

## Citric acid - Exposure scenarios

### Index

1. Intermediate
2. Formulation
3. Personal care products
4. Detergent and cleaning products
5. Paper industry
6. Construction products
7. Polymers and plastics
8. Oil industry
9. Paints and coatings
10. Photography products
11. Textile industry
12. Laboratory reagents
13. Water treatment
14. Treatment of metal surfaces
15. Agricultural applications
16. Medical devices

<b>1. Exposure Scenario</b>	
<b>Use of citric acid as an intermediate. Industrial</b>	
<b>2. Processes and activities covered by the exposure scenario</b>	
<b>Sector of end use (SU):</b>	03. Industrial uses: Uses of substances as such or in preparations/mixtures industrial sites 09. Manufacture of fine chemicals
<b>Chemical product category (PC):</b>	19. Intermediate
<b>Process category (PROC):</b>	01. Use in closed process, no likelihood of exposure 02. Use in closed, continuous process with occasional controlled exposure 04. Use in batch and other process (synthesis) where opportunity for exposure arises 08b. Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
<b>Article Categories [AC]</b>	Not applicable
<b>Environmental release category (ERC):</b>	06a. Industrial use resulting in manufacture of another substance (use of intermediates)
<b>3. Operational conditions of use</b>	
<b>Control parameters</b>	Precautionary measures against electrostatic discharge to be taken. LEV and respiratory protection to be taken in areas where workers may come into contact with dust. Implement basic standards of occupational hygiene
<b>Duration and frequency of use:</b>	Users to specify
<b>Maximum amount per time or activity:</b>	Users to specify
<b>Other operational conditions of use:</b>	Avoid splashes and spills. Minimise manual handling.
<b>Engineering control measures:</b>	Local exhaust ventilation. <b>Exposure limit values:</b> Not known
<b>Other protective equipment:</b>	Good hygiene and housekeeping
<b>Respiratory protection</b>	Required where ventilation is insufficient or exposure is prolonged
<b>Hand protection:</b>	Rubber or PVC gloves
<b>Eye protection:</b>	Wear safety goggles or face shield. Ensure eyewash and showers are in the proximity to workstation location.
<b>Other information:</b>	Avoid contact with the substance or contaminated objects, Ensure regular cleaning of equipment and work area, good personal hygiene, staff training and management/supervision are in place.
<b>4. Physical form of substance / preparation / mixture or article</b>	
<b>Information on basic physical and chemical properties:</b>	Acid liquid
<b>5. Product specification</b>	
<b>Physical form of the product:</b>	Not applicable
<b>Concentration of substance in preparation / mixture or article:</b>	Users to specify
<b>Service life of substances in articles:</b>	Users to specify

<b>6. Risk Management Measures</b>	
<b>Occupational exposure controls:</b>	Keep area well ventilated. Precautions against dust explosion and irritation caused by dust inhalation.
<b>Environmental Exposure Controls:</b>	Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. The substance is biodegradable, has a low Kow and is not expected to bioaccumulate.
<b>7. Consumer use:</b>	Not applicable
<b>8. Waste management measures</b>	
<b>Description and information on safe handling of surplus or waste:</b>	Neutralise before treatment in a sewage treatment plant. Disposal untreated waste should be in accordance with local, state or national legislation.
<b>9. Exposure assessment</b>	
<b>Human exposure prediction:</b>	
<b>Workers:</b>	Use of PPE will to minimise handling and contact.
<b>Consumers:</b>	Not applicable
<b>Method:</b>	Not known
<b>Exposure estimation:</b>	Not known
<b>Secondary Poisoning:</b>	Not expected
<b>Indirect exposure to humans via the environment:</b>	Not expected
<b>10. Other information</b>	
<b>Control parameters:</b>	Refer to the eSDS
<b>Method to check compliance:</b>	Management/supervision to check that the RMMs in place are being used correctly and OCs followed. Ensure staff and workers receive adequate training with regular updates in the handling of chemicals

<b>2. Exposure Scenario</b>	
Use of citric acid formulation into preparations/mixtures –industrial	
<b>2. Processes and activities covered by the exposure scenario</b>	
<b>Sector of end use (SU):</b>	03. Industrial uses: Uses of substances as such or in preparations/mixtures at industrial sites
	10. Formulation [mixing] of preparations and/or re-packaging (excluding alloys)
	05. Manufacture of textiles, leather, fur
	13. Manufacture of other non-metallic mineral products, e.g. plasters, cement
	20. Health services
<b>Chemical product category (PC):</b>	0. Other
	01 Adhesives, sealants
	03. Air care products
	09a. Coatings and paints, thinners, paint removers
	09b. Fillers, putties, plasters, modelling clay
	12. Fertilizers
	18. Ink and toners
	30. Photo-chemicals.
	31. Polishes and wax blends
	35. Washing and cleaning products (including solvent based products)
	39. Cosmetics, personal care products
<b>Process category (PROC):</b>	01. Use in closed process, no likelihood of exposure
	02. Use in closed, continuous process with occasional controlled exposure
	03. Use in closed batch process (synthesis or formulation)
	04. Use in batch and other process (synthesis) where opportunity for exposure arises
	05. Mixing or blending in batch processes for formulation of preparations/mixtures and articles (multistage and/or significant contact)
	07. Industrial spraying
	08a. Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities

	08b. Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
	09. Transfer of substance or preparation into small containers (dedicated filling line, including weighing)
	13. Treatment of articles by dipping and pouring
	14. Production of preparations/mixtures or articles by tableting, compression, extrusion, pelletisation
	15. Use as laboratory reagent
	19. Hand-mixing with intimate contact and only PPE available
<b>Article Categories [AC]</b>	Not applicable
<b>Environmental release category (ERC):</b>	01. Manufacture of substances
	02. Formulation of preparations/mixtures
	03. Formulation in materials
	04. Industrial use of processing aids in processes and products, not becoming part of articles
<b>3. Operational conditions of use</b>	
<b>Control parameters</b>	Precautionary measures against electrostatic discharge to be taken. LEV and respiratory protection to be taken in areas where workers may come into contact with dust. Implement basic standards of occupational hygiene
<b>Duration and frequency of use:</b>	Users to specify
<b>Maximum amount per time or activity:</b>	Users to specify
<b>Other operational conditions of use:</b>	Avoid splashes and spills. Minimise manual handling.
<b>Engineering control measures:</b>	Local exhaust ventilation. <b>Exposure limit values:</b> Not known
<b>Other protective equipment:</b>	Good hygiene and housekeeping
<b>Respiratory protection</b>	Required where ventilation is insufficient or exposure is prolonged
<b>Hand protection:</b>	Rubber or PVC gloves
<b>Eye protection:</b>	Wear safety goggles or face shield. Industrial professional - ensure eyewash and showers are in the proximity to workstation location.
<b>Other information:</b>	Avoid contact with the substance or contaminated objects, Ensure regular cleaning of equipment and work area, good personal hygiene, staff training and management/supervision are in place.
<b>4. Physical form of substance / preparation / mixture or article</b>	
<b>Information on basic physical and chemical properties:</b>	Acid liquid
<b>5. Product specification</b>	
<b>Physical form of the product:</b>	Part of a preparation can be a liquid or solid.
<b>Concentration of substance in preparation / mixture or article:</b>	Users to specify
<b>Service life of substances in articles:</b>	Users to specify
<b>6. Risk Management Measures</b>	
<b>Occupational exposure controls:</b>	Keep area well ventilated. Precautions against dust explosion and irritation caused by dust inhalation.
<b>Environmental Exposure Controls:</b>	Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. The substance is biodegradable, has a low Kow and is not expected to bioaccumulate.
<b>7. Consumer use:</b>	Not applicable
<b>8. Waste management measures</b>	
<b>Description and information on safe handling of surplus or waste:</b>	Neutralise before treatment in a sewage treatment plant. Disposal untreated waste should be in accordance with local, state or national legislation.
<b>9. Exposure assessment</b>	
<b>Human exposure prediction:</b>	
<b>Workers:</b>	Use of PPE will to minimise handling and contact.
<b>Consumers:</b>	Not applicable
<b>Method:</b>	Not applicable
<b>Exposure estimation:</b>	Not known
<b>Secondary Poisoning:</b>	Not expected
<b>Indirect exposure to humans via the environment:</b>	Not expected

<b>10. Other information</b>	
<b>Control parameters:</b>	Refer to the eSDS
<b>Method to check compliance:</b>	Management/supervision to check that the RMMs in place are being used correctly and OCs followed. Ensure staff and workers receive adequate training with regular updates in the handling of chemicals

<b>3. Exposure Scenario</b>	
Use of citric acid in personal care products. <b>Industrial, professional and consumer users.</b>	
Use is treated as exempt from REACH in respect of human health, formulation is also covered under Citric acid -formulation	
<b>2. Processes and activities covered by the exposure scenario</b>	
<b>Sector of end use (SU):</b>	20. Health services
	21. Consumer uses: Private households (= general public = consumers)
	22. Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
<b>Chemical product category (PC):</b>	02. Adsorbents
	03. Air care products
<b>Process category (PROC):</b>	10. Roller application or brushing
	11. Non industrial spraying
	19. Hand-mixing with intimate contact and only PPE available
<b>Article Categories [AC]</b>	08. Paper articles
<b>Environmental release category (ERC):</b>	08a. Wide dispersive indoor use of processing aids in open systems
	11a. Wide dispersive indoor use of long-life articles and materials with low release
<b>3. Operational conditions of use</b>	
<b>Control parameters</b>	Implement basic standards of occupational hygiene
<b>Duration and frequency of use:</b>	Users to specify
<b>Maximum amount per time or activity:</b>	Users to specify
<b>Other operational conditions of use:</b>	Avoid splashes and spills.
<b>Engineering control measures:</b>	Keep area well ventilated. <b>Exposure limit values:</b> Not known
<b>Other protective equipment:</b>	Good hygiene and housekeeping
<b>Respiratory protection</b>	Required where ventilation is insufficient or exposure is prolonged
<b>Hand protection:</b>	Rubber or PVC gloves
<b>Eye protection:</b>	Wear safety goggles or face shield. Industrial & professional - ensure eyewash and showers are in the proximity to workstation location.
<b>Other information:</b>	Not known
<b>4. Physical form of substance / preparation / mixture or article</b>	
<b>Information on basic physical and chemical properties:</b>	Acid liquid
<b>5. Product specification</b>	
<b>Physical form of the product:</b>	Part of a preparation can be a liquid or solid.
<b>Concentration of substance in preparation / mixture or article:</b>	Users to specify
<b>Service life of substances in articles:</b>	Users to specify
<b>6. Risk Management Measures</b>	
<b>Occupational exposure controls:</b>	Keep area well ventilated
<b>Environmental Exposure Controls:</b>	Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. The substance is biodegradable, has a low Kow and is not expected to bioaccumulate.
<b>7. Consumer use:</b>	Good hygiene and housekeeping
<b>8. Waste management measures</b>	
<b>Description and information on safe handling of surplus or waste:</b>	Neutralise before treatment in a sewage treatment plant. Disposal untreated waste should be in accordance with local, state or national legislation.
<b>9. Exposure assessment</b>	
<b>Human exposure prediction:</b>	
<b>Workers:</b>	Long term exposure during application. Use of PPE will to minimise handling and contact.

<b>Consumers:</b>	Long term exposure to low concentrations during application/use.
<b>Method:</b>	Not applicable
<b>Exposure estimation:</b>	Not known
<b>Secondary Poisoning:</b>	Not expected
<b>Indirect exposure to humans via the environment:</b>	Not expected
<b>10. Other information</b>	
<b>Control parameters:</b>	Refer to the eSDS
<b>Method to check compliance:</b>	Management/supervision to check that the RMMs in place are being used correctly and OCs followed. Ensure staff and workers receive adequate training with regular updates in the handling of chemicals

<b>4. Exposure Scenario</b>	
Use of citric acid in detergents and cleaning products. Industrial, professional and consumer users	
<b>2. Processes and activities covered by the exposure scenario</b>	
<b>Sector of end use (SU):</b>	03. Industrial uses: Uses of substances as such or in preparations/mixtures at industrial sites
	21 Consumer uses: Private households (= general public = consumers)
	22 Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
<b>Chemical product category (PC):</b>	03. Air care products
	28. Perfumes, fragrances
	31. Polishes and wax blends
	35. Washing and cleaning products (including solvent based products)
	36. Water softeners
	37. Water treatment chemicals
<b>Process category (PROC):</b>	01. Use in closed process, no likelihood of exposure
	02. Use in closed, continuous process with occasional controlled exposure
	04 Use in batch and other process (synthesis) where opportunity for exposure arises
	05. Mixing or blending in batch processes for formulation of preparations/mixtures/mixtures and articles (multistage and/or significant contact)
	07. Industrial spraying
	08a. Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities
	08b. Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
	09. Transfer of substance or preparation into small containers (dedicated filling line, including weighing)
	10. Roller application or brushing
	11. Non industrial spraying
	13. Treatment of articles by dipping and pouring
	19. Hand-mixing with intimate contact and only PPE available
<b>Article Categories [AC]</b>	08. Paper articles
<b>Environmental release category (ERC):</b>	02. Formulation of preparations/mixtures
	04. Industrial use of processing aids in processes and products, not becoming part of articles
	08a. Wide dispersive indoor use of processing aids in open systems
	8d. Wide dispersive outdoor use of processing aids in open systems
	09a. Wide dispersive indoor use of substances in closed systems
	09b. Wide dispersive outdoor use of substances in closed systems
<b>3. Operational conditions of use</b>	
<b>Control parameters</b>	Implement basic standards of occupational hygiene
<b>Duration and frequency of use:</b>	Users to specify

<b>Maximum amount per time or activity:</b>	Users to specify
<b>Other operational conditions of use:</b>	Avoid splashes and spills.
<b>Engineering control measures:</b>	Keep area well ventilated. <b>Exposure limit values:</b> Not known
<b>Other protective equipment:</b>	Good hygiene and housekeeping
<b>Respiratory protection</b>	Required where ventilation is insufficient or exposure is prolonged
<b>Hand protection:</b>	Rubber or PVC gloves
<b>Eye protection:</b>	Wear safety goggles or face shield. Industrial professional - ensure eyewash and showers are in the proximity to workstation location.
<b>Other information:</b>	Avoid contact with the substance or contaminated objects, Ensure regular cleaning of equipment and work area, good personal hygiene, staff training and management/supervision are in place.
<b>4. Physical form of substance / preparation / mixture or article</b>	
<b>Information on basic physical and chemical properties:</b>	Acid liquid
<b>5. Product specification</b>	
<b>Physical form of the product:</b>	Part of a preparation can be a liquid or solid.
<b>Concentration of substance in preparation / mixture or article:</b>	Formulators information
<b>Service life of substances in articles:</b>	In use 2 to 12 months
<b>6. Risk Management Measures</b>	
<b>Occupational exposure controls:</b>	Keep area well ventilated
<b>Environmental Exposure Controls:</b>	Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. The substance is biodegradable, has a low Kow and is not expected to bioaccumulate.
<b>7. Consumer use:</b>	Good hygiene and housekeeping
<b>8. Waste management measures</b>	
<b>Description and information on safe handling of surplus or waste:</b>	Neutralise before treatment in a sewage treatment plant. Disposal untreated waste should be in accordance with local, state or national legislation.
<b>9. Exposure assessment</b>	
<b>Human exposure prediction:</b>	
<b>Workers:</b>	Short term during formulation. Long term exposure during application. Use of PPE will to minimise handling and contact.
<b>Consumers:</b>	Long term exposure to low concentrations during application/use
<b>Method:</b>	Not applicable
<b>Exposure estimation:</b>	Not known
<b>Secondary Poisoning:</b>	Not expected
<b>Indirect exposure to humans via the environment:</b>	Not expected
<b>10. Other information</b>	
<b>Control parameters:</b>	Refer to the eSDS
<b>Method to check compliance:</b>	Management/supervision to check that the RMMs in place are being used correctly and OCs followed. Ensure staff and workers receive adequate training with regular updates in the handling of chemicals

<b>5. Exposure Scenario</b>	
Use of citric acid in paper industry. Industrial	
<b>2. Processes and activities covered by the exposure scenario</b>	
<b>Sector of end use (SU):</b>	03. Industrial uses: Uses of substances as such or in preparations/mixtures industrial sites 06a. Manufacture of pulp, paper and paper products
<b>Chemical product category (PC):</b>	26. Paper and board dye, finishing and impregnation products: including bleaches and other processing aids
<b>Process category (PROC):</b>	05. Mixing or blending in batch processes for formulation of preparations/mixtures/mixtures and articles (multistage and/or significant contact) 8a. Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities.
<b>Article Categories [AC]</b>	Not applicable

<b>Environmental release category (ERC):</b>	04. Industrial use of processing aids in processes and products, not becoming part of articles
<b>3. Operational conditions of use</b>	
<b>Control parameters</b>	Implement basic standards of occupational hygiene
<b>Duration and frequency of use:</b>	Users to specify
<b>Maximum amount per time or activity:</b>	Users to specify
<b>Other operational conditions of use:</b>	Avoid splashes and spills.
<b>Engineering control measures:</b>	Keep area well ventilated. <b>Exposure limit values:</b> Not known
<b>Other protective equipment:</b>	Good hygiene and housekeeping
<b>Respiratory protection</b>	Required where ventilation is insufficient or exposure is prolonged
<b>Hand protection:</b>	Rubber or PVC gloves
<b>Eye protection:</b>	Wear safety goggles or face shield. Ensure eyewash and showers are in the proximity to workstation location.
<b>Other information:</b>	Not known
<b>4. Physical form of substance / preparation / mixture or article</b>	
<b>Information on basic physical and chemical properties:</b>	Acid liquid
<b>5. Product specification</b>	
<b>Physical form of the product:</b>	Part of a preparation can be a liquid or solid.
<b>Concentration of substance in preparation / mixture or article:</b>	Users to specify
<b>Service life of substances in articles:</b>	Users to specify
<b>6. Risk Management Measures</b>	
<b>Occupational exposure controls:</b>	Keep area well ventilated
<b>Environmental Exposure Controls:</b>	Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. The substance is biodegradable, has a low Kow and is not expected to bioaccumulate.
<b>7. Consumer use:</b>	Not applicable
<b>8. Waste management measures</b>	
<b>Description and information on safe handling of surplus or waste:</b>	Neutralise before treatment in a sewage treatment plant. Disposal untreated waste should be in accordance with local, state or national legislation.
<b>9. Exposure assessment</b>	
<b>Human exposure prediction:</b>	
<b>Workers:</b>	Long term exposure during application. Use of PPE will to minimise handling and contact.
<b>Consumers:</b>	Not applicable
<b>Method:</b>	Not applicable
<b>Exposure estimation:</b>	Not known
<b>Secondary Poisoning:</b>	Not expected
<b>Indirect exposure to humans via the environment:</b>	Not expected
<b>10. Other information</b>	
<b>Control parameters:</b>	Refer to the eSDS
<b>Method to check compliance:</b>	Management/supervision to check that the RMMs in place are being used correctly and OCs followed. Ensure staff and workers receive adequate training with regular updates in the handling of chemicals

<b>6. Exposure Scenario</b>	
<b>Use of citric acid in construction products. Industrial, professional and consumer</b>	
<b>2. Processes and activities covered by the exposure scenario</b>	
<b>Sector of end use (SU):</b>	02. Mining, (without offshore industries)
	03. Industrial uses: Uses of substances as such or in preparations/mixtures industrial sites
	10. Formulation [mixing] of preparations and/or re-packaging (excluding alloys)
	19. Building and construction work
	21. Consumer uses: Private households (= general public = consumers)
	22. Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
<b>Chemical product category (PC):</b>	0. Other
<b>Process category (PROC):</b>	02. Use in closed, continuous process with occasional controlled exposure

	04. Use in batch and other process (synthesis) where opportunity for exposure arises
	05. Mixing or blending in batch processes for formulation of preparations/mixtures and articles (multistage and/or significant contact)
	07. Industrial spraying
	08a. Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities
	08b. Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
	10. Roller application or brushing
	11. Non industrial spraying
	13. Treatment of articles by dipping and pouring
	14. Production of preparations/mixtures or articles by tableting, compression, extrusion, pelletisation
	19. Hand-mixing with intimate contact and only PPE available
	21. Low energy manipulation of substances bound in materials and/or articles
	24. High (mechanical) energy work-up of substances bound in materials and/or articles
<b>Article Categories [AC]</b>	04. Stone, plaster, cement, glass and ceramic articles
<b>Environmental release category (ERC):</b>	05. Industrial use resulting in inclusion into or onto a matrix
	08c. Wide dispersive indoor use resulting in inclusion into or onto a matrix
	08f. Wide dispersive outdoor use resulting in inclusion into or onto a matrix
	10a. Wide dispersive outdoor use of long-life articles and materials with low release
	10b. Wide dispersive outdoor use of long-life articles and materials with high or in-tended release (including abrasive processing)
	11a. Wide dispersive indoor use of long-life articles and materials with low release
	11b. Wide dispersive indoor use of long-life articles and materials with high or intended release (including abrasive processing)
	12a. Industrial processing of articles with abrasive techniques (low release)
<b>3. Operational conditions of use</b>	
<b>Control parameters</b>	Implement basic standards of occupational hygiene
<b>Duration and frequency of use:</b>	Users to specify
<b>Maximum amount per time or activity:</b>	Users to specify
<b>Other operational conditions of use:</b>	Avoid splashes and spills.
<b>Engineering control measures:</b>	Keep area well ventilated. <b>Exposure limit values:</b> Not known
<b>Other protective equipment:</b>	Good hygiene and housekeeping
<b>Respiratory protection</b>	Required where ventilation is insufficient or exposure is prolonged
<b>Hand protection:</b>	Rubber or PVC gloves
<b>Eye protection:</b>	Wear safety goggles or face shield. Industrial/professional, ensure eyewash and showers are in the proximity to workstation location.
<b>Other information:</b>	Precautionary measures against electrostatic discharge to be taken. LEV and respiratory protection to be taken in areas where workers may come into contact with dust. Implement basic standards of occupational hygiene
<b>4. Physical form of substance / preparation / mixture or article</b>	
<b>Information on basic physical and chemical properties:</b>	Acid liquid
<b>5. Product specification</b>	
<b>Physical form of the product:</b>	Part of a preparation can be a liquid or solid.
<b>Concentration of substance in preparation / mixture or article:</b>	Users to specify
<b>Service life of substances in articles:</b>	Users to specify
<b>6. Risk Management Measures</b>	
<b>Occupational exposure controls:</b>	Keep area well ventilated
<b>Environmental Exposure Controls:</b>	Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. The substance is biodegradable, has a low Kow and is not expected to bioaccumulate.



<b>7. Consumer use:</b>	Good hygiene and housekeeping
<b>8. Waste management measures</b>	
<b>Description and information on safe handling of surplus or waste:</b>	Neutralise before treatment in a sewage treatment plant. Disposal untreated waste should be in accordance with local, state or national legislation.
<b>9. Exposure assessment</b>	
<b>Human exposure prediction:</b>	
<b>Workers:</b>	Long term exposure during application.
<b>Consumers:</b>	Long term exposure to low concentrations during application/use.
<b>Method:</b>	Not applicable
<b>Exposure estimation:</b>	Not known
<b>Secondary Poisoning:</b>	Not expected
<b>Indirect exposure to humans via the environment:</b>	Not expected
<b>10. Other information</b>	
<b>Control parameters:</b>	Refer to the eSDS
<b>Method to check compliance:</b>	Management/supervision to check that the RMMs in place are being used correctly and OCs followed. Ensure staff and workers receive adequate training with regular updates in the handling of chemicals

<b>7. Exposure Scenario</b>	
Use of citric acid Polymers and plastics. Industrial	
<b>2. Processes and activities covered by the exposure scenario</b>	
<b>Sector of end use (SU):</b>	03. Industrial uses: Uses of substances as such or in preparations/mixtures at industrial sites
<b>Chemical product category (PC):</b>	32. Polymer preparations and compounds
<b>Process category (PROC):</b>	03. Use in closed batch process (synthesis or formulation)
	05. Mixing or blending in batch processes for formulation of preparations/mixtures and articles (multistage and/or significant contact)
	08a. Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities
	08b. Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
<b>Article Categories [AC]</b>	Not applicable
<b>Environmental release category (ERC):</b>	06b. Industrial use of reactive processing aids
<b>3. Operational conditions of use</b>	
<b>Control parameters</b>	Precautionary measures against electrostatic discharge to be taken. LEV and respiratory protection to be taken in areas where workers may come into contact with dust. Implement basic standards of occupational hygiene
<b>Duration and frequency of use:</b>	Users to specify
<b>Maximum amount per time or activity:</b>	Users to specify
<b>Other operational conditions of use:</b>	Avoid splashes and spills. Minimise manual handling.
<b>Engineering control measures:</b>	Local exhaust ventilation. <b>Exposure limit values:</b> Not known
<b>Other protective equipment:</b>	Good hygiene and housekeeping
<b>Respiratory protection</b>	Required where ventilation is insufficient or exposure is prolonged
<b>Hand protection:</b>	Rubber or PVC gloves
<b>Eye protection:</b>	Wear safety goggles or face shield. Industrial professional - ensure eyewash and showers are in the proximity to workstation location.
<b>Other information:</b>	Avoid contact with the substance or contaminated objects, Ensure regular cleaning of equipment and work area, good personal hygiene, staff training and management/supervision are in place.
<b>4. Physical form of substance / preparation / mixture or article</b>	
<b>Information on basic physical and chemical properties:</b>	Acid liquid
<b>5. Product specification</b>	
<b>Physical form of the product:</b>	Part of a preparation can be a liquid or solid.

<b>Concentration of substance in preparation / mixture or article:</b>	Users to specify
<b>Service life of substances in articles:</b>	Users to specify
<b>6. Risk Management Measures</b>	
<b>Occupational exposure controls:</b>	Keep area well ventilated. Precautions against dust explosion and irritation caused by dust inhalation.
<b>Environmental Exposure Controls:</b>	Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. The substance is biodegradable, has a low Kow and is not expected to bioaccumulate.
<b>7. Consumer use:</b>	Not applicable
<b>8. Waste management measures</b>	
<b>Description and information on safe handling of surplus or waste:</b>	Neutralise before treatment in a sewage treatment plant. Disposal untreated waste should be in accordance with local, state or national legislation.
<b>9. Exposure assessment</b>	
<b>Human exposure prediction:</b>	
<b>Workers:</b>	Long term exposure during application. Use of PPE will to minimise handling and contact.
<b>Consumers:</b>	Not applicable
<b>Method:</b>	Not applicable
<b>Exposure estimation:</b>	Not known
<b>Secondary Poisoning:</b>	Not expected
<b>Indirect exposure to humans via the environment:</b>	Not expected
<b>10. Other information</b>	
<b>Control parameters:</b>	Refer to the eSDS
<b>Method to check compliance:</b>	Management/supervision to check that the RMMs in place are being used correctly and OCs followed. Ensure staff and workers receive adequate training with regular updates in the handling of chemicals

<b>8. Exposure Scenario</b>	
Use of citric acid in oil industry. Industrial.	
<b>2. Processes and activities covered by the exposure scenario</b>	
<b>Sector of end use (SU):</b>	02. Offshore industries 03. Industrial uses: Uses of substances as such or in preparations/mixtures industrial sites
<b>Chemical product category (PC):</b>	20. Products such as ph-regulators, flocculants, precipitants, neutralization agents 40. Other
<b>Process category (PROC):</b>	03. Use in closed batch process (synthesis or formulation) 04. Use in batch and other process (synthesis) where opportunity for exposure arises 05. Mixing or blending in batch processes for formulation of preparations/mixtures and articles (multistage and/or significant contact) 08a. Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities 08b. Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
<b>Article Categories [AC]</b>	Not applicable
<b>Environmental release category (ERC):</b>	8d. Wide dispersive outdoor use of processing aids in open systems
<b>3. Operational conditions of use</b>	
<b>Control parameters</b>	Implement basic standards of occupational hygiene
<b>Duration and frequency of use:</b>	Users to specify
<b>Maximum amount per time or activity:</b>	Users to specify
<b>Other operational conditions of use:</b>	Avoid splashes and spills.
<b>Engineering control measures:</b>	Keep area well ventilated. <b>Exposure limit values:</b> Not known
<b>Other protective equipment:</b>	Good hygiene and housekeeping
<b>Respiratory protection</b>	Required where ventilation is insufficient or exposure is prolonged
<b>Hand protection:</b>	Rubber or PVC gloves
<b>Eye protection:</b>	Wear safety goggles or face shield. Industrial/professional, ensure eyewash and showers are

	in the proximity to workstation location.
<b>Other information:</b>	Precautionary measures against electrostatic discharge to be taken. LEV and respiratory protection to be taken in areas where workers may come into contact with dust. Implement basic standards of occupational hygiene
<b>4. Physical form of substance / preparation / mixture or article</b>	
<b>Information on basic physical and chemical properties:</b>	Acid liquid
<b>5. Product specification</b>	
<b>Physical form of the product:</b>	Part of a preparation can be a liquid or solid.
<b>Concentration of substance in preparation / mixture or article:</b>	Users to specify
<b>Service life of substances in articles:</b>	Users to specify
<b>6. Risk Management Measures</b>	
<b>Occupational exposure controls:</b>	Keep area well ventilated
<b>Environmental Exposure Controls:</b>	Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. The substance is biodegradable, has a low Kow and is not expected to bioaccumulate.
<b>7. Consumer use:</b>	Not applicable
<b>8. Waste management measures</b>	
<b>Description and information on safe handling of surplus or waste:</b>	Neutralise before treatment in a sewage treatment plant. Disposal untreated waste should be in accordance with local, state or national legislation.
<b>9. Exposure assessment</b>	
<b>Human exposure prediction:</b>	
<b>Workers:</b>	Long term exposure during application. Use of PPE will to minimise handling and contact.
<b>Consumers:</b>	Not applicable
<b>Method:</b>	Not applicable
<b>Exposure estimation:</b>	Not known
<b>Secondary Poisoning:</b>	Not expected
<b>Indirect exposure to humans via the environment:</b>	Not expected
<b>10. Other information</b>	
<b>Control parameters:</b>	Refer to the eSDS
<b>Method to check compliance:</b>	Management/supervision to check that the RMMs in place are being used correctly and OCs followed. Ensure staff and workers receive adequate training with regular updates in the handling of chemicals

<b>9. Exposure Scenario</b>	
Use of citric acid in paints and coatings. Industrial, professional and consumer users	
<b>2. Processes and activities covered by the exposure scenario</b>	
<b>Sector of end use (SU):</b>	03. Industrial uses: Uses of substances as such or in preparations/mixtures at industrial sites
	17. General manufacturing, e.g. machinery, equipment, vehicles, other transport equipment
	18. Manufacture of furniture
	19. Building and construction work
	21. Consumer uses: Private households (= general public = consumers)
	22. Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
<b>Chemical product category (PC):</b>	09a. Coatings and paints, thinners, paint removers
	9b. Fillers, putties, plasters, modelling clay
	18. Ink and toners
	34. Textile dyes, finishing and impregnating products; including bleaches and other processing aids
<b>Process category (PROC):</b>	07. Industrial spraying
	08a. Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at nondedicated facilities
	08b. Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
	10. Roller application or brushing
	11. Non industrial spraying

	19. Hand-mixing with intimate contact and only PPE available
	24. High (mechanical) energy work-up of substances bound in materials and/or articles
<b>Article Categories [AC]</b>	04. Stone, plaster, cement, glass and ceramic articles
	11. Wood articles
<b>Environmental release category (ERC):</b>	05. Industrial use resulting in inclusion into or onto a matrix
	08c. Wide dispersive indoor use resulting in inclusion into or onto a matrix
	08f. Wide dispersive outdoor use resulting in inclusion into or onto a matrix
	10a. Wide dispersive outdoor use of long-life articles and materials with low release
	10b. Wide dispersive outdoor use of long-life articles and materials with high or in-tended release (including abrasive processing)
	11a. Wide dispersive indoor use of long-life articles and materials with low release
	11b. Wide dispersive indoor use of long-life articles and materials with high or intended release (including abrasive processing)
<b>3. Operational conditions of use</b>	
<b>Control parameters</b>	Implement basic standards of occupational hygiene
<b>Duration and frequency of use:</b>	Users to specify
<b>Maximum amount per time or activity:</b>	Users to specify
<b>Other operational conditions of use:</b>	Avoid splashes and spills.
<b>Engineering control measures:</b>	Keep area well ventilated. <b>Exposure limit values:</b> Not known
<b>Other protective equipment:</b>	Good hygiene and housekeeping
<b>Respiratory protection</b>	Required where ventilation is insufficient or exposure is prolonged
<b>Hand protection:</b>	Rubber or PVC gloves
<b>Eye protection:</b>	Wear safety goggles or face shield. Industrial professional - ensure eyewash and showers are in the proximity to workstation location.
<b>Other information:</b>	Not known
<b>4. Physical form of substance / preparation / mixture or article</b>	
<b>Information on basic physical and chemical properties:</b>	Acid liquid
<b>5. Product specification</b>	
<b>Physical form of the product:</b>	Part of a preparation can be a liquid or solid.
<b>Concentration of substance in preparation / mixture or article:</b>	Formulators information
<b>Service life of substances in articles:</b>	
<b>6. Risk Management Measures</b>	
<b>Occupational exposure controls:</b>	Keep area well ventilated
<b>Environmental Exposure Controls:</b>	Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. The substance is biodegradable, has a low Kow and is not expected to bioaccumulate.
<b>7. Consumer use:</b>	Good hygiene and housekeeping
<b>8. Waste management measures</b>	
<b>Description and information on safe handling of surplus or waste:</b>	Neutralise before treatment in a sewage treatment plant. Disposal untreated waste should be in accordance with local, state or national legislation.
<b>9. Exposure assessment</b>	
<b>Human exposure prediction:</b>	
<b>Workers:</b>	Short term during formulation. Long term exposure during application. Use of PPE will to minimise handling and contact.
<b>Consumers:</b>	Exposure to low concentrations during application/use
<b>Method:</b>	Not applicable
<b>Exposure estimation:</b>	Not known
<b>Secondary Poisoning:</b>	Not expected
<b>Indirect exposure to humans via the environment:</b>	Not expected
<b>10. Other information</b>	
<b>Control parameters:</b>	Refer to the eSDS
<b>Method to check compliance:</b>	Management/supervision to check that the RMMs in place are being used correctly and OCs followed. Ensure staff and workers receive adequate training with regular updates in the handling of chemicals

<b>10. Exposure Scenario</b>	
Use of citric acid in photography products. Professional and consumer users	
<b>2. Processes and activities covered by the exposure scenario</b>	
<b>Sector of end use (SU):</b>	03. Industrial uses: Uses of substances as such or in preparations/mixtures at industrial sites
	20. Health services
	21. Consumer uses: Private households (= general public = consumers)
	22. Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
<b>Chemical product category (PC):</b>	30. Photo-chemicals
<b>Process category (PROC):</b>	05. Mixing or blending in batch processes for formulation of preparations/mixtures and articles (multistage and/or significant contact)
	13. Treatment of articles by dipping and pouring
<b>Article Categories [AC]</b>	Not applicable
<b>Environmental release category (ERC):</b>	08a Wide dispersive indoor use of processing aids in open systems
<b>3. Operational conditions of use</b>	
<b>Control parameters</b>	Implement basic standards of occupational hygiene
<b>Duration and frequency of use:</b>	Users to specify
<b>Maximum amount per time or activity:</b>	Users to specify
<b>Other operational conditions of use:</b>	Avoid splashes and spills.
<b>Engineering control measures:</b>	Keep area well ventilated. <b>Exposure limit values:</b> Not known
<b>Other protective equipment:</b>	Good hygiene and housekeeping
<b>Respiratory protection</b>	Required where ventilation is insufficient or exposure is prolonged
<b>Hand protection:</b>	Rubber or PVC gloves
<b>Eye protection:</b>	Wear safety goggles or face shield. Professional - ensure eyewash and showers are in the proximity to workstation location.
<b>Other information:</b>	Not known
<b>4. Physical form of substance / preparation / mixture or article</b>	
<b>Information on basic physical and chemical properties:</b>	Acid liquid
<b>5. Product specification</b>	
<b>Physical form of the product:</b>	Part of a preparation can be a liquid or solid.
<b>Concentration of substance in preparation / mixture or article:</b>	Formulators information
<b>Service life of substances in articles:</b>	
<b>6. Risk Management Measures</b>	
<b>Occupational exposure controls:</b>	Keep area well ventilated
<b>Environmental Exposure Controls:</b>	Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. The substance is biodegradable, has a low Kow and is not expected to bioaccumulate.
<b>7. Consumer use:</b>	Good hygiene and housekeeping
<b>8. Waste management measures</b>	
<b>Description and information on safe handling of surplus or waste:</b>	Neutralise before treatment in a sewage treatment plant. Disposal untreated waste should be in accordance with local, state or national legislation.
<b>9. Exposure assessment</b>	
<b>Human exposure prediction:</b>	
<b>Workers:</b>	Short term during formulation. Long term exposure during application
<b>Consumers:</b>	Exposure to low concentrations during application/use
<b>Method:</b>	Not applicable
<b>Exposure estimation:</b>	Not known
<b>Secondary Poisoning:</b>	Not expected
<b>Indirect exposure to humans via the environment:</b>	Not expected
<b>10. Other information</b>	

<b>Control parameters:</b>	Refer to the eSDS
<b>Method to check compliance:</b>	Management/supervision to check that the RMMs in place are being used correctly and OCs followed. Ensure staff and workers receive adequate training with regular updates in the handling of chemicals

<b>11. Exposure Scenario</b>	
Use of citric acid in textiles. Industrial	
<b>2. Processes and activities covered by the exposure scenario</b>	
<b>Sector of end use (SU):</b>	03. Industrial uses: Uses of substances as such or in preparations/mixtures industrial sites 05. Manufacture of textiles, leather, fur
<b>Chemical product category (PC):</b>	20. Products such as ph-regulators, flocculants, precipitants, neutralization agents 23. Leather tanning, dye, finishing, impregnation and care products 24. Lubricants, greases, release products
<b>Process category (PROC):</b>	08a. Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities 08b. Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities 10. Roller application or brushing 13. Treatment of articles by dipping and pouring 22. Potentially closed processing operations with minerals/metals at elevated temperature
<b>Article Categories [AC]</b>	05. Fabrics, textiles and apparel 06. Leather articles
<b>Environmental release category (ERC):</b>	04. Industrial use of processing aids in processes and products, not becoming part of articles
<b>3. Operational conditions of use</b>	
<b>Control parameters</b>	Implement basic standards of occupational hygiene
<b>Duration and frequency of use:</b>	Users to specify
<b>Maximum amount per time or activity:</b>	Users to specify
<b>Other operational conditions of use:</b>	Avoid splashes and spills.
<b>Engineering control measures:</b>	Keep area well ventilated. <b>Exposure limit values:</b> Not known
<b>Other protective equipment:</b>	Good hygiene and housekeeping
<b>Respiratory protection</b>	Required where ventilation is insufficient or exposure is prolonged
<b>Hand protection:</b>	Rubber or PVC gloves
<b>Eye protection:</b>	Wear safety goggles or face shield. Ensure eyewash and showers are in the proximity to workstation location.
<b>Other information:</b>	Precautionary measures against electrostatic discharge to be taken. LEV and respiratory protection to be taken in areas where workers may come into contact with dust. Implement basic standards of occupational hygiene
<b>4. Physical form of substance / preparation / mixture or article</b>	
<b>Information on basic physical and chemical properties:</b>	Acid liquid
<b>5. Product specification</b>	
<b>Physical form of the product:</b>	Part of a preparation can be a liquid or solid.
<b>Concentration of substance in preparation / mixture or article:</b>	Users to specify
<b>Service life of substances in articles:</b>	Users to specify
<b>6. Risk Management Measures</b>	
<b>Occupational exposure controls:</b>	Keep area well ventilated
<b>Environmental Exposure Controls:</b>	Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. The substance is biodegradable, has a low Kow and is not expected to bioaccumulate.
<b>7. Consumer use:</b>	Not applicable
<b>8. Waste management measures</b>	

<b>Description and information on safe handling of surplus or waste:</b>	Neutralise before treatment in a sewage treatment plant. Disposal untreated waste should be in accordance with local, state or national legislation.
<b>9. Exposure assessment</b>	
<b>Human exposure prediction:</b>	
<b>Workers:</b>	Long term exposure during application. Use of PPE will to minimise handling and contact.
<b>Consumers:</b>	Not applicable
<b>Method:</b>	Not applicable
<b>Exposure estimation:</b>	Not known
<b>Secondary Poisoning:</b>	Not expected
<b>Indirect exposure to humans via the environment:</b>	Not expected
<b>10. Other information</b>	
<b>Control parameters:</b>	Refer to the eSDS
<b>Method to check compliance:</b>	Management/supervision to check that the RMMs in place are being used correctly and OCs followed. Ensure staff and workers receive adequate training with regular updates in the handling of chemicals

<b>12. Exposure Scenario</b>	
Use of citric acid in laboratory agents. Industrial users	
<b>2. Processes and activities covered by the exposure scenario</b>	
<b>Sector of end use (SU):</b>	03. Industrial uses: Uses of substances as such or in preparations/mixtures at industrial sites
<b>Chemical product category (PC):</b>	04. Anti-Freeze and de-icing products 16. Heat transfer fluids 20. Products such as ph-regulators, flocculants, precipitants, neutralization agents 37. Water treatment chemicals
<b>Process category (PROC):</b>	01. Use in closed process, no likelihood of exposure 02. Use in closed, continuous process with occasional controlled exposure 03. Use in closed batch process (synthesis or formulation) 04. Use in batch and other process (synthesis) where opportunity for exposure arises 08a. Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities
<b>Article Categories [AC]</b>	Not applicable
<b>Environmental release category (ERC):</b>	04. Industrial use of processing aids in processes and products, not becoming part of articles 07. Industrial use of sub-stances in closed systems
<b>3. Operational conditions of use</b>	
<b>Control parameters</b>	Implement basic standards of occupational hygiene
<b>Duration and frequency of use:</b>	Users to specify
<b>Maximum amount per time or activity:</b>	Users to specify
<b>Other operational conditions of use:</b>	Avoid splashes and spills.
<b>Engineering control measures:</b>	Keep area well ventilated. <b>Exposure limit values:</b> Not known
<b>Other protective equipment:</b>	Good hygiene and housekeeping
<b>Respiratory protection</b>	Required where ventilation is insufficient or exposure is prolonged
<b>Hand protection:</b>	Rubber or PVC gloves
<b>Eye protection:</b>	Wear safety goggles or face shield. Ensure eyewash and showers are in the proximity to workstation location.
<b>Other information:</b>	Avoid contact with the substance or contaminated objects, Ensure regular cleaning of equipment and work area; good personal hygiene, staff training and management/supervision are in place.
<b>4. Physical form of substance / preparation / mixture or article</b>	
<b>Information on basic physical and chemical properties:</b>	Acid liquid
<b>5. Product specification</b>	

<b>Physical form of the product:</b>	Part of a preparation can be a liquid or solid.
<b>Concentration of substance in preparation / mixture or article:</b>	Formulators information
<b>Service life of substances in articles:</b>	
<b>6. Risk Management Measures</b>	
<b>Occupational exposure controls:</b>	Keep area well ventilated
<b>Environmental Exposure Controls:</b>	Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. The substance is biodegradable, has a low Kow and is not expected to bioaccumulate.
<b>7. Consumer use:</b>	Not applicable
<b>8. Waste management measures</b>	
<b>Description and information on safe handling of surplus or waste:</b>	Neutralise before treatment in a sewage treatment plant. Disposal untreated waste should be in accordance with local, state or national legislation.
<b>9. Exposure assessment</b>	
<b>Human exposure prediction:</b>	
<b>Workers:</b>	Short term during formulation. Long term exposure during application. Use of PPE will to minimise handling and contact.
<b>Consumers:</b>	Not applicable
<b>Method:</b>	Not applicable
<b>Exposure estimation:</b>	Not known
<b>Secondary Poisoning:</b>	Not expected
<b>Indirect exposure to humans via the environment:</b>	Not expected
<b>10. Other information</b>	
<b>Control parameters:</b>	Refer to the eSDS
<b>Method to check compliance:</b>	Management/supervision to check that the RMMS in place are being used correctly and OCs followed. Ensure staff and workers receive adequate training with regular updates in the handling of chemicals

<b>13. Exposure Scenario</b>	
Use of citric acid in water treatment. Industrial	
<b>2. Processes and activities covered by the exposure scenario</b>	
<b>Sector of end use (SU):</b>	03. Industrial uses: Uses of substances as such or in preparations/mixtures at industrial sites
	14. Manufacture of basic metals, including alloys
	15. Manufacture of fabricated metal products, except machinery and equipment
	16. Manufacture of computer, electronic and optical products, electrical equipment
	17. General manufacturing, e.g. machinery, equipment, vehicles, other transport equipment
<b>Chemical product category (PC):</b>	04. Anti-Freeze and de-icing products
	07. Base metals and alloys
	14. Metal surface treatment products, including galvanic and electroplating products
	16. Heat transfer fluids
	17. Hydraulic fluids
	20. Products such as ph-regulators, flocculants, precipitants, neutralization agents
	25. Metal working fluids
	26. Paper and board dye, finishing and impregnation products: including bleaches and other processing aids
	35. Washing and cleaning products (including solvent based products)
	37. Water treatment chemicals



<b>Process category (PROC):</b>	01. Use in closed process, no likelihood of exposure
	02. Use in closed, continuous process with occasional controlled exposure
	03. Use in closed batch process (synthesis or formulation)
	04. Use in batch and other process (synthesis) where opportunity for exposure arises
	07. Industrial spraying
	08a. Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities
	08b. Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
	09. Transfer of substance or preparation into small containers (dedicated filling line, including weighing)
	10. Roller application or brushing
	13. Treatment of articles by dipping and pouring
	18. Greasing at high energy conditions
	20. Heat and pressure transfer fluids in dispersive, professional use but closed systems
	25. Other hot work operations with metals
<b>Article Categories [AC]</b>	Not applicable
<b>Environmental release category (ERC):</b>	04. Industrial use of processing aids in processes and products, not becoming part of articles
	07. Industrial use of sub-stances in closed systems
<b>3. Operational conditions of use</b>	
<b>Control parameters</b>	Precautionary measures against electrostatic discharge to be taken. LEV and respiratory protection to be taken in areas where workers may come into contact with dust. Implement basic standards of occupational hygiene
<b>Duration and frequency of use:</b>	Users to specify
<b>Maximum amount per time or activity:</b>	Users to specify
<b>Other operational conditions of use:</b>	Avoid splashes and spills. Minimise manual handling.
<b>Engineering control measures:</b>	Local exhaust ventilation. <b>Exposure limit values:</b> Not known
<b>Other protective equipment:</b>	Good hygiene and housekeeping
<b>Respiratory protection</b>	Required where ventilation is insufficient or exposure is prolonged
<b>Hand protection:</b>	Rubber or PVC gloves
<b>Eye protection:</b>	Wear safety goggles or face shield. Ensure eyewash and showers are in the proximity to workstation location.
<b>Other information:</b>	Avoid contact with the substance or contaminated objects, Ensure regular cleaning of equipment and work area; good personal hygiene, staff training and management/supervision are in place.
<b>4. Physical form of substance / preparation / mixture or article</b>	
<b>Information on basic physical and chemical properties:</b>	Acid liquid
<b>5. Product specification</b>	
<b>Physical form of the product:</b>	Part of a preparation can be a liquid or solid.
<b>Concentration of substance in preparation / mixture or article:</b>	Users to specify
<b>Service life of substances in articles:</b>	Users to specify
<b>6. Risk Management Measures</b>	
<b>Occupational exposure controls:</b>	Keep area well ventilated. Precautions against dust explosion and irritation caused by dust inhalation.
<b>Environmental Exposure Controls:</b>	Avoid dispersal of spilled material and run off and contact with soil, waterways, drains and sewers. The substance is biodegradable, has a low Kow and is not expected to bioaccumulate.
<b>7. Consumer use:</b>	Not applicable
<b>8. Waste management measures</b>	
<b>Description and information on safe handling of surplus or waste:</b>	Neutralise before treatment in a sewage treatment plant. Disposal untreated waste should be in accordance with local, state or national legislation.

<b>9. Exposure assessment</b>	
<b>Human exposure prediction:</b>	
<b>Workers:</b>	Use of PPE will to minimise handling and contact.
<b>Consumers:</b>	Not applicable
<b>Method:</b>	Not applicable
<b>Exposure estimation:</b>	Not known
<b>Secondary Poisoning:</b>	Not expected
<b>Indirect exposure to humans via the environment:</b>	Not expected
<b>10. Other information</b>	
<b>Control parameters:</b>	Refer to the eSDS
<b>Method to check compliance:</b>	Management/supervision to check that the RMMs in place are being used correctly and OCs followed. Ensure staff and workers receive adequate training with regular updates in the handling of chemicals

<b>14. Exposure Scenario</b>	
Use of citric acid in treatment of metals & surfaces. Industrial	
<b>2. Processes and activities covered by the exposure scenario</b>	
<b>Sector of end use (SU):</b>	03. Industrial uses: Uses of substances as such or in preparations/mixtures at industrial sites
	14. Manufacture of basic metals, including alloys
	15. Manufacture of fabricated metal products, except machinery and equipment
	16. Manufacture of computer, electronic and optical products, electrical equipment
	17. General manufacturing, e.g. machinery, equipment, vehicles, other transport equipment
<b>Chemical product category (PC):</b>	07. Base metals and alloys
	14. Metal surface treatment products, including galvanic and electroplating products
	25. Metal working fluids
	31. Polishes and wax blends
	35. Washing and cleaning products (including solvent based products)
<b>Process category (PROC):</b>	02. Use in closed, continuous process with occasional controlled exposure
	03. Use in closed batch process (synthesis or formulation)
	04. Use in batch and other process (synthesis) where opportunity for exposure arises
	07. Industrial spraying
	08a. Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities
	08b. Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
	09. Transfer of substance or preparation into small containers (dedicated filling line, including weighing)
	10. Roller application or brushing
	13. Treatment of articles by dipping and pouring
	17. Lubrication at high energy conditions and in partly open process
	18. Greasing at high energy conditions
	23. Open processing and transfer operations with minerals/metals at elevated temperature
<b>Article Categories [AC]</b>	Not applicable
<b>Environmental release category (ERC):</b>	04. Industrial use of processing aids in processes and products, not becoming part of articles
	06b. Industrial use of reactive processing aids

<b>3. Operational conditions of use</b>	
<b>Control parameters</b>	Precautionary measures against electrostatic discharge to be taken. LEV and respiratory protection to be taken in areas where workers may come into contact with dust. Implement basic standards of occupational hygiene.
<b>Duration and frequency of use:</b>	Users to specify
<b>Maximum amount per time or activity:</b>	Users to specify
<b>Other operational conditions of use:</b>	Avoid splashes and spills. Minimise manual handling.
<b>Engineering control measures:</b>	Local exhaust ventilation. <b>Exposure limit values:</b> Not known
<b>Other protective equipment:</b>	Good hygiene and housekeeping
<b>Respiratory protection</b>	Required where ventilation is insufficient or exposure is prolonged
<b>Hand protection:</b>	Rubber or PVC gloves
<b>Eye protection:</b>	Wear safety goggles or face shield. Ensure eyewash and showers are in the proximity to workstation location.
<b>Other information:</b>	Avoid contact with the substance or contaminated objects, Ensure regular cleaning of equipment and work area; good personal hygiene, staff training and management/supervision are in place.
<b>4. Physical form of substance / preparation / mixture or article</b>	
<b>Information on basic physical and chemical properties:</b>	Acid liquid
<b>5. Product specification</b>	
<b>Physical form of the product:</b>	Part of a preparation can be a liquid or solid.
<b>Concentration of substance in preparation / mixture or article:</b>	Users to specify
<b>Service life of substances in articles:</b>	Users to specify
<b>6. Risk Management Measures</b>	
<b>Occupational exposure controls:</b>	Keep area well ventilated. Precautions against dust explosion and irritation caused by dust inhalation.
<b>Environmental Exposure Controls:</b>	Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. The substance is biodegradable, has a low Kow and is not expected to bioaccumulate.
<b>7. Consumer use:</b>	Not applicable
<b>8. Waste management measures</b>	
<b>Description and information on safe handling of surplus or waste:</b>	Neutralise before treatment in a sewage treatment plant. Disposal untreated waste should be in accordance with local, state or national legislation.
<b>9. Exposure assessment</b>	
<b>Human exposure prediction:</b>	
<b>Workers:</b>	Short term exposure during application. Use of PPE will to minimise handling and contact.
<b>Consumers:</b>	Not applicable
<b>Method:</b>	Not applicable
<b>Exposure estimation:</b>	Not known
<b>Secondary Poisoning:</b>	Not expected
<b>Indirect exposure to humans via the environment:</b>	Not expected
<b>10. Other information</b>	
<b>Control parameters:</b>	Refer to the eSDS
<b>Method to check compliance:</b>	Management/supervision to check that the RMMs in place are being used correctly and OCs followed. Ensure staff and workers receive adequate training with regular updates in the handling of chemicals

<b>15. Exposure Scenario</b>	
Use of citric acid agricultural applications. <b>Industrial, professional &amp; consumer</b>	
<b>2. Processes and activities covered by the exposure scenario</b>	
<b>Sector of end use (SU):</b>	01. Agriculture, forestry, fishery

	03. Industrial uses: Uses of substances as such or in preparations/mixtures at industrial sites
	21. Consumer uses: Private households (= general public = consumers)
	22. Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
<b>Chemical product category (PC):</b>	09. Biocidal products (e.g. Disinfectants, pest control)
	12. Fertilizers
	21. Laboratory chemicals
<b>Process category (PROC):</b>	03. Use in closed batch process (synthesis or formulation)
	05. Mixing or blending in batch processes for formulation of preparations/mixtures and articles (multistage and/or significant contact)
	08a. Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities
	08b. Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
	10. Roller application or brushing
	11. Non industrial spraying
	14. Production of preparations/mixtures or articles by tableting, compression, extrusion, pelletisation
	15. Use as laboratory reagent
	19. Hand-mixing with intimate contact and only PPE available
<b>Article Categories [AC]</b>	02. Formulation of preparations/mixtures
<b>Environmental release category (ERC):</b>	04. Industrial use of processing aids in processes and products, not becoming part of articles
	8b. Wide dispersive indoor use of reactive substances in open systems
	8d. Wide dispersive outdoor use of processing aids in open systems
<b>3. Operational conditions of use</b>	
<b>Control parameters</b>	Precautionary measures against electrostatic discharge to be taken. LEV and respiratory protection to be taken in areas where workers may come into contact with dust. Implement basic standards of occupational hygiene
<b>Duration and frequency of use:</b>	Users to specify
<b>Maximum amount per time or activity:</b>	Users to specify
<b>Other operational conditions of use:</b>	Avoid splashes and spills. Minimise manual handling.
<b>Engineering control measures:</b>	Local exhaust ventilation. <b>Exposure limit values:</b> Not known
<b>Other protective equipment:</b>	Good hygiene and housekeeping
<b>Respiratory protection</b>	Required where ventilation is insufficient or exposure is prolonged
<b>Hand protection:</b>	Rubber or PVC gloves
<b>Eye protection:</b>	Wear safety goggles or face shield. Industrial professional - ensure eyewash and showers are in the proximity to workstation location.
<b>Other information:</b>	Avoid contact with the substance or contaminated objects, Ensure regular cleaning of equipment and work area; good personal hygiene, staff training and management/supervision are in place.
<b>4. Physical form of substance / preparation / mixture or article</b>	
<b>Information on basic physical and chemical properties:</b>	Acid liquid
<b>5. Product specification</b>	
<b>Physical form of the product:</b>	Part of a preparation can be a liquid or solid.
<b>Concentration of substance in preparation / mixture or article:</b>	Users to specify
<b>Service life of substances in articles:</b>	Users to specify
<b>6. Risk Management Measures</b>	
<b>Occupational exposure controls:</b>	Keep area well ventilated. Precautions against dust explosion and irritation caused by dust inhalation.
<b>Environmental Exposure Controls:</b>	Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. The substance is biodegradable, has a low Kow and is not expected to bioaccumulate.

<b>16. Exposure Scenario</b>	
Use of citric acid in medical devices. <b>Industrial &amp; consumer</b>	
<b>2. Processes and activities covered by the exposure scenario</b>	
<b>Sector of end use (SU):</b>	03. Industrial uses: Uses of substances as such or in preparations/mixtures at industrial sites
	20. Health services
	22. Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
<b>Chemical product category (PC):</b>	20 Products such as ph-regulators, flocculants, precipitants, neutralization agents
<b>Process category (PROC):</b>	01. Use in closed process, no likelihood of exposure
<b>Article Categories [AC]</b>	07. Industrial use of sub-stances in closed systems
<b>Environmental release category (ERC):</b>	8d. Wide dispersive outdoor use of processing aids in open systems
<b>3. Operational conditions of use</b>	
<b>Control parameters</b>	Precautionary measures against electrostatic discharge to be taken. LEV and respiratory protection to be taken in areas where workers may come into contact with dust. Implement basic standards of occupational hygiene.
<b>Duration and frequency of use:</b>	Users to specify
<b>Maximum amount per time or activity:</b>	Users to specify
<b>Other operational conditions of use:</b>	Avoid splashes and spills. Minimise manual handling.
<b>Engineering control measures:</b>	Local exhaust ventilation. <b>Exposure limit values:</b> Not known
<b>Other protective equipment:</b>	Good hygiene and housekeeping
<b>Respiratory protection</b>	Required where ventilation is insufficient or exposure is prolonged
<b>Hand protection:</b>	Rubber or PVC gloves
<b>Eye protection:</b>	Wear safety goggles or face shield. Industrial professional - ensure eyewash and showers are in the proximity to workstation location.
<b>Other information:</b>	Avoid contact with the substance or contaminated objects, Ensure regular cleaning of equipment and work area; good personal hygiene, staff training and management/supervision are in place.
<b>4. Physical form of substance / preparation / mixture or article</b>	
<b>Information on basic physical and chemical properties:</b>	Acid liquid
<b>5. Product specification</b>	
<b>Physical form of the product:</b>	Part of a preparation can be a liquid or solid.
<b>Concentration of substance in preparation / mixture or article:</b>	Users to specify
<b>Service life of substances in articles:</b>	Users to specify
<b>6. Risk Management Measures</b>	
<b>Occupational exposure controls:</b>	Keep area well ventilated. Precautions against dust explosion and irritation caused by dust inhalation.
<b>Environmental Exposure Controls:</b>	Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. The substance is biodegradable, has a low Kow and is not expected to bioaccumulate.
<b>7. Consumer use:</b>	Good hygiene and housekeeping
<b>8. Waste management measures</b>	
<b>Description and information on safe handling of surplus or waste:</b>	Neutralise before treatment in a sewage treatment plant. Disposal untreated waste should be in accordance with local, state or national legislation.
<b>9. Exposure assessment</b>	
<b>Human exposure prediction:</b>	
<b>Workers:</b>	Use of PPE will to minimise handling and contact.
<b>Consumers:</b>	Good hygiene and housekeeping
<b>Method:</b>	Not applicable
<b>Exposure estimation:</b>	Not known
<b>Secondary Poisoning:</b>	Not expected
<b>Indirect exposure to humans via the</b>	Not expected

<b>environment:</b>	
<b>10. Other information</b>	
<b>Control parameters:</b>	Refer to the eSDS
<b>Method to check compliance:</b>	Management/supervision to check that the RMMs in place are being used correctly and OCs followed. Ensure staff and workers receive adequate training with regular updates in the handling of chemicals

## Annex II Use descriptors

Identified use	Sector of Use - main user groups (SU)	Sector of Use – sectors of end-use	Preparation Category (PC)	Process category (PROC)	Article category (AC)	Environmental Release Category (ERC)
Manufacture	SU3	SU3	PC19	PROC1, 2, 3, 8b		ERC1
Intermediate	SU3	SU3, 9	PC19	PROC1, 2, 3, 4, 8b		ERC6a
Formulation	SU3, 10	SU5, 13, 20	PC0, 1, 3, 9, 12, 18, 30, 31, 35, 39	PROC 2, 3, 4, 5, 7, 8a, 8b, 9, 13, 14, 15, 19		ERC1, 2, 3, 4
Personal care products	SU21, 22	SU20	PC2, 39	PROC 10, 11, 19	AC8	ERC 8a, 11a
Detergent and cleaning products	SU3, 21, 22		PC3, 28, 31, 35, 36, 37	PROC1, 2, 4, 5, 7, 8a, 8b, 9, 10, 11, 13, 19	AC8 AC35	ERC2, 4, 8A, 8D, 9A, 9B
Paper industry	SU3	SU6	PC26	PROC 5, 8a		ERC4
Construction products	SU3, 21, 22	SU2, 10, 19	PC10	PROC 2, 4, 5, 7, 8a, 8b, 10, 11, 13, 14, 19, 21, 24	AC4, 12-1, 12-2	ERC5, 8c, 8f, 10a, 10b, 11a, 11b, 12a
Polymers and plastics	SU3	SU11, 12	PC32	PROC 3, 5, 8a, 8b		RC6b
Oil industry	SU3	SU2	PC20, 40	PROC 3, 4, 5, 8a, 8b,		ERC8d
Paints and coatings	SU3, 21, 22	SU17, 18, 19	PC9, 18, 34	PROC 7, 8a, 8b, 10, 11, 19, 21, 24	AC4, 11	ERC5, 8c, 8f, 10a, 10b, 11a, 11b
Photography products	SU3, 21, 22	SU20	PC30	PROC 5, 13		ERC8a
Textile industry	SU3	SU5	PC20, 23, 24	PROC 8a, 8b, 10, 13, 22	AC5, 6	ERC4
Laboratory reagents	SU3		PC4, 16, 20, 37	PROC 1, 2, 3, 4, 8a,		ERC4, 7
Water treatment	SU3	SU14, 15, 16, 17	PC4, 7, 14, 16, 17, 20, 25, 31, 35, 37	PROC 1, 2, 3, 4, 7, 8a, 8b, 9, 10, 13, 18, 20, 25, xyz1		ERC4, 7
Treatment of metal surfaces SU3	SU3	SU14, 15, 16, 17	PC7, 14, 25, 31, 35	PROC 2, 3, 4, 7, 8a, 8b, 9, 10, 13, 17, 18, 23		ERC4, 6b
Agricultural applications	SU3, 21, 22	SU1	PC8, 12, 21	PROC 3, 5, 8a, 8b, 10, 11, 14, 15, 19		ERC2, 4, 8b, 8d
Medical devices	SU3	SU22 SU20	PC20	PROC1		ERC7