard of general ventilation (1 to 3 air changes per hour).  Indoor use |
| **Chemical production where opportunity for exposure arises (PROC 4)** | Covers concentrations up to 100 %  *Solid, medium dustiness. Covers also liquid form*  Covers use up to 8 h/day  Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).  Local exhaust ventilation; Inhalation - minimum efficiency of 90 %  Indoor use |
| **Mixing or blending in batch processes (PROC 5)** | Covers concentrations up to 100 %  *Solid, medium dustiness. Covers also liquid form*  Covers use up to 8 h/day  Wear suitable respiratory protection.; Inhalation - minimum efficiency of 90 %; For further specification, refer to section 8 of the SDS.  Outdoor use |
| **Calendering operations (PROC 6)** | Covers concentrations up to 100 %  *Solid, medium dustiness. Covers also liquid form*  Covers use up to 8 h/day  Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).  *Respiratory protection (APF of 10) is to be worn in those case where there is potential for peak exposure. Alternatively, good general ventilation with a minimum of 5-10 air changes per air can be applied.*  Indoor use |
| **Indoor use; Industrial spraying; Solid in solution (PROC 7)** | Covers concentrations up to 35 %  *Physical form of the product is assumed as liquid, this is conservative as it is a solid in a liquid with a very low vapour pressure.*  Covers use up to 2 h/day  Provide a basic standard of general ventilation (1 to 3 air changes per hour).  *Covers exposure in the presence of local exhaust ventilation of minimum 95% efficiency or respiratory protection with minimum 90% efficiency (e.g. APF of10)*  *covers spraying with moderate application rate (0.3-3 L/minute)*  *Covers spraying direction only horizontal or downward*  Indoor use |
| **Outdoor use; Industrial spraying (PROC 7)** | Covers concentrations up to 35 %  *Physical form of the product is assumed as liquid, this is conservative as it is a solid in a liquid with a very low vapour pressure.*  Covers use up to 0.25 h/day  *Covers activity where the primary emission source is located in the breathing zone of the worker (i.e. the volume of air within 1 metre in any direction of the worker’s head)*  *covers any spraying direction*  *covers spraying with high compressed air*  *covers high spraying application rate (> 3 L/minute)*  *Covers spraying activity wearing respiratory protection with minimum efficiency of 95% (i.e. APF of 20)*  Outdoor use |
| **Outdoor use; Industrial spraying (PROC 7)** | Covers concentrations up to 35 %  *Physical form of the product is assumed as liquid, this is conservative as it is a solid in a liquid with a very low vapour pressure.*  Covers use up to 2 h/day  *Covers activity where the primary emission source is located out the breathing zone of the worker (i.e. the volume of air is more than 1 metre in any direction of the worker’s head)*  *Covers spraying direction only horizontal or downward*  *covers spraying with high compressed air*  *covers high spraying application rate (> 3 L/minute)*  Outdoor use  *covers partial personal enclosure (e.g. truck cabin)* |
| ***Transfer of a substance or mixture during process sampling at non-dedicated facilities with a local exhaust ventilation* (PROC 8a, PROC 26)** | Covers concentrations up to 100 %  *Solid, medium dustiness. Covers also liquid form*  Covers use up to 1 h/day  Local exhaust ventilation; Inhalation - minimum efficiency of 90 %  Provide a basic standard of general ventilation (1 to 3 air changes per hour).  Indoor use |
| ***Transfer of a substance or mixture during process sampling at non-dedicated facilities without a local exhaust ventilation* (PROC 8a, PROC 26)** | Covers concentrations up to 100 %  *Solid, medium dustiness. Covers also liquid form*  Covers use up to 1 h/day  Provide a basic standard of general ventilation (1 to 3 air changes per hour).  *Respiratory protection (APF of 10) is to be worn in those case where there is potential for peak exposure. Alternatively, good general ventilation with a minimum of 5-10 air changes per air can be applied.*  Indoor use |
| ***Transfer of a substance or mixture during process sampling at dedicated facilities with a local exhaust ventilation* (PROC 8b, PROC 26)** | Covers concentrations up to 100 %  *Solid, medium dustiness. Covers also liquid form*  Covers use up to 8 h/day  Local exhaust ventilation; Inhalation - minimum efficiency of 95 %  Provide a basic standard of general ventilation (1 to 3 air changes per hour).  Indoor use |
| ***Transfer of a substance or mixture during process sampling at dedicated facilities without a local exhaust ventilation* (PROC 8b, PROC 26)** | Covers concentrations up to 100 %  *Solid, medium dustiness. Covers also liquid form*  Covers use up to 8 h/day  Provide a basic standard of general ventilation (1 to 3 air changes per hour).  Indoor use |
| ***Transfer of substance or mixture (charging/discharging) at non-dedicated facilities with a local exhaust ventilation.* (PROC 8a, PROC 26)** | Covers concentrations up to 100 %  *Solid, medium dustiness. Covers also liquid form*  Covers use up to 8 h/day  Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).  Local exhaust ventilation; Inhalation - minimum efficiency of 90 %  Indoor use |
| ***Transfer of substance or mixture (charging/discharging) at non-dedicated facilities without a local exhaust ventilation.* (PROC 8a, PROC 26)** | Covers concentrations up to 100 %  *Solid, medium dustiness. Covers also liquid form*  Covers use up to 8 h/day  Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).  *Respiratory protection (APF of 10) is to be worn in those case where there is potential for peak exposure. Alternatively, good general ventilation with a minimum of 5-10 air changes per air can be applied.*  Indoor or outdoor use |
| ***Transfer of substance or mixture (charging/discharging) at dedicated facilities with a local exhaust ventilation.* (PROC 8b, PROC 26)** | Covers concentrations up to 100 %  *Solid, medium dustiness. Covers also liquid form*  Covers use up to 8 h/day  Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).  Local exhaust ventilation; Inhalation - minimum efficiency of 95 %  Indoor use |
| ***Transfer of substance or mixture (charging/discharging) at dedicated facilities without a local exhaust ventilation.* (PROC 8b, PROC 26)** | Covers concentrations up to 100 %  *Solid, medium dustiness. Covers also liquid form*  Covers use up to 8 h/day  Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).  Indoor or outdoor use |
| ***Equipment cleaning and maintenance at non-dedicated facility* (PROC 8a, PROC 28)** | Covers concentrations up to 100 %  *Solid, medium dustiness. Covers also liquid form*  Covers use up to 8 h/day  Provide a basic standard of general ventilation (1 to 3 air changes per hour).  Local exhaust ventilation; Inhalation - minimum efficiency of 90 %  *Handle substance within a closed system [ES47] Drain down and flush system prior to equipment break-in or maintenance [E55] Transfer via enclosed lines [E52]*  Indoor use |
| ***Transfer of substance or mixture into small containers (dedicated filling line, including weighing) at facilities with a local exhaust ventilation* (PROC 9, PROC 26, PROC 27b)** | Covers concentrations up to 100 %  *Solid, medium dustiness. Covers also liquid form*  Covers use up to 8 h/day  Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).  Local exhaust ventilation; Inhalation - minimum efficiency of 90 %  Indoor use |
| ***Transfer of substance or mixture into small containers (dedicated filling line, including weighing) at facilities without a local exhaust ventilation* (PROC 9, PROC 26)** | Covers concentrations up to 100 %  *Solid, medium dustiness. Covers also liquid form*  Covers use up to 8 h/day  Provide a basic standard of general ventilation (1 to 3 air changes per hour).  *Respiratory protection (APF of 10) is to be worn in those case where there is potential for peak exposure. Alternatively, good general ventilation with a minimum of 5-10 air changes per air can be applied.*  Indoor or outdoor use |
| **Roller application or brushing (PROC 10)** | Covers concentrations up to 100 %  *Solid, medium dustiness. Covers also liquid form*  Covers use up to 8 h/day  Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).  *Respiratory protection (APF of 10) is to be worn in those case where there is potential for peak exposure. Alternatively, good general ventilation with a minimum of 5-10 air changes per air can be applied.*  Indoor use |
| **Treatment of articles by dipping and pouring (PROC 13)** | Solid, medium dustiness  *Solid, medium dustiness. Covers also liquid form*  Covers use up to 8 h/day  Provide a basic standard of general ventilation (1 to 3 air changes per hour).  Indoor use |
| **Tabletting, compression, extrusion, pelettisation, granulation (PROC 14)** | Covers concentrations up to 100 %  *Solid, medium dustiness. Covers also liquid form*  Covers use up to 8 h/day  Provide a basic standard of general ventilation (1 to 3 air changes per hour).  Indoor use |
| **Use as laboratory reagent (PROC 15, PROC 26, PROC 27b)** | Covers concentrations up to 100 %  *Solid, medium dustiness. Covers also liquid form*  Covers use up to 8 h/day  Provide a basic standard of general ventilation (1 to 3 air changes per hour).  Indoor use |
| ***Manufacturing and processing of minerals and/or metals at substantially elevated temperature (> melting point - High fugacity)* (PROC 22, PROC 27a)** | Covers concentrations up to 100 %  *Solid, medium dustiness. Covers also liquid form*  Covers use up to 8 h/day  Provide a basic standard of general ventilation (1 to 3 air changes per hour).  Local exhaust ventilation; Inhalation - minimum efficiency of 90 %  Indoor use |
| ***Manufacturing and processing of minerals and/or metals at substantially elevated temperature (>= melting point. Medium fugacity)* (PROC 22, PROC 27a)** | Covers concentrations up to 100 %  *Solid, medium dustiness. Covers also liquid form*  Covers use up to 8 h/day  Provide a basic standard of general ventilation (1 to 3 air changes per hour).  Local exhaust ventilation; Inhalation - minimum efficiency of 90 %  Indoor use |
| ***Open processing and transfer operations at substantially elevated temperature (=< melting point - Medium fugacity)* (PROC 23, PROC 27a)** | Covers concentrations up to 100 %  *Solid, medium dustiness. Covers also liquid form*  Covers use up to 8 h/day  Provide a basic standard of general ventilation (1 to 3 air changes per hour).  Indoor use |
| ***Open processing and transfer operations at substantially elevated temperature (> melting point - High fugacity)* (PROC 23, PROC 27a)** | Covers concentrations up to 100 %  *Solid, medium dustiness. Covers also liquid form*  Covers use up to 8 h/day  Provide a good standard of controlled ventilation (5 to 10 air changes per hour).  Local exhaust ventilation; Inhalation - minimum efficiency of 90 %  Indoor use |
| ***Manual maintenance (cleaning and repair) of machinery at noon-dedicated facilities* (PROC 28)** | Covers concentrations up to 100 %  *Solid, medium dustiness. Covers also liquid form*  Covers use up to 8 h/day  Provide a basic standard of general ventilation (1 to 3 air changes per hour).  Local exhaust ventilation; Inhalation - minimum efficiency of %  *Handle substance within a closed system [ES47] Drain down and flush system prior to equipment break-in or maintenance [E55] Transfer via enclosed lines [E52]*  Indoor use |

**3.3. Estimación de la exposición y referencia a su fuente**

**3.3.1. Exposición de los trabajadores: *Chemical production in closed process without likelihood of exposure or in containment conditions or processes with equivalent containment conditions* (PROC 1)**

| **Vía de exposición y tipo de efectos** | **Estimación de la exposición** | **CCR** |
| --- | --- | --- |
| Inhalación, local, a largo plazo | 0.01 mg/m³ (TRA Workers 3.0) | < 0.01 |
| Inhalación, local, agudo | 0.04 mg/m³ (TRA Workers 3.0) | < 0.01 |

**3.3.2. Exposición de los trabajadores: *Chemical production in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions* (PROC 2)**

| **Vía de exposición y tipo de efectos** | **Estimación de la exposición** | **CCR** |
| --- | --- | --- |
| Inhalación, local, a largo plazo | 0.5 mg/m³ (TRA Workers 3.0) | 0.1 |
| Inhalación, local, agudo | 2 mg/m³ (TRA Workers 3.0) | 0.2 |

**3.3.3. Exposición de los trabajadores: *Manufacture or formulation in closed batch processes with occasional controlled exposure or processes with equivalent containment condition* (PROC 3)**

| **Vía de exposición y tipo de efectos** | **Estimación de la exposición** | **CCR** |
| --- | --- | --- |
| Inhalación, local, a largo plazo | 1 mg/m³ (TRA Workers 3.0) | 0.2 |
| Inhalación, local, agudo | 4 mg/m³ (TRA Workers 3.0) | 0.4 |

**3.3.4. Exposición de los trabajadores: Chemical production where opportunity for exposure arises (PROC 4)**

| **Vía de exposición y tipo de efectos** | **Estimación de la exposición** | **CCR** |
| --- | --- | --- |
| Inhalación, local, a largo plazo | 0.35 mg/m³ (TRA Workers 3.0) | 0.07 |
| Inhalación, local, agudo | 1.4 mg/m³ (TRA Workers 3.0) | 0.14 |

**3.3.5. Exposición de los trabajadores: Mixing or blending in batch processes (PROC 5)**

| **Vía de exposición y tipo de efectos** | **Estimación de la exposición** | **CCR** |
| --- | --- | --- |
| Inhalación, local, a largo plazo | 0.35 mg/m³ (TRA Workers 3.0) | 0.07 |
| Inhalación, local, agudo | 1.4 mg/m³ (TRA Workers 3.0) | 0.14 |

**3.3.6. Exposición de los trabajadores: Calendering operations (PROC 6)**

| **Vía de exposición y tipo de efectos** | **Estimación de la exposición** | **CCR** |
| --- | --- | --- |
| Inhalación, local, a largo plazo | 0.35 mg/m³ (TRA Workers 3.0) | 0.07 |
| Inhalación, local, agudo | 1.4 mg/m³ (TRA Workers 3.0) | 0.14 |

**3.3.7. Exposición de los trabajadores: Indoor use; Industrial spraying; Solid in solution (PROC 7)**

| **Vía de exposición y tipo de efectos** | **Estimación de la exposición** | **CCR** |
| --- | --- | --- |
| Inhalación, local, a largo plazo | 1.2 mg/m³ (ART) | 0.24 |
| Inhalación, local, agudo | 9.6 mg/m³ (ART) | 0.96 |

**3.3.8. Exposición de los trabajadores: Outdoor use; Industrial spraying (PROC 7)**

| **Vía de exposición y tipo de efectos** | **Estimación de la exposición** | **CCR** |
| --- | --- | --- |
| Inhalación, local, a largo plazo | 1.2 mg/m³ (ART) | 0.24 |
| Inhalación, local, agudo | 9.6 mg/m³ (ART) | 0.96 |

**3.3.9. Exposición de los trabajadores: Outdoor use; Industrial spraying (PROC 7)**

| **Vía de exposición y tipo de efectos** | **Estimación de la exposición** | **CCR** |
| --- | --- | --- |
| Inhalación, local, a largo plazo | 1.2 mg/m³ (ART) | 0.24 |
| Inhalación, local, agudo | 9.6 mg/m³ (ART) | 0.96 |

**3.3.10. Exposición de los trabajadores: *Transfer of a substance or mixture during process sampling at non-dedicated facilities with a local exhaust ventilation* (PROC 8a, PROC 26)**

| **Vía de exposición y tipo de efectos** | **Estimación de la exposición** | **CCR** |
| --- | --- | --- |
| Inhalación, local, a largo plazo | 0.1 mg/m³ (TRA Workers 3.0) | 0.02 |
| Inhalación, local, agudo | 2 mg/m³ (TRA Workers 3.0) | 0.2 |

**3.3.11. Exposición de los trabajadores: *Transfer of a substance or mixture during process sampling at non-dedicated facilities without a local exhaust ventilation* (PROC 8a, PROC 26)**

| **Vía de exposición y tipo de efectos** | **Estimación de la exposición** | **CCR** |
| --- | --- | --- |
| Inhalación, local, a largo plazo | 0.1 mg/m³ (TRA Workers 3.0) | 0.02 |
| Inhalación, local, agudo | 2 mg/m³ (TRA Workers 3.0) | 0.2 |

**3.3.12. Exposición de los trabajadores: *Transfer of a substance or mixture during process sampling at dedicated facilities with a local exhaust ventilation* (PROC 8b, PROC 26)**

| **Vía de exposición y tipo de efectos** | **Estimación de la exposición** | **CCR** |
| --- | --- | --- |
| Inhalación, local, a largo plazo | 0.05 mg/m³ (TRA Workers 3.0) | 0.01 |
| Inhalación, local, agudo | 0.2 mg/m³ (TRA Workers 3.0) | 0.02 |

**3.3.13. Exposición de los trabajadores: *Transfer of a substance or mixture during process sampling at dedicated facilities without a local exhaust ventilation* (PROC 8b, PROC 26)**

| **Vía de exposición y tipo de efectos** | **Estimación de la exposición** | **CCR** |
| --- | --- | --- |
| Inhalación, local, a largo plazo | 1 mg/m³ (TRA Workers 3.0) | 0.2 |
| Inhalación, local, agudo | 4 mg/m³ (TRA Workers 3.0) | 0.4 |

**3.3.14. Exposición de los trabajadores: *Transfer of substance or mixture (charging/discharging) at non-dedicated facilities with a local exhaust ventilation.* (PROC 8a, PROC 26)**

| **Vía de exposición y tipo de efectos** | **Estimación de la exposición** | **CCR** |
| --- | --- | --- |
| Inhalación, local, a largo plazo | 0.35 mg/m³ (TRA Workers 3.0) | 0.07 |
| Inhalación, local, agudo | 1.4 mg/m³ (TRA Workers 3.0) | 0.14 |

**3.3.15. Exposición de los trabajadores: *Transfer of substance or mixture (charging/discharging) at non-dedicated facilities without a local exhaust ventilation.* (PROC 8a, PROC 26)**

| **Vía de exposición y tipo de efectos** | **Estimación de la exposición** | **CCR** |
| --- | --- | --- |
| Inhalación, local, a largo plazo | 0.35 mg/m³ (TRA Workers 3.0) | 0.07 |
| Inhalación, local, agudo | 1.4 mg/m³ (TRA Workers 3.0) | 0.14 |

**3.3.16. Exposición de los trabajadores: *Transfer of substance or mixture (charging/discharging) at dedicated facilities with a local exhaust ventilation.* (PROC 8b, PROC 26)**

| **Vía de exposición y tipo de efectos** | **Estimación de la exposición** | **CCR** |
| --- | --- | --- |
| Inhalación, local, a largo plazo | 0.035 mg/m³ (TRA Workers 3.0) | < 0.01 |
| Inhalación, local, agudo | 0.14 mg/m³ (TRA Workers 3.0) | 0.014 |

**3.3.17. Exposición de los trabajadores: *Transfer of substance or mixture (charging/discharging) at dedicated facilities without a local exhaust ventilation.* (PROC 8b, PROC 26)**

| **Vía de exposición y tipo de efectos** | **Estimación de la exposición** | **CCR** |
| --- | --- | --- |
| Inhalación, local, a largo plazo | 0.7 mg/m³ (TRA Workers 3.0) | 0.14 |
| Inhalación, local, agudo | 2.8 mg/m³ (TRA Workers 3.0) | 0.28 |

**3.3.18. Exposición de los trabajadores: *Equipment cleaning and maintenance at non-dedicated facility* (PROC 8a, PROC 28)**

| **Vía de exposición y tipo de efectos** | **Estimación de la exposición** | **CCR** |
| --- | --- | --- |
| Inhalación, local, a largo plazo | 0.5 mg/m³ (TRA Workers 3.0) | 0.1 |
| Inhalación, local, agudo | 2 mg/m³ (TRA Workers 3.0) | 0.2 |

**3.3.19. Exposición de los trabajadores: *Transfer of substance or mixture into small containers (dedicated filling line, including weighing) at facilities with a local exhaust ventilation* (PROC 9, PROC 26, PROC 27b)**

| **Vía de exposición y tipo de efectos** | **Estimación de la exposición** | **CCR** |
| --- | --- | --- |
| Inhalación, local, a largo plazo | 0.35 mg/m³ (TRA Workers 3.0) | 0.07 |
| Inhalación, local, agudo | 1.4 mg/m³ (TRA Workers 3.0) | 0.14 |

**3.3.20. Exposición de los trabajadores: *Transfer of substance or mixture into small containers (dedicated filling line, including weighing) at facilities without a local exhaust ventilation* (PROC 9, PROC 26)**

| **Vía de exposición y tipo de efectos** | **Estimación de la exposición** | **CCR** |
| --- | --- | --- |
| Inhalación, local, a largo plazo | 0.5 mg/m³ (TRA Workers 3.0) | 0.1 |
| Inhalación, local, agudo | 2 mg/m³ (TRA Workers 3.0) | 0.2 |

**3.3.21. Exposición de los trabajadores: Roller application or brushing (PROC 10)**

| **Vía de exposición y tipo de efectos** | **Estimación de la exposición** | **CCR** |
| --- | --- | --- |
| Inhalación, local, a largo plazo | 0.35 mg/m³ (TRA Workers 3.0) | 0.07 |
| Inhalación, local, agudo | 1.4 mg/m³ (TRA Workers 3.0) | 0.14 |

**3.3.22. Exposición de los trabajadores: Treatment of articles by dipping and pouring (PROC 13)**

| **Vía de exposición y tipo de efectos** | **Estimación de la exposición** | **CCR** |
| --- | --- | --- |
| Inhalación, local, a largo plazo | 1 mg/m³ (TRA Workers 3.0) | 0.2 |
| Inhalación, local, agudo | 4 mg/m³ (TRA Workers 3.0) | 0.4 |

**3.3.23. Exposición de los trabajadores: Tabletting, compression, extrusion, pelettisation, granulation (PROC 14)**

| **Vía de exposición y tipo de efectos** | **Estimación de la exposición** | **CCR** |
| --- | --- | --- |
| Inhalación, local, a largo plazo | 1 mg/m³ (TRA Workers 3.0) | 0.2 |
| Inhalación, local, agudo | 4 mg/m³ (TRA Workers 3.0) | 0.4 |

**3.3.24. Exposición de los trabajadores: Use as laboratory reagent (PROC 15, PROC 26, PROC 27b)**

| **Vía de exposición y tipo de efectos** | **Estimación de la exposición** | **CCR** |
| --- | --- | --- |
| Inhalación, local, a largo plazo | 0.5 mg/m³ (TRA Workers 3.0) | 0.1 |
| Inhalación, local, agudo | 2 mg/m³ (TRA Workers 3.0) | 0.2 |

**3.3.25. Exposición de los trabajadores: *Manufacturing and processing of minerals and/or metals at substantially elevated temperature (> melting point - High fugacity)* (PROC 22, PROC 27a)**

| **Vía de exposición y tipo de efectos** | **Estimación de la exposición** | **CCR** |
| --- | --- | --- |
| Inhalación, local, a largo plazo | 0.1 mg/m³ (TRA Workers 3.0) | 0.02 |
| Inhalación, local, agudo | 0.4 mg/m³ (TRA Workers 3.0) | 0.04 |

**3.3.26. Exposición de los trabajadores: *Manufacturing and processing of minerals and/or metals at substantially elevated temperature (>= melting point. Medium fugacity)* (PROC 22, PROC 27a)**

| **Vía de exposición y tipo de efectos** | **Estimación de la exposición** | **CCR** |
| --- | --- | --- |
| Inhalación, local, a largo plazo | 0.1 mg/m³ (TRA Workers 3.0) | 0.02 |
| Inhalación, local, agudo | 0.4 mg/m³ (TRA Workers 3.0) | 0.04 |

**3.3.27. Exposición de los trabajadores: *Open processing and transfer operations at substantially elevated temperature (=< melting point - Medium fugacity)* (PROC 23, PROC 27a)**

| **Vía de exposición y tipo de efectos** | **Estimación de la exposición** | **CCR** |
| --- | --- | --- |
| Inhalación, local, a largo plazo | 1 mg/m³ (TRA Workers 3.0) | 0.2 |
| Inhalación, local, agudo | 4 mg/m³ (TRA Workers 3.0) | 0.4 |

**3.3.28. Exposición de los trabajadores: *Open processing and transfer operations at substantially elevated temperature (> melting point - High fugacity)* (PROC 23, PROC 27a)**

| **Vía de exposición y tipo de efectos** | **Estimación de la exposición** | **CCR** |
| --- | --- | --- |
| Inhalación, local, a largo plazo | 0.03 mg/m³ (TRA Workers 3.0) | < 0.01 |
| Inhalación, local, agudo | 0.12 mg/m³ (TRA Workers 3.0) | 0.012 |

**3.3.29. Exposición de los trabajadores: *Manual maintenance (cleaning and repair) of machinery at noon-dedicated facilities* (PROC 28)**

| **Vía de exposición y tipo de efectos** | **Estimación de la exposición** | **CCR** |
| --- | --- | --- |
| Inhalación, local, a largo plazo | 0.5 mg/m³ (ECETOC TRA Workers) | 0.1 |
| Inhalación, local, agudo | 2 mg/m³ (ECETOC TRA Workers) | 0.2 |

**3.4. Orientación para el UI con el fin de determinar si opera dentro de los límites fijados por el escenario de exposición (EE)**

Herramienta de escala: For the evaluation of spraying activities the ART (Advanced Reach Tool) modeling tool has been used. In case the DU cannot demonstrate safe use with the conditions currently presented in this SDS Annex, the ART modeling Tool can be used as scaling tool.

**Capítulo 4. ES 4: Amplio uso por trabajadores profesionales; Varios sectores (SU 0, SU 1, SU 13, SU 19, SU 20)**

**4.1. Sección del título**

Nombre del EE: Professional use; Indoor use

Sector de uso: Otros (SU 0), Agricultura, silvicultura, pesca (SU 1), Fabricación de otros productos minerales no metálicos diversos, por ejemplo, yeso o cemento (SU 13), Construcción de edificios y obras de construcción (SU 19), Servicios de salud (SU 20)

|  |  |
| --- | --- |
| **Medio ambiente** |  |
| 1: Indoor use; Professional use | ERC 8a |
| **Trabajador** |  |
| 2: *Chemical production in closed process without likelihood of exposure or in containment conditions or processes with equivalent containment conditions* | PROC 1 |
| 3: *Chemical production in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions* | PROC 2 |
| 4: *Manufacture or formulation in closed batch processes with occasional controlled exposure or processes with equivalent containment condition* | PROC 3 |
| 5: Chemical production where opportunity for exposure arises | PROC 4 |
| 6: Mixing or blending in batch processes | PROC 5 |
| 7: *Transfer of substance or mixture (charging/discharging) at non-dedicated facilities* | PROC 8a, PROC 26 |
| 8: *Transfer of substance or mixture (charging/discharging) at dedicated facilities* | PROC 8b, PROC 26 |
| 9: *Transfer of substance or mixture into small containers (dedicated filling line, including weighing)* | PROC 9, PROC 26 |
| 10: Roller application or brushing | PROC 10 |
| 11: Indoor use; Non-industrial spraying; Solid in solution | PROC 11 |
| 12: Use as laboratory reagent | PROC 15, PROC 26 |
| 13: Manual activities involving hand contact | PROC 19 |
| 14: Use of functional fluids in small devices | PROC 20 |
| 15: *Equipment cleaning and maintenance at non-dedicated facility* | PROC 8a, PROC 28 |
| 16: *Manual maintenance (cleaning and repair) of machinery at non-dedicated facility* | PROC 28 |

**4.2. Condiciones de uso que afectan a la exposición**

**4.2.1. Control de la exposición de los trabajadores**

**Condiciones de uso aplicables a todos los escenarios de contribución**

|  |
| --- |
| **Condiciones y medidas relacionadas con la protección individual, la higiene y la evaluación del estado de salud** |
| *Use suitable eye protection.* |
| **Otras condiciones que afecten a la exposición de los trabajadores** |
| Indoor use |
| Assumes process temperature up to 20 °C |

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**Condiciones específicas de uso por escenario de contribución**

|  |  |
| --- | --- |
| **Escenario coadyuvante** | **Se necesitan medidas específicas** |
| ***Chemical production in closed process without likelihood of exposure or in containment conditions or processes with equivalent containment conditions* (PROC 1)** | Covers concentrations up to 100 %  Solid, medium dustiness  Covers use up to 8 h/day  *Assumes a good basic standard of occupational hygiene is implemented*  Provide a basic standard of general ventilation (1 to 3 air changes per hour).  Wear chemically resistant gloves (tested to EN374) in combination with ‘basic’ employee training.; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands.; For further specification, refer to section 8 of the SDS. |
| ***Chemical production in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions* (PROC 2)** | Covers concentrations up to 100 %  Solid, medium dustiness  Covers use up to 8 h/day  *Assumes a good basic standard of occupational hygiene is implemented*  Provide a basic standard of general ventilation (1 to 3 air changes per hour).  Wear chemically resistant gloves (tested to EN374) in combination with ‘basic’ employee training.; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands.; For further specification, refer to section 8 of the SDS. |
| ***Manufacture or formulation in closed batch processes with occasional controlled exposure or processes with equivalent containment condition* (PROC 3)** | Covers concentrations up to 100 %  Solid, medium dustiness  Covers use up to 8 h/day  Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).  Wear chemically resistant gloves (tested to EN374) in combination with ‘basic’ employee training.; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands.; For further specification, refer to section 8 of the SDS. |
| **Chemical production where opportunity for exposure arises (PROC 4)** | Covers concentrations up to 100 %  Solid, medium dustiness  Covers use up to 8 h/day  *Assumes a good basic standard of occupational hygiene is implemented*  Local exhaust ventilation; Inhalation - minimum efficiency of 80 %  Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).  Wear chemically resistant gloves (tested to EN374) in combination with ‘basic’ employee training.; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands.; For further specification, refer to section 8 of the SDS. |
| **Mixing or blending in batch processes (PROC 5)** | Covers concentrations up to 100 %  Solid, medium dustiness  Covers use up to 8 h/day  *Assumes a good basic standard of occupational hygiene is implemented*  Local exhaust ventilation; Inhalation - minimum efficiency of 80 %  Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).  Wear chemically resistant gloves (tested to EN374) in combination with ‘basic’ employee training.; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands.; For further specification, refer to section 8 of the SDS. |
| ***Transfer of substance or mixture (charging/discharging) at non-dedicated facilities* (PROC 8a, PROC 26)** | Covers concentrations up to 100 %  Solid, medium dustiness  Covers use up to 8 h/day  *Assumes a good basic standard of occupational hygiene is implemented*  Local exhaust ventilation; Inhalation - minimum efficiency of 80 %  Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).  Wear chemically resistant gloves (tested to EN374) in combination with ‘basic’ employee training.; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands.; For further specification, refer to section 8 of the SDS. |
| ***Transfer of substance or mixture (charging/discharging) at dedicated facilities* (PROC 8b, PROC 26)** | Covers concentrations up to 100 %  Solid, medium dustiness  Covers use up to 8 h/day  *Assumes a good basic standard of occupational hygiene is implemented*  Local exhaust ventilation; Inhalation - minimum efficiency of 80 %  Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).  Wear chemically resistant gloves (tested to EN374) in combination with ‘basic’ employee training.; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands.; For further specification, refer to section 8 of the SDS. |
| ***Transfer of substance or mixture into small containers (dedicated filling line, including weighing)* (PROC 9, PROC 26)** | Covers concentrations up to 100 %  Solid, medium dustiness  Covers use up to 8 h/day  *Assumes a good basic standard of occupational hygiene is implemented*  Local exhaust ventilation; Inhalation - minimum efficiency of 80 %  Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).  Wear chemically resistant gloves (tested to EN374) in combination with ‘basic’ employee training.; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands.; For further specification, refer to section 8 of the SDS. |
| **Roller application or brushing (PROC 10)** | Covers concentrations up to 100 %  Solid, medium dustiness  Covers use up to 8 h/day  Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision.  Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).  Local exhaust ventilation; Inhalation - minimum efficiency of 90 %  Wear chemically resistant gloves (tested to EN374) in combination with ‘basic’ employee training.; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands.; For further specification, refer to section 8 of the SDS. |
| **Indoor use; Non-industrial spraying; Solid in solution (PROC 11)** | Covers concentrations up to 35 %  *Physical form of the product is assumed as liquid, this is conservative as it is a solid in a liquid with a very low vapour pressure.*  Covers use up to 2 h/day  Provide a basic standard of general ventilation (1 to 3 air changes per hour).  *Covers exposure in the presence of local exhaust ventilation of minimum 95% efficiency or respiratory protection with minimum 90% efficiency (e.g. APF of10)*  *covers spraying with moderate application rate (0.3-3 L/minute)*  *Covers spraying direction only horizontal or downward*  Wear suitable gloves tested to EN374.; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands.; For further specification, refer to section 8 of the SDS. |
| **Use as laboratory reagent (PROC 15, PROC 26)** | Covers concentrations up to 100 %  Solid, medium dustiness  Covers use up to 8 h/day  *Assumes a good basic standard of occupational hygiene is implemented*  Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).  Wear chemically resistant gloves (tested to EN374) in combination with ‘basic’ employee training.; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands.; For further specification, refer to section 8 of the SDS. |
| **Manual activities involving hand contact (PROC 19)** | Covers concentrations up to 100 %  Solid, medium dustiness  Covers use up to 8 h/day  *Assumes a good basic standard of occupational hygiene is implemented*  Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).  Local exhaust ventilation; Inhalation - minimum efficiency of 80 %  Wear chemically resistant gloves (tested to EN374) in combination with ‘basic’ employee training.; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands.; For further specification, refer to section 8 of the SDS. |
| **Use of functional fluids in small devices (PROC 20)** | Covers concentrations up to 100 %  Solid, medium dustiness  Covers use up to 8 h/day  *Assumes a good basic standard of occupational hygiene is implemented*  Provide a basic standard of general ventilation (1 to 3 air changes per hour).  Wear chemically resistant gloves (tested to EN374) in combination with ‘basic’ employee training.; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands.; For further specification, refer to section 8 of the SDS. |
| ***Equipment cleaning and maintenance at non-dedicated facility* (PROC 8a, PROC 28)** | Covers concentrations up to 100 %  Solid, medium dustiness  Covers use up to 8 h/day  *Assumes a good basic standard of occupational hygiene is implemented*  Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).  *Handle substance within a closed system [ES47] Drain down and flush system prior to equipment break-in or maintenance [E55] Transfer via enclosed lines [E52]*  Wear chemically resistant gloves (tested to EN374) in combination with ‘basic’ employee training.; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands.; For further specification, refer to section 8 of the SDS.  *Respiratory protection (APF of 10) is to be worn in those case where there is potential for peak exposure. Alternatively, good general ventilation with a minimum of 5-10 air changes per air can be applied.* |
| ***Manual maintenance (cleaning and repair) of machinery at non-dedicated facility* (PROC 28)** | Covers concentrations up to 100 %  Solid, medium dustiness  Covers use up to 8 h/day  *Assumes a good basic standard of occupational hygiene is implemented*  Provide a basic standard of general ventilation (1 to 3 air changes per hour).  Local exhaust ventilation; Inhalation - minimum efficiency of %  *Handle substance within a closed system [ES47] Drain down and flush system prior to equipment break-in or maintenance [E55] Transfer via enclosed lines [E52]*  Wear chemically resistant gloves (tested to EN374) in combination with ‘basic’ employee training.; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands.; For further specification, refer to section 8 of the SDS. |

**4.3. Estimación de la exposición y referencia a su fuente**

**4.3.1. Exposición de los trabajadores: *Chemical production in closed process without likelihood of exposure or in containment conditions or processes with equivalent containment conditions* (PROC 1)**

| **Vía de exposición y tipo de efectos** | **Estimación de la exposición** | **CCR** |
| --- | --- | --- |
| Inhalación, local, a largo plazo | 0.01 mg/m³ (TRA Workers 3.0) | < 0.01 |
| Inhalación, local, agudo | 0.04 mg/m³ (TRA Workers 3.0) | < 0.01 |

**4.3.2. Exposición de los trabajadores: *Chemical production in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions* (PROC 2)**

| **Vía de exposición y tipo de efectos** | **Estimación de la exposición** | **CCR** |
| --- | --- | --- |
| Inhalación, local, a largo plazo | 1 mg/m³ (TRA Workers 3.0) | 0.2 |
| Inhalación, local, agudo | 4 mg/m³ (TRA Workers 3.0) | 0.4 |

**4.3.3. Exposición de los trabajadores: *Manufacture or formulation in closed batch processes with occasional controlled exposure or processes with equivalent containment condition* (PROC 3)**

| **Vía de exposición y tipo de efectos** | **Estimación de la exposición** | **CCR** |
| --- | --- | --- |
| Inhalación, local, a largo plazo | 0.7 mg/m³ (TRA Workers 3.0) | 0.14 |
| Inhalación, local, agudo | 2.8 mg/m³ (TRA Workers 3.0) | 0.28 |

**4.3.4. Exposición de los trabajadores: Chemical production where opportunity for exposure arises (PROC 4)**

| **Vía de exposición y tipo de efectos** | **Estimación de la exposición** | **CCR** |
| --- | --- | --- |
| Inhalación, local, a largo plazo | 0.7 mg/m³ (TRA Workers 3.0) | 0.14 |
| Inhalación, local, agudo | 2.8 mg/m³ (TRA Workers 3.0) | 0.28 |

**4.3.5. Exposición de los trabajadores: Mixing or blending in batch processes (PROC 5)**

| **Vía de exposición y tipo de efectos** | **Estimación de la exposición** | **CCR** |
| --- | --- | --- |
| Inhalación, local, a largo plazo | 0.7 mg/m³ (TRA Workers 3.0) | 0.14 |
| Inhalación, local, agudo | 2.8 mg/m³ (TRA Workers 3.0) | 0.28 |

**4.3.6. Exposición de los trabajadores: *Transfer of substance or mixture (charging/discharging) at non-dedicated facilities* (PROC 8a, PROC 26)**

| **Vía de exposición y tipo de efectos** | **Estimación de la exposición** | **CCR** |
| --- | --- | --- |
| Inhalación, local, a largo plazo | 1.4 mg/m³ (TRA Workers 3.0) | 0.28 |
| Inhalación, local, agudo | 5.6 mg/m³ (TRA Workers 3.0) | 0.56 |

**4.3.7. Exposición de los trabajadores: *Transfer of substance or mixture (charging/discharging) at dedicated facilities* (PROC 8b, PROC 26)**

| **Vía de exposición y tipo de efectos** | **Estimación de la exposición** | **CCR** |
| --- | --- | --- |
| Inhalación, local, a largo plazo | 0.7 mg/m³ (TRA Workers 3.0) | 0.14 |
| Inhalación, local, agudo | 2.8 mg/m³ (TRA Workers 3.0) | 0.28 |

**4.3.8. Exposición de los trabajadores: *Transfer of substance or mixture into small containers (dedicated filling line, including weighing)* (PROC 9, PROC 26)**

| **Vía de exposición y tipo de efectos** | **Estimación de la exposición** | **CCR** |
| --- | --- | --- |
| Inhalación, local, a largo plazo | 0.7 mg/m³ (TRA Workers 3.0) | 0.14 |
| Inhalación, local, agudo | 2.8 mg/m³ (TRA Workers 3.0) | 0.28 |

**4.3.9. Exposición de los trabajadores: Roller application or brushing (PROC 10)**

| **Vía de exposición y tipo de efectos** | **Estimación de la exposición** | **CCR** |
| --- | --- | --- |
| Inhalación, local, a largo plazo | 0.35 mg/m³ (TRA Workers 3.0) | 0.07 |
| Inhalación, local, agudo | 1.4 mg/m³ (TRA Workers 3.0) | 0.14 |

**4.3.10. Exposición de los trabajadores: Indoor use; Non-industrial spraying; Solid in solution (PROC 11)**

| **Vía de exposición y tipo de efectos** | **Estimación de la exposición** | **CCR** |
| --- | --- | --- |
| Inhalación, local, a largo plazo | 1.2 mg/m³ (ART) | 0.24 |
| Inhalación, local, agudo | 9.6 mg/m³ (ART) | 0.96 |

**4.3.11. Exposición de los trabajadores: Use as laboratory reagent (PROC 15, PROC 26)**

| **Vía de exposición y tipo de efectos** | **Estimación de la exposición** | **CCR** |
| --- | --- | --- |
| Inhalación, local, a largo plazo | 0.35 mg/m³ (TRA Workers 3.0) | 0.07 |
| Inhalación, local, agudo | 1.4 mg/m³ (TRA Workers 3.0) | 0.14 |

**4.3.12. Exposición de los trabajadores: Manual activities involving hand contact (PROC 19)**

| **Vía de exposición y tipo de efectos** | **Estimación de la exposición** | **CCR** |
| --- | --- | --- |
| Inhalación, local, a largo plazo | 0.7 mg/m³ (TRA Workers 3.0) | 0.14 |
| Inhalación, local, agudo | 2.8 mg/m³ (TRA Workers 3.0) | 0.28 |

**4.3.13. Exposición de los trabajadores: Use of functional fluids in small devices (PROC 20)**

| **Vía de exposición y tipo de efectos** | **Estimación de la exposición** | **CCR** |
| --- | --- | --- |
| Inhalación, local, a largo plazo | 1 mg/m³ (TRA Workers 3.0) | 0.2 |
| Inhalación, local, agudo | 4 mg/m³ (TRA Workers 3.0) | 0.4 |

**4.3.14. Exposición de los trabajadores: *Equipment cleaning and maintenance at non-dedicated facility* (PROC 8a, PROC 28)**

| **Vía de exposición y tipo de efectos** | **Estimación de la exposición** | **CCR** |
| --- | --- | --- |
| Inhalación, local, a largo plazo | 0.7 mg/m³ (TRA Workers 3.0) | 0.14 |
| Inhalación, local, agudo | 2.8 mg/m³ (TRA Workers 3.0) | 0.28 |

**4.3.15. Exposición de los trabajadores: *Manual maintenance (cleaning and repair) of machinery at non-dedicated facility* (PROC 28)**

| **Vía de exposición y tipo de efectos** | **Estimación de la exposición** | **CCR** |
| --- | --- | --- |
| Inhalación, local, a largo plazo | 0.7 mg/m³ (ECETOC TRA Workers) | 0.14 |
| Inhalación, local, agudo | 2.8 mg/m³ (ECETOC TRA Workers) | 0.28 |

**4.4. Orientación para el UI con el fin de determinar si opera dentro de los límites fijados por el escenario de exposición (EE)**

Herramienta de escala: For the evaluation of spraying activities the ART (Advanced Reach Tool) modeling tool has been used. In case the DU cannot demonstrate safe use with the conditions currently presented in this SDS Annex, the ART modeling Tool can be used as scaling tool.

**Capítulo 5. ES 5: Amplio uso por trabajadores profesionales; Varios sectores (SU 0, SU 1, SU 5, SU 13, SU 19, SU 20)**

**5.1. Sección del título**

Nombre del EE: Professional use; Outdoor use

Sector de uso: Otros (SU 0), Agricultura, silvicultura, pesca (SU 1), Industria textil, del cuero y de la peletería (SU 5), Fabricación de otros productos minerales no metálicos diversos, por ejemplo, yeso o cemento (SU 13), Construcción de edificios y obras de construcción (SU 19), Servicios de salud (SU 20)

|  |  |
| --- | --- |
| **Medio ambiente** |  |
| 1: Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor) | ERC 8d |
| **Trabajador** |  |
| 2: *Chemical production in closed process without likelihood of exposure or in containment conditions.* | PROC 1 |
| 3: *Chemical production in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions* | PROC 2 |
| 4: *Manufacture or formulation in closed batch processes with occasional controlled exposure or processes with equivalent containment conditions* | PROC 3 |
| 5: Chemical production where opportunity for exposure arises | PROC 4 |
| 6: Mixing or blending in batch processes | PROC 5 |
| 7: *Transfer of substance or mixture (charging/discharging) at non-dedicated facilities* | PROC 8a, PROC 26 |
| 8: *Transfer of substance or mixture (charging/discharging) at dedicated facilities* | PROC 8b, PROC 26 |
| 9: *Transfer of substance or mixture into small containers (dedicated filling line, including weighing)* | PROC 9, PROC 26 |
| 10: Roller application or brushing | PROC 10 |
| 11: Outdoor use; Non-industrial spraying | PROC 11 |
| 12: Outdoor use; Non-industrial spraying | PROC 11 |
| 13: Use as laboratory reagent | PROC 15, PROC 26 |
| 14: Mixing operations; Manual activities involving hand contact | PROC 19 |
| 15: *Equipment cleaning and maintenance at non-dedicated facility* | PROC 8a |
| 16: Use of functional fluids in small devices | PROC 20 |

**5.2. Condiciones de uso que afectan a la exposición**

**5.2.1. Control de la exposición de los trabajadores**

**Condiciones de uso aplicables a todos los escenarios de contribución**

|  |
| --- |
| **Otras condiciones que afecten a la exposición de los trabajadores** |
| Outdoor use |
| Assumes process temperature up to 20 °C |

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**Condiciones específicas de uso por escenario de contribución**

|  |  |
| --- | --- |
| **Escenario coadyuvante** | **Se necesitan medidas específicas** |
| ***Chemical production in closed process without likelihood of exposure or in containment conditions.* (PROC 1)** | Covers concentrations up to 100 %  Solid, medium dustiness  Covers use up to 8 h/day  *Assumes a good basic standard of occupational hygiene is implemented*  Wear chemically resistant gloves (tested to EN374) in combination with ‘basic’ employee training.; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands.; For further specification, refer to section 8 of the SDS.  *Use suitable eye protection* |
| ***Chemical production in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions* (PROC 2)** | Covers concentrations up to 100 %  Solid, medium dustiness  Covers use up to 8 h/day  *Assumes a good basic standard of occupational hygiene is implemented*  Wear chemically resistant gloves (tested to EN374) in combination with ‘basic’ employee training.; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands.; For further specification, refer to section 8 of the SDS.  *Use suitable eye protection* |
| ***Manufacture or formulation in closed batch processes with occasional controlled exposure or processes with equivalent containment conditions* (PROC 3)** | Covers concentrations up to 100 %  Solid, medium dustiness  Covers use up to 8 h/day  *Assumes a good basic standard of occupational hygiene is implemented*  Wear chemically resistant gloves (tested to EN374) in combination with ‘basic’ employee training.; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands.; For further specification, refer to section 8 of the SDS.  *Use suitable eye protection* |
| **Chemical production where opportunity for exposure arises (PROC 4)** | Covers concentrations up to 100 %  Solid, medium dustiness  Covers use up to 8 h/day  *Assumes a good basic standard of occupational hygiene is implemented*  Wear suitable respiratory protection.; Inhalation - minimum efficiency of 90 %; For further specification, refer to section 8 of the SDS.  Wear chemically resistant gloves (tested to EN374) in combination with ‘basic’ employee training.; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands.; For further specification, refer to section 8 of the SDS.  *Use suitable eye protection* |
| **Mixing or blending in batch processes (PROC 5)** | Covers concentrations up to 100 %  Solid, medium dustiness  Covers use up to 8 h/day  *Assumes a good basic standard of occupational hygiene is implemented*  Wear chemically resistant gloves (tested to EN374) in combination with ‘basic’ employee training.; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands.; For further specification, refer to section 8 of the SDS.  Wear suitable respiratory protection.; Inhalation - minimum efficiency of 90 %; For further specification, refer to section 8 of the SDS.  *Use suitable eye protection* |
| ***Transfer of substance or mixture (charging/discharging) at non-dedicated facilities* (PROC 8a, PROC 26)** | Covers concentrations up to 100 %  Solid, medium dustiness  Covers use up to 8 h/day  *Assumes a good basic standard of occupational hygiene is implemented*  Wear chemically resistant gloves (tested to EN374) in combination with ‘basic’ employee training.; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands.; For further specification, refer to section 8 of the SDS.  *Use suitable eye protection*  Wear suitable respiratory protection.; Inhalation - minimum efficiency of 90 %; For further specification, refer to section 8 of the SDS. |
| ***Transfer of substance or mixture (charging/discharging) at dedicated facilities* (PROC 8b, PROC 26)** | Covers concentrations up to 100 %  Solid, medium dustiness  Covers use up to 8 h/day  *Assumes a good basic standard of occupational hygiene is implemented*  Wear chemically resistant gloves (tested to EN374) in combination with ‘basic’ employee training.; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands.; For further specification, refer to section 8 of the SDS.  *Use suitable eye protection*  Wear suitable respiratory protection.; Inhalation - minimum efficiency of 90 %; For further specification, refer to section 8 of the SDS. |
| ***Transfer of substance or mixture into small containers (dedicated filling line, including weighing)* (PROC 9, PROC 26)** | Covers concentrations up to 100 %  Solid, medium dustiness  Covers use up to 8 h/day  *Assumes a good basic standard of occupational hygiene is implemented*  *Use suitable eye protection*  Wear chemically resistant gloves (tested to EN374) in combination with ‘basic’ employee training.; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands.; For further specification, refer to section 8 of the SDS.  Wear suitable respiratory protection.; Inhalation - minimum efficiency of 90 %; For further specification, refer to section 8 of the SDS. |
| **Roller application or brushing (PROC 10)** | Covers concentrations up to 100 %  Solid, medium dustiness  Covers use up to 8 h/day  *Assumes a good basic standard of occupational hygiene is implemented*  Wear chemically resistant gloves (tested to EN374) in combination with ‘basic’ employee training.; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands.; For further specification, refer to section 8 of the SDS.  *Use suitable eye protection*  Wear suitable respiratory protection.; Inhalation - minimum efficiency of 90 %; For further specification, refer to section 8 of the SDS. |
| **Outdoor use; Non-industrial spraying (PROC 11)** | Covers concentrations up to 35 %  *Physical form of the product is assumed as liquid, this is conservative as it is a solid in a liquid with a very low vapour pressure.*  Covers use up to 2 h/day  *Covers activity where the primary emission source is located out the breathing zone of the worker (i.e. the volume of air is more than 1 metre in any direction of the worker’s head)*  Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision.  *Covers spraying direction only horizontal or downward*  *covers spraying with high compressed air*  *covers high spraying application rate (> 3 L/minute)*  *Use suitable eye protection.*  Wear suitable gloves tested to EN374.; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands.; For further specification, refer to section 8 of the SDS.  *covers partial personal enclosure (e.g. truck cabin)* |
| **Outdoor use; Non-industrial spraying (PROC 11)** | Covers concentrations up to 35 %  *Physical form of the product is assumed as liquid, this is conservative as it is a solid in a liquid with a very low vapour pressure.*  Covers use up to 0.25 h/day  *Covers activity where the primary emission source is located in the breathing zone of the worker (i.e. the volume of air within 1 metre in any direction of the worker’s head)*  Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision.  *covers any spraying direction*  *covers spraying with high compressed air*  *covers high spraying application rate (> 3 L/minute)*  *Use suitable eye protection.*  *Covers spraying activity wearing respiratory protection with minimum efficiency of 95% (i.e. APF of 20)*  Wear suitable gloves tested to EN374.; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands.; For further specification, refer to section 8 of the SDS. |
| **Use as laboratory reagent (PROC 15, PROC 26)** | Covers concentrations up to 100 %  Solid, medium dustiness  Covers use up to 8 h/day  *Assumes a good basic standard of occupational hygiene is implemented*  Wear chemically resistant gloves (tested to EN374) in combination with ‘basic’ employee training.; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands.; For further specification, refer to section 8 of the SDS.  *Use suitable eye protection* |
| **Mixing operations; Manual activities involving hand contact (PROC 19)** | Covers concentrations up to 100 %  Solid, medium dustiness  Covers use up to 8 h/day  *Assumes a good basic standard of occupational hygiene is implemented*  Wear chemically resistant gloves (tested to EN374) in combination with ‘basic’ employee training.; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands.; For further specification, refer to section 8 of the SDS.  *Use suitable eye protection*  Wear suitable respiratory protection.; Inhalation - minimum efficiency of 90 %; For further specification, refer to section 8 of the SDS. |
| ***Equipment cleaning and maintenance at non-dedicated facility* (PROC 8a)** | Covers concentrations up to 100 %  Solid, medium dustiness  Covers use up to 8 h/day  *Assumes a good basic standard of occupational hygiene is implemented*  *Handle substance within a closed system [ES47] Drain down and flush system prior to equipment break-in or maintenance [E55] Transfer via enclosed lines [E52]*  Wear chemically resistant gloves (tested to EN374) in combination with ‘basic’ employee training.; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands.; For further specification, refer to section 8 of the SDS.  *Use suitable eye protection*  Wear suitable respiratory protection.; Inhalation - minimum efficiency of 90 %; For further specification, refer to section 8 of the SDS. |
| **Use of functional fluids in small devices (PROC 20)** | Covers concentrations up to 100 %  Solid, medium dustiness  Covers use up to 8 h/day  *Assumes a good basic standard of occupational hygiene is implemented*  Wear chemically resistant gloves (tested to EN374) in combination with ‘basic’ employee training.; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands.; For further specification, refer to section 8 of the SDS.  *Use suitable eye protection* |

**5.3. Estimación de la exposición y referencia a su fuente**

**5.3.1. Exposición de los trabajadores: *Chemical production in closed process without likelihood of exposure or in containment conditions.* (PROC 1)**

| **Vía de exposición y tipo de efectos** | **Estimación de la exposición** | **CCR** |
| --- | --- | --- |
| Inhalación, local, a largo plazo | 7E-3 mg/m³ (TRA Workers 3.0) | < 0.01 |
| Inhalación, local, agudo | 0.028 mg/m³ (TRA Workers 3.0) | < 0.01 |

**5.3.2. Exposición de los trabajadores: *Chemical production in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions* (PROC 2)**

| **Vía de exposición y tipo de efectos** | **Estimación de la exposición** | **CCR** |
| --- | --- | --- |
| Inhalación, local, a largo plazo | 0.7 mg/m³ (TRA Workers 3.0) | 0.14 |
| Inhalación, local, agudo | 2.8 mg/m³ (TRA Workers 3.0) | 0.28 |

**5.3.3. Exposición de los trabajadores: *Manufacture or formulation in closed batch processes with occasional controlled exposure or processes with equivalent containment conditions* (PROC 3)**

| **Vía de exposición y tipo de efectos** | **Estimación de la exposición** | **CCR** |
| --- | --- | --- |
| Inhalación, local, a largo plazo | 0.7 mg/m³ (TRA Workers 3.0) | 0.14 |
| Inhalación, local, agudo | 2.8 mg/m³ (TRA Workers 3.0) | 0.28 |

**5.3.4. Exposición de los trabajadores: Chemical production where opportunity for exposure arises (PROC 4)**

| **Vía de exposición y tipo de efectos** | **Estimación de la exposición** | **CCR** |
| --- | --- | --- |
| Inhalación, local, a largo plazo | 0.35 mg/m³ (TRA Workers 3.0) | 0.07 |
| Inhalación, local, agudo | 1.4 mg/m³ (TRA Workers 3.0) | 0.14 |

**5.3.5. Exposición de los trabajadores: Mixing or blending in batch processes (PROC 5)**

| **Vía de exposición y tipo de efectos** | **Estimación de la exposición** | **CCR** |
| --- | --- | --- |
| Inhalación, local, a largo plazo | 0.35 mg/m³ (TRA Workers 3.0) | 0.07 |
| Inhalación, local, agudo | 1.4 mg/m³ (TRA Workers 3.0) | 0.14 |

**5.3.6. Exposición de los trabajadores: *Transfer of substance or mixture (charging/discharging) at non-dedicated facilities* (PROC 8a, PROC 26)**

| **Vía de exposición y tipo de efectos** | **Estimación de la exposición** | **CCR** |
| --- | --- | --- |
| Inhalación, local, a largo plazo | 0.7 mg/m³ (TRA Workers 3.0) | 0.14 |
| Inhalación, local, agudo | 2.8 mg/m³ (TRA Workers 3.0) | 0.28 |

**5.3.7. Exposición de los trabajadores: *Transfer of substance or mixture (charging/discharging) at dedicated facilities* (PROC 8b, PROC 26)**

| **Vía de exposición y tipo de efectos** | **Estimación de la exposición** | **CCR** |
| --- | --- | --- |
| Inhalación, local, a largo plazo | 0.35 mg/m³ (TRA Workers 3.0) | 0.07 |
| Inhalación, local, agudo | 1.4 mg/m³ (TRA Workers 3.0) | 0.14 |

**5.3.8. Exposición de los trabajadores: *Transfer of substance or mixture into small containers (dedicated filling line, including weighing)* (PROC 9, PROC 26)**

| **Vía de exposición y tipo de efectos** | **Estimación de la exposición** | **CCR** |
| --- | --- | --- |
| Inhalación, local, a largo plazo | 0.35 mg/m³ (TRA Workers 3.0) | 0.07 |
| Inhalación, local, agudo | 1.4 mg/m³ (TRA Workers 3.0) | 0.14 |

**5.3.9. Exposición de los trabajadores: Roller application or brushing (PROC 10)**

| **Vía de exposición y tipo de efectos** | **Estimación de la exposición** | **CCR** |
| --- | --- | --- |
| Inhalación, local, a largo plazo | 0.35 mg/m³ (TRA Workers 3.0) | 0.07 |
| Inhalación, local, agudo | 1.4 mg/m³ (TRA Workers 3.0) | 0.14 |

**5.3.10. Exposición de los trabajadores: Outdoor use; Non-industrial spraying (PROC 11)**

| **Vía de exposición y tipo de efectos** | **Estimación de la exposición** | **CCR** |
| --- | --- | --- |
| Inhalación, local, a largo plazo | 1.2 mg/m³ (ART) | 0.24 |
| Inhalación, local, agudo | 9.6 mg/m³ (ART) | 0.96 |

**5.3.11. Exposición de los trabajadores: Outdoor use; Non-industrial spraying (PROC 11)**

| **Vía de exposición y tipo de efectos** | **Estimación de la exposición** | **CCR** |
| --- | --- | --- |
| Inhalación, local, a largo plazo | 1.2 mg/m³ (ART) | 0.24 |
| Inhalación, local, agudo | 9.6 mg/m³ (ART) | 0.96 |

**5.3.12. Exposición de los trabajadores: Use as laboratory reagent (PROC 15, PROC 26)**

| **Vía de exposición y tipo de efectos** | **Estimación de la exposición** | **CCR** |
| --- | --- | --- |
| Inhalación, local, a largo plazo | 0.35 mg/m³ (TRA Workers 3.0) | 0.07 |
| Inhalación, local, agudo | 1.4 mg/m³ (TRA Workers 3.0) | 0.14 |

**5.3.13. Exposición de los trabajadores: Mixing operations; Manual activities involving hand contact (PROC 19)**

| **Vía de exposición y tipo de efectos** | **Estimación de la exposición** | **CCR** |
| --- | --- | --- |
| Inhalación, local, a largo plazo | 0.35 mg/m³ (TRA Workers 3.0) | 0.07 |
| Inhalación, local, agudo | 1.4 mg/m³ (TRA Workers 3.0) | 0.14 |

**5.3.14. Exposición de los trabajadores: *Equipment cleaning and maintenance at non-dedicated facility* (PROC 8a)**

| **Vía de exposición y tipo de efectos** | **Estimación de la exposición** | **CCR** |
| --- | --- | --- |
| Inhalación, local, a largo plazo | 0.7 mg/m³ (TRA Workers 3.0) | 0.14 |
| Inhalación, local, agudo | 2.8 mg/m³ (TRA Workers 3.0) | 0.28 |

**5.3.15. Exposición de los trabajadores: Use of functional fluids in small devices (PROC 20)**

| **Vía de exposición y tipo de efectos** | **Estimación de la exposición** | **CCR** |
| --- | --- | --- |
| Inhalación, local, a largo plazo | 0.7 mg/m³ (TRA Workers 3.0) | 0.14 |
| Inhalación, local, agudo | 2.8 mg/m³ (TRA Workers 3.0) | 0.28 |

**5.4. Orientación para el UI con el fin de determinar si opera dentro de los límites fijados por el escenario de exposición (EE)**

Orientación: Application of de-icing agent (mixture of 70% NaCl and 30% of a 20% solution of CaCl2) assumes a fraction of 0.06 of CaCl2 in road salt with an annual tonnage of 0.09 tonnes/km for 25 emission days per year. Application of de-icing agent (liquid CaCl2 brine (max. 35% solution)) assumes a fraction of 0.35 of CaCl2 in road salt with an annual tonnage of 0.28 tonnes/km for 25 emission days per year. Application of Dust suppressor (solid CaCl2 (up to 80%)) assumes a fraction of 0.8 of CaCl2 in road salt with an annual tonnage of 2.4 tonnes/km for 3 emission days per year. Application of Dust suppressor (solid CaCl2 (up to 37%)) assumes a fraction of 0.37 of CaCl2 in road salt with an annual tonnage of 1.11 tonnes/km for 3 emission days per year.

**Capítulo 6. ES 6: Uso por el consumidor; Varios productos (PC 0, PC 2, PC 4, PC 12, PC 16, PC 27, PC 35, PC 37)**

**6.1. Sección del título**

Nombre del EE: Consumer use; Indoor or outdoor use

Categoría de productos: Otros (PC 0), Adsorbentes (PC 2), Productos anticongelantes y descongelantes (PC 4), Fertilizantes (PC 12), Fluidos portadores de calor (PC 16), Productos fitosanitarios (PC 27), Productos de lavado y limpieza (PC 35), Productos químicos para el tratamiento del agua (PC 37)

|  |  |
| --- | --- |
| **Medio ambiente** |  |
| 1: Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor) | ERC 8a |
| 2: Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor) | ERC 8d |
| **Consumidor** |  |
| 3: Dust suppressant; No spraying | PC 0 |
| 4: Dust suppressant; Spraying | PC 0 |
| 5: *Humidity adsorbants* | PC 0 |
| 6: *Cement/concrete/mortar* | PC 0 |
| 7: Adsorbents | PC 2 |
| 8: Anti-freeze and de-icing products; No spraying | PC 4 |
| 9: Anti-freeze and de-icing products; Spraying | PC 4 |
| 10: Fertilizers; No spraying | PC 12 |
| 11: Fertilizers; Spraying | PC 12 |
| 12: Heat transfer fluids | PC 16 |
| 13: Plant protection products; No spraying | PC 27 |
| 14: Plant protection products; Spraying | PC 27 |
| 15: Water treatment chemicals | PC 37 |
| 16: Washing and cleaning products; No spraying | PC 35 |
| 17: Washing and cleaning products; Spraying | PC 35 |

**6.2. Condiciones de uso que afectan a la exposición**

**6.2.1. Control de la exposición de los consumidores: Dust suppressant; No spraying (PC 0)**

|  |
| --- |
| **Características del producto (artículo)** |
| Covers concentrations up to 100 % |
| *Solid, medium dustiness. Covers also liquid form* |
| **Cantidad utilizada, frecuencia y duración de uso/exposición** |
| Covers use up to 1 events per day |
| *Covers use up to 24 h* |
| **Información y consejos de comportamiento para los consumidores** |
| *Requires room with good ventilation* |
| *Use suitable eye protection. Avoid direct eye contact with product, also via contamination on hands.* |
| **Otras condiciones que afectan a la exposición de los consumidores** |
| Release area <= 125 m2 |

**6.2.2. Control de la exposición de los consumidores: Dust suppressant; Spraying (PC 0)**

|  |
| --- |
| **Características del producto (artículo)** |
| Covers concentrations up to 45 % |
| *Physical form of the product is assumed as liquid, this is conservative as it is a solid in a liquid with a very low vapour pressure.* |
| *Covers spraying activity* |
| **Cantidad utilizada, frecuencia y duración de uso/exposición** |
| Covers use up to 1 events per day |
| *Covers 10 minutes spraying application* |
| **Información y consejos de comportamiento para los consumidores** |
| *Requires room with good ventilation* |
| *Use suitable eye protection. Avoid direct eye contact with product, also via contamination on hands.* |

**6.2.3. Control de la exposición de los consumidores: *Humidity adsorbants* (PC 0)**

|  |
| --- |
| **Características del producto (artículo)** |
| Covers concentrations up to 100 % |
| *Solid, medium dustiness. Covers also liquid form* |
| **Cantidad utilizada, frecuencia y duración de uso/exposición** |
| Covers use up to 1 events per day |
| *Covers use up to 24 h* |
| **Información y consejos de comportamiento para los consumidores** |
| *Requires room with good ventilation* |
| *Use suitable eye protection. Avoid direct eye contact with product, also via contamination on hands.* |
| **Otras condiciones que afectan a la exposición de los consumidores** |
| Release area <= 125 m2 |

**6.2.4. Control de la exposición de los consumidores: *Cement/concrete/mortar* (PC 0)**

|  |
| --- |
| **Características del producto (artículo)** |
| Covers concentrations up to 100 % |
| *Solid, medium dustiness. Covers also liquid form* |
| **Cantidad utilizada, frecuencia y duración de uso/exposición** |
| Covers use up to 1 events per day |
| *Covers use up to 24 h* |
| **Información y consejos de comportamiento para los consumidores** |
| *Requires room with good ventilation* |
| *Use suitable eye protection. Avoid direct eye contact with product, also via contamination on hands.* |
| **Otras condiciones que afectan a la exposición de los consumidores** |
| Release area <= 125 m2 |

**6.2.5. Control de la exposición de los consumidores: Adsorbents (PC 2)**

|  |
| --- |
| **Características del producto (artículo)** |
| Covers concentrations up to 100 % |
| *Solid, medium dustiness. Covers also liquid form* |
| **Cantidad utilizada, frecuencia y duración de uso/exposición** |
| Covers use up to 1 events per day |
| *Covers use up to 24 h* |
| **Información y consejos de comportamiento para los consumidores** |
| *Requires room with good ventilation* |
| *Use suitable eye protection. Avoid direct eye contact with product, also via contamination on hands.* |
| **Otras condiciones que afectan a la exposición de los consumidores** |
| Release area <= 125 m2 |

**6.2.6. Control de la exposición de los consumidores: Anti-freeze and de-icing products; No spraying (PC 4)**

|  |
| --- |
| **Características del producto (artículo)** |
| Covers concentrations up to 100 % |
| *Solid, medium dustiness. Covers also liquid form* |
| **Cantidad utilizada, frecuencia y duración de uso/exposición** |
| For each use event, covers use amounts up to 5E4 g/event |
| Covers use up to 1 events per day |
| *Covers use up to 24 h* |
| **Información y consejos de comportamiento para los consumidores** |
| *Requires room with good ventilation* |
| *Use suitable eye protection. Avoid direct eye contact with product, also via contamination on hands.* |
| **Otras condiciones que afectan a la exposición de los consumidores** |
| Release area <= 125 m2 |

**6.2.7. Control de la exposición de los consumidores: Anti-freeze and de-icing products; Spraying (PC 4)**

|  |
| --- |
| **Características del producto (artículo)** |
| Covers concentrations up to 45 % |
| *Physical form of the product is assumed as liquid, this is conservative as it is a solid in a liquid with a very low vapour pressure.* |
| *Covers spraying activity* |
| **Cantidad utilizada, frecuencia y duración de uso/exposición** |
| Covers use up to 1 events per day |
| *Covers 10 minutes spraying application* |
| **Información y consejos de comportamiento para los consumidores** |
| *Requires room with good ventilation* |
| *Use suitable eye protection. Avoid direct eye contact with product, also via contamination on hands.* |

**6.2.8. Control de la exposición de los consumidores: Fertilizers; No spraying (PC 12)**

|  |
| --- |
| **Características del producto (artículo)** |
| Covers concentrations up to 100 % |
| *Solid, medium dustiness. Covers also liquid form* |
| **Cantidad utilizada, frecuencia y duración de uso/exposición** |
| Covers use up to 1 events per day |
| *Covers use up to 24 h* |
| **Información y consejos de comportamiento para los consumidores** |
| *Requires room with good ventilation* |
| *Use suitable eye protection. Avoid direct eye contact with product, also via contamination on hands.* |
| **Otras condiciones que afectan a la exposición de los consumidores** |
| Release area <= 125 m2 |

**6.2.9. Control de la exposición de los consumidores: Fertilizers; Spraying (PC 12)**

|  |
| --- |
| **Características del producto (artículo)** |
| Covers concentrations up to 45 % |
| *Physical form of the product is assumed as liquid, this is conservative as it is a solid in a liquid with a very low vapour pressure.* |
| *Covers spraying activity* |
| **Cantidad utilizada, frecuencia y duración de uso/exposición** |
| Covers use up to 1 events per day |
| *Covers 10 minutes spraying application* |
| **Información y consejos de comportamiento para los consumidores** |
| *Requires room with good ventilation* |
| *Use suitable eye protection. Avoid direct eye contact with product, also via contamination on hands.* |

**6.2.10. Control de la exposición de los consumidores: Heat transfer fluids (PC 16)**

|  |
| --- |
| **Características del producto (artículo)** |
| Covers concentrations up to 100 % |
| *Solid, medium dustiness. Covers also liquid form* |
| **Cantidad utilizada, frecuencia y duración de uso/exposición** |
| Covers use up to 1 events per day |
| *Covers use up to 24 h* |
| **Información y consejos de comportamiento para los consumidores** |
| *Requires room with good ventilation* |
| *Use suitable eye protection. Avoid direct eye contact with product, also via contamination on hands.* |
| **Otras condiciones que afectan a la exposición de los consumidores** |
| Release area <= 125 m2 |

**6.2.11. Control de la exposición de los consumidores: Plant protection products; No spraying (PC 27)**

|  |
| --- |
| **Características del producto (artículo)** |
| Covers concentrations up to 100 % |
| *Solid, medium dustiness. Covers also liquid form* |
| **Cantidad utilizada, frecuencia y duración de uso/exposición** |
| Covers use up to 1 events per day |
| *Covers use up to 24 h* |
| **Información y consejos de comportamiento para los consumidores** |
| *Requires room with good ventilation* |
| *Use suitable eye protection. Avoid direct eye contact with product, also via contamination on hands.* |
| **Otras condiciones que afectan a la exposición de los consumidores** |
| Release area <= 125 m2 |

**6.2.12. Control de la exposición de los consumidores: Plant protection products; Spraying (PC 27)**

|  |
| --- |
| **Características del producto (artículo)** |
| Covers concentrations up to 45 % |
| *Physical form of the product is assumed as liquid, this is conservative as it is a solid in a liquid with a very low vapour pressure.* |
| *Covers spraying activity* |
| **Cantidad utilizada, frecuencia y duración de uso/exposición** |
| Covers use up to 1 events per day |
| *Covers 10 minutes spraying application* |
| **Información y consejos de comportamiento para los consumidores** |
| *Requires room with good ventilation* |
| *Use suitable eye protection. Avoid direct eye contact with product, also via contamination on hands.* |

**6.2.13. Control de la exposición de los consumidores: Water treatment chemicals (PC 37)**

|  |
| --- |
| **Características del producto (artículo)** |
| Covers concentrations up to 100 % |
| *Solid, medium dustiness. Covers also liquid form* |
| *Covers exposure via inhalation route* |
| **Cantidad utilizada, frecuencia y duración de uso/exposición** |
| Covers use up to 1 events per day |
| *Covers use up to 24 h* |
| **Información y consejos de comportamiento para los consumidores** |
| *Requires room with good ventilation* |
| *Use suitable eye protection. Avoid direct eye contact with product, also via contamination on hands.* |
| **Otras condiciones que afectan a la exposición de los consumidores** |
| Release area <= 125 m2 |

**6.2.14. Control de la exposición de los consumidores: Washing and cleaning products; No spraying (PC 35)**

|  |
| --- |
| **Características del producto (artículo)** |
| Covers concentrations up to 100 % |
| *Solid, medium dustiness. Covers also liquid form* |
| **Cantidad utilizada, frecuencia y duración de uso/exposición** |
| Covers use up to 1 events per day |
| *Covers use up to 24 h* |
| **Información y consejos de comportamiento para los consumidores** |
| *Requires room with good ventilation* |
| *Use suitable eye protection. Avoid direct eye contact with product, also via contamination on hands.* |
| **Otras condiciones que afectan a la exposición de los consumidores** |
| Release area <= 125 m2 |

**6.2.15. Control de la exposición de los consumidores: Washing and cleaning products; Spraying (PC 35)**

|  |
| --- |
| **Características del producto (artículo)** |
| Covers concentrations up to 45 % |
| *Physical form of the product is assumed as liquid, this is conservative as it is a solid in a liquid with a very low vapour pressure.* |
| *Covers spraying activity* |
| **Cantidad utilizada, frecuencia y duración de uso/exposición** |
| Covers use up to 1 events per day |
| *Covers 10 minutes spraying application* |
| **Información y consejos de comportamiento para los consumidores** |
| *Requires room with good ventilation* |
| *Use suitable eye protection. Avoid direct eye contact with product, also via contamination on hands.* |

**6.3. Estimación de la exposición y referencia a su fuente**

**6.3.1. Exposición de los consumidores: Dust suppressant; No spraying (PC 0)**

| **Vía de exposición y tipo de efectos** | **Estimación de la exposición** | **CCR** |
| --- | --- | --- |
| Inhalación, local, a largo plazo | 5E-3 mg/m³ (ConsExpo) | < 0.01 |
| Inhalación, local, agudo | 0.01 mg/m³ (ConsExpo) | < 0.01 |

**6.3.2. Exposición de los consumidores: Dust suppressant; Spraying (PC 0)**

| **Vía de exposición y tipo de efectos** | **Estimación de la exposición** | **CCR** |
| --- | --- | --- |
| Inhalación, local, a largo plazo | 0.687 mg/m³ (ConsExpo) | 0.275 |
| Inhalación, local, agudo | 0.69 mg/m³ (ConsExpo) | 0.138 |

**6.3.3. Exposición de los consumidores: *Humidity adsorbants* (PC 0)**

| **Vía de exposición y tipo de efectos** | **Estimación de la exposición** | **CCR** |
| --- | --- | --- |
| Inhalación, local, a largo plazo | 5E-3 mg/m³ (ConsExpo) | < 0.01 |
| Inhalación, local, agudo | 0.01 mg/m³ (ConsExpo) | < 0.01 |

**6.3.4. Exposición de los consumidores: *Cement/concrete/mortar* (PC 0)**

| **Vía de exposición y tipo de efectos** | **Estimación de la exposición** | **CCR** |
| --- | --- | --- |
| Inhalación, local, a largo plazo | 5E-3 mg/m³ (ConsExpo) | < 0.01 |
| Inhalación, local, agudo | 0.01 mg/m³ (ConsExpo) | < 0.01 |

**6.3.5. Exposición de los consumidores: Adsorbents (PC 2)**

| **Vía de exposición y tipo de efectos** | **Estimación de la exposición** | **CCR** |
| --- | --- | --- |
| Inhalación, local, a largo plazo | 5E-3 mg/m³ (ConsExpo) | < 0.01 |
| Inhalación, local, agudo | 0.01 mg/m³ (ConsExpo) | < 0.01 |

**6.3.6. Exposición de los consumidores: Anti-freeze and de-icing products; No spraying (PC 4)**

| **Vía de exposición y tipo de efectos** | **Estimación de la exposición** | **CCR** |
| --- | --- | --- |
| Inhalación, local, a largo plazo | 5E-3 mg/m³ (ConsExpo) | < 0.01 |
| Inhalación, local, agudo | 0.01 mg/m³ (ConsExpo) | < 0.01 |

**6.3.7. Exposición de los consumidores: Anti-freeze and de-icing products; Spraying (PC 4)**

| **Vía de exposición y tipo de efectos** | **Estimación de la exposición** | **CCR** |
| --- | --- | --- |
| Inhalación, local, a largo plazo | 0.687 mg/m³ (ConsExpo) | 0.275 |
| Inhalación, local, agudo | 0.69 mg/m³ (ConsExpo) | 0.138 |

**6.3.8. Exposición de los consumidores: Fertilizers; No spraying (PC 12)**

| **Vía de exposición y tipo de efectos** | **Estimación de la exposición** | **CCR** |
| --- | --- | --- |
| Inhalación, local, a largo plazo | 5E-3 mg/m³ (ConsExpo) | < 0.01 |
| Inhalación, local, agudo | 0.01 mg/m³ (ConsExpo) | < 0.01 |

**6.3.9. Exposición de los consumidores: Fertilizers; Spraying (PC 12)**

| **Vía de exposición y tipo de efectos** | **Estimación de la exposición** | **CCR** |
| --- | --- | --- |
| Inhalación, local, a largo plazo | 0.687 mg/m³ (ConsExpo) | 0.275 |
| Inhalación, local, agudo | 0.69 mg/m³ (ConsExpo) | 0.138 |

**6.3.10. Exposición de los consumidores: Heat transfer fluids (PC 16)**

| **Vía de exposición y tipo de efectos** | **Estimación de la exposición** | **CCR** |
| --- | --- | --- |
| Inhalación, local, a largo plazo | 5E-3 mg/m³ (ConsExpo) | < 0.01 |
| Inhalación, local, agudo | 0.01 mg/m³ (ConsExpo) | < 0.01 |

**6.3.11. Exposición de los consumidores: Plant protection products; No spraying (PC 27)**

| **Vía de exposición y tipo de efectos** | **Estimación de la exposición** | **CCR** |
| --- | --- | --- |
| Inhalación, local, a largo plazo | 5E-3 mg/m³ (ConsExpo) | < 0.01 |
| Inhalación, local, agudo | 0.01 mg/m³ (ConsExpo) | < 0.01 |

**6.3.12. Exposición de los consumidores: Plant protection products; Spraying (PC 27)**

| **Vía de exposición y tipo de efectos** | **Estimación de la exposición** | **CCR** |
| --- | --- | --- |
| Inhalación, local, a largo plazo | 0.687 mg/m³ (ConsExpo) | 0.275 |
| Inhalación, local, agudo | 0.69 mg/m³ (ConsExpo) | 0.138 |

**6.3.13. Exposición de los consumidores: Water treatment chemicals (PC 37)**

| **Vía de exposición y tipo de efectos** | **Estimación de la exposición** | **CCR** |
| --- | --- | --- |
| Inhalación, local, a largo plazo | 5E-3 mg/m³ (ConsExpo) | < 0.01 |
| Inhalación, local, agudo | 0.01 mg/m³ (ConsExpo) | < 0.01 |

**6.3.14. Exposición de los consumidores: Washing and cleaning products; No spraying (PC 35)**

| **Vía de exposición y tipo de efectos** | **Estimación de la exposición** | **CCR** |
| --- | --- | --- |
| Inhalación, local, a largo plazo | 5E-3 mg/m³ (ConsExpo) | < 0.01 |
| Inhalación, local, agudo | 0.01 mg/m³ (ConsExpo) | < 0.01 |

**6.3.15. Exposición de los consumidores: Washing and cleaning products; Spraying (PC 35)**

| **Vía de exposición y tipo de efectos** | **Estimación de la exposición** | **CCR** |
| --- | --- | --- |
| Inhalación, local, a largo plazo | 0.687 mg/m³ (ConsExpo) | 0.275 |
| Inhalación, local, agudo | 0.69 mg/m³ (ConsExpo) | 0.138 |

**6.4. Orientación para el UI con el fin de determinar si opera dentro de los límites fijados por el escenario de exposición (EE)**