SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Chemical name: Adipic acid
CAS Number: 124-04-9

REACH Registration Number: 01-2119457561-38

1.2. Relevant identified uses of the substance or mixture and uses advised against

Recommended use:
for the production of homopolymerisates and copolymerisates, initial product for chemical syntheses

Not recommended use:
food additive(s)

For the detailed identified uses of the product see appendix of the safety data sheet.

1.3. Details of the supplier of the safety data sheet

Company
SysKem Chemie GmbH
Rosenthalstrasse 22
D-42369 Wuppertal

Telephone +49 (0) 202-317559-0
E-mail address info@syskem.de

Prepared by / E-mail address of person responsible for the SDS
info@syskem.de

1.4. Emergency telephone number

Poisoning Information Centre Freiburg, Telephone +49 761 19240.

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

According to Regulation (EC) No 1272/2008 [CLP]
Eye Dam./Irrit. 2
H319 Causes serious eye irritation.

According to the producer current knowledge and application of the criteria given in Annex I of Regulation (EC) No. 1272/2008, the following classification exceeding the classification given in Regulation (EC) No 1272/2008, Annex VI, Table 3.1 is required.
Eye Dam./Irrit. 1

For the classifications not written out in full in this section the full text can be found in section 16.

2.2. Label elements

According to Regulation (EC) No 1272/2008 [CLP]
Pictogram:

GHS07

Signal word
Warning

Hazard statements
H319 - Causes serious eye irritation.

Precautionary Statements (Prevention):
P264 - Wash face, hands and any exposed skin thoroughly after handling.
P280 - Wear protective gloves/protective clothing/eye protection/face protection.
Precautionary Statements (Response):
P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P337+P313 - If eye irritation persists: Get medical advice/attention.

2.3. Other hazards

According to Regulation (EC) No 1272/2008 [CLP]
No specific dangers known, if the regulations/notes for storage and handling are considered.

The product does not contain a substance above legal limits fulfilling the PBT (persistent/bioaccumulative/toxic) criteria or the vPvB (very persistent/very bioaccumulative) criteria.

Product does not contain a substance above legal limits included in the list established in accordance with Article 59(1) of Regulation (EC) No 1907/2006 for having endocrine disrupting properties or is identified to have endocrine disrupting properties in accordance with the criteria set out in Commission Delegated Regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605.

SECTION 3: Composition/information on ingredients

3.1. Substances

Chemical nature
adipic acid

CAS Number: 124-04-9	Eye Dam./Irrit. 2
EC-Number: 204-673-3	H319
INDEX-Number: 607-144-00-9	
	Differing classification according to current knowledge and the criteria given in Annex I of Regulation (EC) No. 1272/2008
	Eye Dam./Irrit. 1

Regulatory relevant ingredients
adipic acid

Content (W/W): >= 75 % - <= 100 %	Eye Dam./Irrit. 2
CAS Number: 124-04-9	H319
EC-Number: 204-673-3	
INDEX-Number: 607-144-00-9	Differing classification according to current knowledge and the criteria given in Annex I of Regulation (EC) No. 1272/2008
	Eye Dam./Irrit. 1

3.2. Mixtures

Not applicable

SECTION 4: First aid measures

4.1. Description of first aid measures

Remove contaminated clothing.
Avoid contact with the skin, eyes and clothing.

If inhaled:
If difficulties occur after dust has been inhaled, remove to fresh air and seek medical attention.

On skin contact:
Wash thoroughly with soap and water

On contact with eyes:
Immediately wash affected eyes for at least 15 minutes under running water with eyelids held open, consult an eye specialist.

On ingestion:
Immediately rinse mouth and then drink 200-300 ml of water, seek medical attention.

4.2. Most important symptoms and effects, both acute and delayed

Symptoms: Information, i.e. additional information on symptoms and effects may be included in the GHS labeling phrases available in Section 2 and in the Toxicological assessments available in Section 11., (Further) symptoms and / or effects are not known so far

4.3. Indication of any immediate medical attention and special treatment needed

Treatment: Treat according to symptoms (decontamination, vital functions), no known specific antidote.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media:
water spray, dry powder, foam, carbon dioxide

5.2. Special hazards arising from the substance or mixture

Advice: No particular hazards known.

5.3. Advice for firefighters

Further information:
Collect contaminated extinguishing water separately, do not allow to reach sewage or effluent systems.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Avoid dust formation. Sources of ignition should be kept well clear. Use breathing apparatus if exposed to vapours/dust/aerosol. Information regarding personal protective measures, see section 8.

6.2. Environmental precautions

Discharge into the environment must be avoided. Do not empty into drains. Retain and dispose of contaminated wash water.

6.3. Methods and material for containment and cleaning up

For large amounts: Sweep/shovel up. Dispose of contaminated material as prescribed.
For residues: Rinse away with water.

6.4. Reference to other sections

Information regarding exposure controls/personal protection and disposal considerations can be found in section 8 and 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Ensure thorough ventilation of stores and work areas. Avoid contact with skin and eyes. Wear suitable protective clothing and eye/face protection. Handle in accordance with good industrial hygiene and safety practice.

Protection against fire and explosion:
Avoid dust formation. The product is capable of dust explosion. Sources of ignition should be kept well clear. Take precautionary measures against static discharges.

Dust explosion class: Dust explosion class 2 (Kst-value 200 up to 300 bar m s-1).

7.2. Conditions for safe storage, including any incompatibilities

Segregate from alkalies and alkalizing substances.

Suitable materials for containers: Stainless steel 1.4401, Stainless steel 1.4301 (V2), Aluminium, Polyester resin, glass reinforced (Palatal A410), Paper/Fibreboard, High density polyethylene (HDPE), glass, Low density polyethylene (LDPE)

Further information on storage conditions:
Containers should be stored tightly sealed in a dry place.

Storage class according to TRGS 510 (originally VCI, Germany):
(11) Combustible solids

Storage stability:
Tends to cake.

7.3. Specific end use(s)

For the relevant identified use(s) listed in Section 1 the advice mentioned in this section 7 is to be observed.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Components with occupational exposure limits
The surveillance of the workplace by exposure measurements may be necessary, in order to prove the efficiency of safety measures, for example ventilation or the need of respiratory protection. Since this requires a specific competency, only accredited laboratories should be contracted. Regarding suitable methods to assess inhalation exposure, the European Standards EN 482, 689 and 14042 are to be considered. In addition, the TRGS 402 has to be observed in Germany.

124-04-9: adipic acid
Short Term Exposure Classification: (TRGS 900 (DE)), Inhalable fraction
Category I: Substances for which the localized effect has an assigned exposure limit or for substances with a sensitizing effect in respiratory passages
OEL 2 mg/m3 (TRGS 900 (DE)), Inhalable fraction
Ceiling limit value/factor: 2
If the occupational exposure limit value (AGW) and the biological limit value (BGW) are complied with, there should be no risk of damage for the unborn child (see TRGS 900, Number 2.7)

PNEC
freshwater: 0,126 mg/l
marine water: 0,0126 mg/l
intermittent release: 0,46 mg/l
sediment (freshwater): 0,484 mg/kg
sediment (marine water): 0,0484 mg/kg
soil: 0,0228 mg/kg
STP: 59,1 mg/l

DNEL
worker:
Long-term exposure- systemic effects, Inhalation: 74,1 mg/m3
consumer:
Long-term exposure- systemic effects, dermal: 7,5 mg/kg
worker:
Long-term exposure- systemic effects, dermal: 21 mg/kg
consumer:
Long-term exposure- systemic effects, Inhalation: 13 mg/m3
consumer:
Long-term exposure- systemic effects, oral: 7,5 mg/kg

8.2. Exposure controls

Personal protective equipment
Respiratory protection:
Breathing protection if breathable aerosols/dust are formed. Particle filter with low efficiency for solid particles (e.g. EN 143 or 149, Type P1or FFP1)

Hand protection:
Chemical resistant protective gloves (EN ISO 374-1)
butyl rubber (butyl) - 0.7 mm coating thickness
Manufacturer's directions for use should be observed because of great diversity of types.

Eye protection:
Safety glasses with side-shields (frame goggles) (e.g. EN 166)

Body protection:
Body protection must be chosen depending on activity and possible exposure, e.g. apron, protecting boots, chemical-protection suit (according to EN 14605 in case of splashes or EN ISO 13982 in case of dust).

General safety and hygiene measures
Handle in accordance with good industrial hygiene and safety practice. Take off immediately all contaminated clothing. At the end of the shift the skin should be cleaned and skin-care agents applied.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

State of matter:	solid
Form:	crystalline
Colour:	white
Odour:	odourless
Odour threshold:	No data available.
Melting point:	150 - 153 °C
Boiling point:	337,5 °C (1.013 hPa) Literature data.
Sublimation point:	No applicable information available.
Flammability:	not highly flammable (Directive 92/69/EEC, A.10)
Lower explosion limit:	No data available.
Upper explosion limit:	No data available.
Flash point:	196 °C (closed cup) Literature data.
Auto-ignition temperature:	405 °C (DIN 51794)
Self-ignition temperature: Temperature:	> 400 °C Test type: Self-ignition at high temperatures. (Method: Directive 92/69/EEC, A.16)
Thermal decomposition:	No data available.
pH value:	2,7 (23 g/l, 25 °C) 3,2 (10 g/l)
Viscosity, kinematic:	No data available.
Viscosity, dynamic:	No data available.
Solubility in water:	Literature data. 23 g/l (25 °C)
Solubility (qualitative) solvent(s):	organic solvents soluble
Partitioning coefficient n-octanol/water	(log Kow): 0,093 (measured) (25 °C; pH value: 3,3)
Vapour pressure:	0,097 hPa (18,5 °C) Literature data.
Relative density:	1,36 (25 °C) Literature data.
Density:	1,36 g/cm3 (25 °C) Literature data.
Relative vapour density (air):	No data available.
Particle characteristics	
Particle size distribution:	approx. 60 µm (D50, Volumetric Distribution, measured) particles <= 4,19 µm 2,76 % particles <= 10,48 µm 8,79 % particles <= 103,58 µm 78,08 %

9.2. Other information

Information with regard to physical hazard classes

Explosives

Explosion hazard:	Product is not explosive, however a dust explosion could result from an air / dust mixture. (Directive 92/69/EEC, A.14)
Impact sensitivity:	not shock-sensitive (Directive 92/69/EEC, A.14)

Oxidizing properties

Fire promoting properties:	Based on its structural properties the product is not classified as oxidizing.

Pyrophoric properties

Self-ignition temperature:	not self-igniting Test type: Spontaneous self-ignition at room-temperature.

Self-heating substances and mixtures

Self heating ability:	It is not a substance capable of spontaneous heating.

Substances and mixtures, which emit flammable gases in contact with water

Formation of flammable gases:	Forms no flammable gases in the presence of water.

Corrosion to metals

No corrosive effect on metal.

Other safety characteristics

Minimum ignition energy:	10 - 30 mJ (DIN EN 13821)
Bulk density:	approx. 700 kg/m3 (other)
pKA:	4,43 (20 °C)
Adsorption/water - soil:	KOC: 1,61; log KOC: 0,21 (calculated)
Surface tension:	Based on chemical structure, surface activity is not to be expected.
Molar mass:	146,14 g/mol
Evaporation rate:	The product is a non-volatile solid.

SECTION 10: Stability and reactivity

10.1. Reactivity

No hazardous reactions if stored and handled as prescribed/indicated.

Corrosion to metals:
No corrosive effect on metal.

Formation of flammable gases:
Forms no flammable gases in the presence of water.

10.2. Chemical stability

The product is stable if stored and handled as prescribed/indicated.

10.3. Possibility of hazardous reactions

Reacts with basic components to generate heat. Dust explosion hazard.

10.4. Conditions to avoid

Avoid dust formation. Avoid deposition of dust. See SDS section 7 - Handling and storage.

10.5. Incompatible materials

Substances to avoid:
alkaline reactive substances

10.6. Hazardous decomposition products

Thermal decomposition products:
No hazardous decomposition products if stored and handled as prescribed/indicated., Incomplete combustion results in formation of toxic gases, containing mainly carbon monoxide and carbon dioxide.

SECTION 11: Toxicological information

11.1. IInformation on hazard classes as defined in Regulation (EC) No 1272/2008

Acute toxicity
Assessment of acute toxicity:
Virtually nontoxic after a single ingestion. Virtually nontoxic by inhalation. Virtually nontoxic after a single skin contact.

Experimental/calculated data:
LD50 rat (oral): approx. 5.560 mg/kg (BASF-Test)
LC50 rat (by inhalation): > 7,7 mg/l 4 h (BASF-Test)
An aerosol was tested.
LD50 rabbit (dermal): > 7.940 mg/kg (other)

Irritation
Assessment of irritating effects:
Not irritating to the skin.
May cause severe damage to the eyes.

Experimental/calculated data:
Skin corrosion/irritation
rabbit: non-irritant (BASF-Test)
Serious eye damage/irritation
rabbit: irreversible damage (OECD Guideline 405)

Respiratory/Skin sensitization
Assessment of sensitization:
Skin sensitizing effects were not observed in animal studies. A sensitizing effect on particularly sensitive individuals cannot be excluded.

Experimental/calculated data:
guinea pig: Non-sensitizing. (other)

Germ cell mutagenicity
Assessment of mutagenicity:
The substance was not mutagenic in mammalian cell culture. No mutagenic effect was found in various tests with microorganisms and mammals.

Carcinogenicity
Assessment of carcinogenicity:
In long-term animal studies in which the substance was given in high concentrations by feed, a carcinogenic effect was not observed.

Reproductive toxicity
Assessment of reproduction toxicity:
No effects have been reported in reproductive organs in long term animal studies.

Developmental toxicity
Assessment of teratogenicity:
No indications of a developmental toxic / teratogenic effect were seen in animal studies.

Specific target organ toxicity (single exposure)
Assessment of STOT single:
Based on available data, the classification criteria are not met.

Repeated dose toxicity and Specific target organ toxicity (repeated exposure)
Assessment of repeated dose toxicity:
Repeated oral uptake of the substance did not cause substance-related effects.

Aspiration hazard
No aspiration hazard expected.

Interactive effects
No data available.

11.2. Information on other hazards

Endocrine disrupting properties
The substance is not identified to have endocrine disrupting properties according to Regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 nor is included in the Candidate List of substances of very high concern according to EU REACh Article 59 for having endocrine disrupting properties.

SECTION 12: Ecological information

12.1 Toxicity

Assessment of aquatic toxicity:
Acutely harmful for aquatic organisms. The inhibition of the degradation activity of activated sludge is not anticipated when introduced to biological treatment plants in appropriate low concentrations.

Toxicity to fish:
LC0 (96 h) >= 1.000 mg/l, Brachydanio rerio (other, static)
Nominal values (confirmed by concentration control analytics)

Aquatic invertebrates:
LC50 (48 h) 46 mg/l, Daphnia magna (OECD Guideline 202, part 1)
Nominal concentration.

Aquatic plants:
EC50 (72 h) 64,5 mg/l (growth rate), Pseudokirchneriella subcapitata (OECD Guideline 201, static)
Nominal concentration.

No observed effect concentration (72 h) 40,6 mg/l (growth rate), Pseudokirchneriella subcapitata (OECD Guideline 201, static)
Nominal concentration.

Microorganisms/Effect on activated sludge:
EC50 (3 h) > 100 mg/l, activated sludge (OECD Guideline 209, aerobic)

Chronic toxicity to fish:
Study scientifically not justified.

Chronic toxicity to aquatic invertebrates:
No observed effect concentration (21 d) 6,3 mg/l, Daphnia magna (OECD Guideline 211)
Nominal concentration.

Assessment of terrestrial toxicity:
No data available.
Study scientifically not justified.

12.2 Persistence and degradability

Assessment biodegradation and elimination (H2O):
Readily biodegradable (according to OECD criteria).

Elimination information:
83 % BOD of the ThOD (30 d) (OECD 301D; 92/69/EWG, C.4-E) (aerobic, domestic sewage)
Literature data.

Assessment of stability in water:
According to structural properties, hydrolysis is not expected/probable.

12.3 Bioaccumulative potential

Assessment bioaccumulation potential:
Because of the n-octanol/water distribution coefficient (log Pow) accumulation in organisms is not to be expected.

Bioaccumulation potential:
Bioconcentration factor(BCF): 3,16 (calculated)
Accumulation in organisms is not to be expected.

12.4 Mobility in soil

Assessment transport between environmental compartments:
Volatility: The substance will not evaporate into the atmosphere from the water surface.
Adsorption in soil: Adsorption to solid soil phase is not expected.

12.5 Results of PBT and vPvB assessment

According to Annex XIII of Regulation (EC) No.1907/2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH): The product does not fulfill the criteria for PBT (Persistent/bioaccumulative/toxic) and vPvB (very persistent/very bioaccumulative). Self classification

12.6. Endocrine disrupting properties

The substance is not identified to have endocrine disrupting properties according to Regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 nor is included in the Candidate List of substances of very high concern according to EU REACh Article 59 for having endocrine disrupting properties.

12.7. Other adverse effects

The substance is not listed in Regulation (EC) 1005/2009 on substances that deplete the ozone layer.

Additional information
Other ecotoxicological advice:
Do not release untreated into natural waters.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Incinerate in suitable incineration plant, observing local authority regulations.

Contaminated packaging:
Uncleaned empties should be disposed of in the same manner as the contents.

SECTION 14: Transport information

Land transport
ADR

Not classified as a dangerous good under transport regulations

UN number or ID number:	Not applicable
UN proper shipping name:	Not applicable
Transport hazard class(es):	Not applicable
Packing group:	Not applicable
Environmental hazards:	Not applicable
Special precautions for user	None known

RID

Not classified as a dangerous good under transport regulations

UN number or ID number:	Not applicable
UN proper shipping name:	Not applicable
Transport hazard class(es):	Not applicable
Packing group:	Not applicable
Environmental hazards:	Not applicable
Special precautions for user	None known

Inland waterway transport
ADN

Not classified as a dangerous good under transport regulations

UN number or ID number:	Not applicable
UN proper shipping name:	Not applicable
Transport hazard class(es):	Not applicable
Packing group:	Not applicable
Environmental hazards:	Not applicable
Special precautions for user	None known

Transport in inland waterway vessel
Not evaluated

Sea transport
IMDG

Not classified as a dangerous good under transport regulations

UN number or ID number:	Not applicable
UN proper shipping name:	Not applicable
Transport hazard class(es):	Not applicable
Packing group:	Not applicable
Environmental hazards:	Not applicable
Special precautions for user	None known

Air transport
IATA/ICAO

Not classified as a dangerous good under transport regulations

UN number or ID number:	Not applicable
UN proper shipping name:	Not applicable
Transport hazard class(es):	Not applicable
Packing group:	Not applicable
Environmental hazards:	Not applicable
Special precautions for user	None known

14.1. UN number or ID number

See corresponding entries for “UN number or ID number” for the respective regulations in the tables above.

14.2. UN proper shipping name

See corresponding entries for “UN proper shipping name” for the respective regulations in the tables above.

14.3. Transport hazard class(es)

See corresponding entries for “Transport hazard class(es)” for the respective regulations in the tables above.

14.4. Packing group

See corresponding entries for “Packing group” for the respective regulations in the tables above.

14.5. Environmental hazards

See corresponding entries for “Environmental hazards” for the respective regulations in the tables above.

14.6. Special precautions for user

See corresponding entries for “Special precautions for user” for the respective regulations in the tables above.

14.7. Maritime transport in bulk according to IMO instruments

Maritime transport in bulk is not intended.

SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

Prohibitions, Restrictions and Authorizations
Annex XVII of Regulation (EC) No 1907/2006: Number on List: 75

Hazardous Incident Ordinance (Germany):
Listed in above regulation: no

Directive 2012/18/EU - Control of Major Accident Hazards involving dangerous substances (EU):
Listed in above regulation: no

Classification according to 'TA-Luft' (Germany):
5.2.1: total dust, including fine dust

Water hazard class (§6 AwSV para.4 (Legal binding announcement of the substance in the Federal Gazette)): (1) Weakly water polluting. ID-No.: 474

If other regulatory information applies that is not already provided elsewhere in this safety data sheet, then it is described in this subsection.

15.2 Chemical Safety Assessment

Chemical Safety Assessment performed

SECTION 16: Other information

Assessment of the hazard classes according to UN GHS criteria (most recent version)
Eye Dam./Irrit. 1
Aquatic Acute 3

Full text of the classifications, including the hazard classes and the hazard statements, if mentioned in section 2 or 3:

Eye Dam./Irrit.	Serious eye damage/eye irritation
H319	Causes serious eye irritation.

Data sources used to create the data sheet:
Information from the producer / supplier.

Department issuing the data sheet:
SysKem Chemie GmbH
Product Safety Department
Telephone number +49 (0) 0202-317559-0

Training instructions:
Instruction on hazards and protective measures based on the operating instructions (TRGS 555).
The instructions must be given before the start of employment and at least once a year thereafter.

Reasons for changes:
Complete revision.

The data contained in this safety data sheet are based on our current knowledge and experience and describe the product only with regard to safety requirements. This safety data sheet is neither a Certificate of Analysis (CoA) nor technical data sheet and shall not be mistaken for a specification agreement. Identified uses in this safety data sheet do neither represent an agreement on the corresponding contractual quality of the substance/mixture nor a contractually designated use. It is the responsibility of the recipient of the product to ensure any proprietary rights and existing laws and legislation are observed.

Abbreviations

ADR = The European Agreement concerning the International Carriage of Dangerous Goods by Road. ADN = The European Agreement concerning the International Carriage of Dangerous Goods by Inland waterways. ATE = Acute Toxicity Estimates. CAO = Cargo Aircraft Only. CAS = Chemical Abstract Service. CLP = Classification, Labelling and Packaging of substances and mixtures. DIN = German national organization for standardization. DNEL = Derived No Effect Level. EC50 = Effective concentration median for 50% of the population. EC = European Community. EN = European Standards. IARC = International Agency for Research on Cancer. IATA = International Air Transport Association. IBC-Code = Intermediate Bulk Container code. IMDG = International Maritime Dangerous Goods Code. ISO = International Organization for Standardization. STEL = Short-Term Exposure Limit. LC50 = Lethal concentration median for 50% of the population. LD50 = Lethal dose median for 50% of the population. TLV = Threshold Limit Value. MARPOL = The International Convention for the Prevention of Pollution from Ships. NEN = Dutch Norm. NOEC = No Observed Effect Concentration. OEL = Occupational Exposure Limit. OECD = Organization for Economic Cooperation and Development. PBT = Persistent, Bioaccumulative and Toxic. PNEC = Predicted No Effect Level. PPM = Parts per million. RID = The European Agreement concerning the International Carriage of Dangerous Goods by Rail. TWA = Time Weight Average. UN-number = UN number at transport. vPvB = very Persistent and very Bioaccumulative.

Annex: Exposure Scenarios

Index

1. Short title of exposure scenario
Formulation
ERC2; PROC1, PROC2, PROC3, PROC4, PROC5, PROC7, PROC8a, PROC8b, PROC9, PROC10, PROC13

Control of exposure and risk management measures

Contributing exposure scenario	
Use descriptors covered	ERC2: Formulation into mixture
Operational conditions	
Annual amount per site	251.000 kg
Minimum emission days per year	100
Emission factor air	0,05 %
Emission factor water	0,08 %
Emission factor soil	0,01 %
Receive Surf. Water (Flow rate)	18.000 m3/d
Dilution factor river	10
Dilution factor coast	100
Risk Management Measures	
Type of STP	Municipal STP
Assumed sewage treatment plant flow (m3/d)	2.000 m3/d
Exposure estimate and reference to its source	
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Environment
Risk Characterization Ratio (RCR)	0,031516
	Risk from environmental exposure is driven by soil.
Maximum amount of safe use	79.643,3 kg/d
Risk from environmental exposure is driven by soil.	

Contributing exposure scenario	
Use descriptors covered	PROC1: Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions. Use domain: industrial
Operational conditions	
Concentration of the substance	adipic acid Content: >= 0 % - <= 5 %
Physical state	liquid
Vapour pressure of the substance during use	39,959549 Pa
Process temperature	40 °C
Duration and Frequency of activity	480 min 5 days per week
Indoor/Outdoor	Indoor
	Operation is carried out at ambient or elevated temperatures
Risk Management Measures	
Provide a good standard of general ventilation (not less than 3 - 5 air changes per hour)	Effectiveness: 30 %
Exposure estimate and reference to its source	
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Worker
	Worker - dermal, long-term - systemic
Exposure estimate	0,0069 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,000327
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	0,0085 mg/m3
Risk Characterization Ratio (RCR)	0,000115
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra	

Contributing exposure scenario	
Use descriptors covered	PROC2: Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions Use domain: industrial
Operational conditions	
Concentration of the substance	adipic acid Content: >= 0 % - <= 5 %
Physical state	liquid
Vapour pressure of the substance during use	39,959549 Pa
Process temperature	40 °C
Duration and Frequency of activity	480 min 5 days per week
Indoor/Outdoor	Indoor
	Operation is carried out at ambient or elevated temperatures
Risk Management Measures	
Wear suitable respiratory protection.	Effectiveness: 90 %
Provide a good standard of general ventilation (not less than 3 - 5 air changes per hour)	Effectiveness: 30 %
Use suitable chemically resistant gloves	Effectiveness: 80 %
Avoid contact with eyes.	
In case of potential exposure: Use suitable eye protection.	
Exposure estimate and reference to its source	
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Worker
	Worker - dermal, long-term - systemic
Exposure estimate	0,0549 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,002612
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	0,0852 mg/m3
Risk Characterization Ratio (RCR)	0,00115
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra	

Contributing exposure scenario	
Use descriptors covered	PROC3: Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition Use domain: industrial
Operational conditions	
Concentration of the substance	adipic acid Content: >= 0 % - <= 5 %
Physical state	liquid
Vapour pressure of the substance during use	39,959549 Pa
Process temperature	40 °C
Duration and Frequency of activity	480 min 5 days per week
Indoor/Outdoor	Indoor
	Operation is carried out at ambient or elevated temperatures
Risk Management Measures	
Wear suitable respiratory protection.	Effectiveness: 90 %
Provide a good standard of general ventilation (not less than 3 - 5 air changes per hour)	Effectiveness: 30 %
Use suitable chemically resistant gloves	Effectiveness: 80 %
Avoid contact with eyes.	
In case of potential exposure: Use suitable eye protection.	
Exposure estimate and reference to its source	
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Worker
	Worker - dermal, long-term - systemic
Exposure estimate	0,0274 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,001306
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	0,2557 mg/m3
Risk Characterization Ratio (RCR)	0,003451
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra	

Contributing exposure scenario	
Use descriptors covered	PROC4: Chemical production where opportunity for exposure arises Use domain: industrial
Operational conditions	
Concentration of the substance	adipic acid Content: >= 0 % - <= 5 %
Physical state	liquid
Vapour pressure of the substance during use	39,959549 Pa
Process temperature	40 °C
Duration and Frequency of activity	480 min 5 days per week
Indoor/Outdoor	Indoor
	Operation is carried out at ambient or elevated temperatures
Risk Management Measures	
Wear suitable respiratory protection.	Effectiveness: 90 %
Provide a good standard of general ventilation (not less than 3 - 5 air changes per hour)	Effectiveness: 30 %
Use suitable chemically resistant gloves	Effectiveness: 80 %
Avoid contact with eyes.	
In case of potential exposure: Use suitable eye protection.	
Exposure estimate and reference to its source	
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Worker
	Worker - dermal, long-term - systemic
Exposure estimate	0,2743 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,013061
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	0,0852 mg/m3
Risk Characterization Ratio (RCR)	0,00115
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra	

Contributing exposure scenario	
Use descriptors covered	PROC5: Mixing or blending in batch processes Use domain: industrial
Operational conditions	
Concentration of the substance	adipic acid Content: >= 0 % - <= 5 %
Physical state	liquid
Vapour pressure of the substance during use	39,959549 Pa
Process temperature	40 °C
Duration and Frequency of activity	480 min 5 days per week
Indoor/Outdoor	Indoor
	Operation is carried out at ambient or elevated temperatures
Risk Management Measures	
Wear suitable respiratory protection.	Effectiveness: 90 %
Provide a good standard of general ventilation (not less than 3 - 5 air changes per hour)	Effectiveness: 30 %
Use suitable chemically resistant gloves	Effectiveness: 80 %
Avoid contact with eyes.	
In case of potential exposure: Use suitable eye protection.	
Exposure estimate and reference to its source	
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Worker
	Worker - dermal, long-term - systemic
Exposure estimate	0,5486 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,026122
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	0,4262 mg/m3
Risk Characterization Ratio (RCR)	0,005752
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra	

Contributing exposure scenario	
Use descriptors covered	PROC7: Industrial spraying Use domain: industrial
Operational conditions	
Concentration of the substance	adipic acid Content: >= 0 % - <= 50 %
Physical state	liquid
Vapour pressure of the substance during use	39,959549 Pa
Process temperature	40 °C
Duration and Frequency of activity	60 min 5 days per week
Indoor/Outdoor	Indoor
	Operation is carried out at ambient or elevated temperatures
Risk Management Measures	
Lokale Absaugung	Effectiveness: 95 %
Wear suitable respiratory protection.	Effectiveness: 90 %
Provide a good standard of general ventilation (not less than 3 - 5 air changes per hour)	Effectiveness: 30 %
Use suitable chemically resistant gloves	Effectiveness: 80 %
Avoid contact with eyes.	
In case of potential exposure: Use suitable eye protection.	
Exposure estimate and reference to its source	
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Worker
	Worker - dermal, long-term - systemic
Exposure estimate	4,2857 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,204082
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	0,2131 mg/m3
Risk Characterization Ratio (RCR)	0,002876
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra	

Contributing exposure scenario	
Use descriptors covered	PROC8a: Transfer of substance or mixture (charging and discharging) at non-dedicated facilities Use domain: industrial
Operational conditions	
Concentration of the substance	adipic acid Content: >= 0 % - <= 5 %
Physical state	liquid
Vapour pressure of the substance during use	39,959549 Pa
Process temperature	40 °C
Duration and Frequency of activity	60 min 5 days per week
Indoor/Outdoor	Indoor
	Operation is carried out at ambient or elevated temperatures
Risk Management Measures	
Wear suitable respiratory protection.	Effectiveness: 90 %
Provide a good standard of general ventilation (not less than 3 - 5 air changes per hour)	Effectiveness: 30 %
Use suitable chemically resistant gloves	Effectiveness: 80 %
Avoid contact with eyes.	
In case of potential exposure: Use suitable eye protection.	
Exposure estimate and reference to its source	
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Worker
	Worker - dermal, long-term - systemic
Exposure estimate	0,5486 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,026122
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	0,1705 mg/m3
Risk Characterization Ratio (RCR)	0,002301
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra	

Contributing exposure scenario	
Use descriptors covered	PROC8b: Transfer of substance or mixture (charging and discharging) at dedicated facilities Use domain: industrial
Operational conditions	
Concentration of the substance	adipic acid Content: >= 0 % - <= 5 %
Physical state	liquid
Vapour pressure of the substance during use	39,959549 Pa
Process temperature	40 °C
Duration and Frequency of activity	60 min 5 days per week
Indoor/Outdoor	Indoor
	Operation is carried out at ambient or elevated temperatures
Risk Management Measures	
Wear suitable respiratory protection.	Effectiveness: 90 %
Provide a good standard of general ventilation (not less than 3 - 5 air changes per hour)	Effectiveness: 30 %
Use suitable chemically resistant gloves	Effectiveness: 80 %
Avoid contact with eyes.	
In case of potential exposure: Use suitable eye protection.	
Exposure estimate and reference to its source	
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Worker
	Worker - dermal, long-term - systemic
Exposure estimate	0,5486 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,026122
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	0,4262 mg/m3
Risk Characterization Ratio (RCR)	0,005752
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra	

Contributing exposure scenario	
Use descriptors covered	PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing). Use domain: industrial
Operational conditions	
Concentration of the substance	adipic acid Content: >= 0 % - <= 5 %
Physical state	liquid
Vapour pressure of the substance during use	39,959549 Pa
Process temperature	40 °C
Duration and Frequency of activity	60 min 5 days per week
Indoor/Outdoor	Indoor
	Operation is carried out at ambient or elevated temperatures
Risk Management Measures	
Wear suitable respiratory protection.	Effectiveness: 90 %
Provide a good standard of general ventilation (not less than 3 - 5 air changes per hour)	Effectiveness: 30 %
Use suitable chemically resistant gloves	Effectiveness: 80 %
Avoid contact with eyes.	
In case of potential exposure: Use suitable eye protection.	
Exposure estimate and reference to its source	
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Worker
	Worker - dermal, long-term - systemic
Exposure estimate	0,2743 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,013061
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	0,0852 mg/m3
Risk Characterization Ratio (RCR)	0,00115
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra	

Contributing exposure scenario	
Use descriptors covered	PROC10: Roller application or brushing Use domain: industrial
Operational conditions	
Concentration of the substance	adipic acid Content: >= 0 % - <= 5 %
Physical state	liquid
Vapour pressure of the substance during use	39,959549 Pa
Process temperature	40 °C
Duration and Frequency of activity	60 min 5 days per week
Indoor/Outdoor	Indoor
	Operation is carried out at ambient or elevated temperatures
Risk Management Measures	
Wear suitable respiratory protection.	Effectiveness: 90 %
Provide a good standard of general ventilation (not less than 3 - 5 air changes per hour)	Effectiveness: 30 %
Use suitable chemically resistant gloves	Effectiveness: 80 %
Avoid contact with eyes.	
In case of potential exposure: Use suitable eye protection.	
Exposure estimate and reference to its source	
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Worker
	Worker - dermal, long-term - systemic
Exposure estimate	1,0971 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,052245
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	0,1705 mg/m3
Risk Characterization Ratio (RCR)	0,02301
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra	

Contributing exposure scenario	
Use descriptors covered	PROC13: Treatment of articles by dipping and pouring. Use domain: industrial
Operational conditions	
Concentration of the substance	adipic acid Content: >= 0 % - <= 5 %
Physical state	liquid
Vapour pressure of the substance during use	39,959549 Pa
Process temperature	40 °C
Duration and Frequency of activity	60 min 5 days per week
Indoor/Outdoor	Indoor
	Operation is carried out at ambient or elevated temperatures
Risk Management Measures	
Wear suitable respiratory protection.	Effectiveness: 90 %
Provide a good standard of general ventilation (not less than 3 - 5 air changes per hour)	Effectiveness: 30 %
Use suitable chemically resistant gloves	Effectiveness: 80 %
Avoid contact with eyes.	
In case of potential exposure: Use suitable eye protection.	
Exposure estimate and reference to its source	
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Worker
	Worker - dermal, long-term - systemic
Exposure estimate	0,5486 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,026122
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	0,1705 mg/m3
Risk Characterization Ratio (RCR)	0,02301
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra	

2. Short title of exposure scenario
Use in/as Formulation
ERC6b; PROC1, PROC2, PROC3, PROC4, PROC5, PROC7, PROC8a, PROC8b, PROC9, PROC10, PROC13

Control of exposure and risk management measures	
Use descriptors covered	ERC6b: Use of reactive processing aid at industrial site (no inclusion into or onto article)
Operational conditions	
Annual amount per site	251.000 kg
Minimum emission days per year	20
Emission factor air	0,002 %
Emission factor water	0,2 %
Emission factor soil	0,025 %
Receive Surf. Water (Flow rate)	18.000 m3/d
Dilution factor river	10
Dilution factor coast	100
Risk Management Measures	
Type of STP	Municipal STP
Assumed sewage treatment plant flow (m3/d)	2.000 m3/d
Exposure estimate and reference to its source	
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Environment
Risk Characterization Ratio (RCR)	0,078449
	Risk from environmental exposure is driven by soil.
Maximum amount of safe use	159.977 kg/d
Risk from environmental exposure is driven by soil.	

Contributing exposure scenario	
Use descriptors covered	PROC1: Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions. Use domain: industrial
Operational conditions	
Concentration of the substance	adipic acid Content: >= 0 % - <= 5 %
Physical state	liquid
Vapour pressure of the substance during use	39,959549 Pa
Process temperature	40 °C
Duration and Frequency of activity	480 min 5 days per week
Indoor/Outdoor	Indoor
	Operation is carried out at ambient or elevated temperatures
Risk Management Measures	
Provide a good standard of general ventilation (not less than 3 - 5 air changes per hour)	Effectiveness: 30 %
Exposure estimate and reference to its source	
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Worker
	Worker - dermal, long-term - systemic
Exposure estimate	0,0069 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,000327
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	0,0085 mg/m3
Risk Characterization Ratio (RCR)	0,000115
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra	

Contributing exposure scenario	
Use descriptors covered	PROC2: Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions Use domain: industrial
Operational conditions	
Concentration of the substance	adipic acid Content: >= 0 % - <= 5 %
Physical state	liquid
Vapour pressure of the substance during use	39,959549 Pa
Process temperature	40 °C
Duration and Frequency of activity	480 min 5 days per week
Indoor/Outdoor	Indoor
	Operation is carried out at ambient or elevated temperatures
Risk Management Measures	
Wear suitable respiratory protection.	Effectiveness: 90 %
Provide a good standard of general ventilation (not less than 3 - 5 air changes per hour)	Effectiveness: 30 %
Use suitable chemically resistant gloves	Effectiveness: 80 %
Avoid contact with eyes.	
In case of potential exposure: Use suitable eye protection.	
Exposure estimate and reference to its source	
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Worker
	Worker - dermal, long-term - systemic
Exposure estimate	0,0549 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,002612
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	0,0852 mg/m3
Risk Characterization Ratio (RCR)	0,00115
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra	

Contributing exposure scenario	
Use descriptors covered	PROC3: Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition Use domain: industrial
Operational conditions	
Concentration of the substance	adipic acid Content: >= 0 % - <= 5 %
Physical state	liquid
Vapour pressure of the substance during use	39,959549 Pa
Process temperature	40 °C
Duration and Frequency of activity	480 min 5 days per week
Indoor/Outdoor	Indoor
	Operation is carried out at ambient or elevated temperatures
Risk Management Measures	
Wear suitable respiratory protection.	Effectiveness: 90 %
Provide a good standard of general ventilation (not less than 3 - 5 air changes per hour)	Effectiveness: 30 %
Use suitable chemically resistant gloves	Effectiveness: 80 %
Avoid contact with eyes.	
In case of potential exposure: Use suitable eye protection.	
Exposure estimate and reference to its source	
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Worker
	Worker - dermal, long-term - systemic
Exposure estimate	0,0274 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,001306
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	0,2557 mg/m3
Risk Characterization Ratio (RCR)	0,003451
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra	

Contributing exposure scenario	
Use descriptors covered	PROC4: Chemical production where opportunity for exposure arises Use domain: industrial
Operational conditions	
Concentration of the substance	adipic acid Content: >= 0 % - <= 5 %
Physical state	liquid
Vapour pressure of the substance during use	39,959549 Pa
Process temperature	40 °C
Duration and Frequency of activity	60 min 5 days per week
Indoor/Outdoor	Indoor
	Operation is carried out at ambient or elevated temperatures
Risk Management Measures	
Wear suitable respiratory protection.	Effectiveness: 90 %
Provide a good standard of general ventilation (not less than 3 - 5 air changes per hour)	Effectiveness: 30 %
Use suitable chemically resistant gloves	Effectiveness: 80 %
Avoid contact with eyes.	
In case of potential exposure: Use suitable eye protection.	
Exposure estimate and reference to its source	
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Worker
	Worker - dermal, long-term - systemic
Exposure estimate	0,2743 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,013061
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	0,0852 mg/m3
Risk Characterization Ratio (RCR)	0,00115
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra	

Contributing exposure scenario	
Use descriptors covered	PROC5: Mixing or blending in batch processes Use domain: industrial
Operational conditions	
Concentration of the substance	adipic acid Content: >= 0 % - <= 5 %
Physical state	liquid
Vapour pressure of the substance during use	39,959549 Pa
Process temperature	40 °C
Duration and Frequency of activity	60 min 5 days per week
Indoor/Outdoor	Indoor
	Operation is carried out at ambient or elevated temperatures
Risk Management Measures	
Lokale Absaugung	Effectiveness: 90 %
Wear suitable respiratory protection.	Effectiveness: 90 %
Provide a good standard of general ventilation (not less than 3 - 5 air changes per hour)	Effectiveness: 30 %
Use suitable chemically resistant gloves	Effectiveness: 80 %
Avoid contact with eyes.	
In case of potential exposure: Use suitable eye protection.	
Exposure estimate and reference to its source	
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Worker
	Worker - dermal, long-term - systemic
Exposure estimate	0,5486 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,026122
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	0,0085 mg/m3
Risk Characterization Ratio (RCR)	0,000115
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra	

Contributing exposure scenario	
Use descriptors covered	PROC7: Industrial spraying Use domain: industrial
Operational conditions	
Concentration of the substance	adipic acid Content: >= 0 % - <= 50 %
Physical state	liquid
Vapour pressure of the substance during use	39,959549 Pa
Process temperature	40 °C
Duration and Frequency of activity	60 min 5 days per week
Indoor/Outdoor	Indoor
	Operation is carried out at ambient or elevated temperatures
Risk Management Measures	
Lokale Absaugung	Effectiveness: 95 %
Wear suitable respiratory protection.	Effectiveness: 90 %
Provide a good standard of general ventilation (not less than 3 - 5 air changes per hour)	Effectiveness: 30 %
Use suitable chemically resistant gloves	Effectiveness: 80 %
Avoid contact with eyes.	
In case of potential exposure: Use suitable eye protection.	
Exposure estimate and reference to its source	
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Worker, erweiterte Version, Die Konzentration der Substanz wurde durch eine lineare Einrechnung berücksichtigt.
	Worker - dermal, long-term - systemic
Exposure estimate	4,2857 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,204082
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Worker, erweiterte Version, Die Konzentration der Substanz wurde durch eine lineare Einrechnung berücksichtigt.
	Worker - inhalation, long-term - systemic
Exposure estimate	0,2131 mg/m3
Risk Characterization Ratio (RCR)	0,002876
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra	

Contributing exposure scenario	
Use descriptors covered	PROC8a: Transfer of substance or mixture (charging and discharging) at non-dedicated facilities Use domain: industrial
Operational conditions	
Concentration of the substance	adipic acid Content: >= 0 % - <= 5 %
Physical state	liquid
Vapour pressure of the substance during use	39,959549 Pa
Process temperature	40 °C
Duration and Frequency of activity	60 min 5 days per week
Indoor/Outdoor	Indoor
	Operation is carried out at ambient or elevated temperatures
Risk Management Measures	
Wear suitable respiratory protection.	Effectiveness: 90 %
Provide a good standard of general ventilation (not less than 3 - 5 air changes per hour)	Effectiveness: 30 %
Use suitable chemically resistant gloves	Effectiveness: 80 %
Avoid contact with eyes.	
In case of potential exposure: Use suitable eye protection.	
Exposure estimate and reference to its source	
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Worker
	Worker - dermal, long-term - systemic
Exposure estimate	0,5486 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,026122
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	0,1705 mg/m3
Risk Characterization Ratio (RCR)	0,002301
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra	

Contributing exposure scenario	
Use descriptors covered	PROC8b: Transfer of substance or mixture (charging and discharging) at dedicated facilities Use domain: industrial
Operational conditions	
Concentration of the substance	adipic acid Content: >= 0 % - <= 5 %
Physical state	liquid
Vapour pressure of the substance during use	39,959549 Pa
Process temperature	40 °C
Duration and Frequency of activity	60 min 5 days per week
Indoor/Outdoor	Indoor
	Operation is carried out at ambient or elevated temperatures
Risk Management Measures	
Wear suitable respiratory protection.	Effectiveness: 90 %
Provide a good standard of general ventilation (not less than 3 - 5 air changes per hour)	Effectiveness: 30 %
Use suitable chemically resistant gloves	Effectiveness: 80 %
Avoid contact with eyes.	
In case of potential exposure: Use suitable eye protection.	
Exposure estimate and reference to its source	
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Worker
	Worker - dermal, long-term - systemic
Exposure estimate	0,5486 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,026122
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	0,0852 mg/m3
Risk Characterization Ratio (RCR)	0,00115
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra	

Contributing exposure scenario	
Use descriptors covered	PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing). Use domain: industrial
Operational conditions	
Concentration of the substance	adipic acid Content: >= 0 % - <= 5 %
Physical state	liquid
Vapour pressure of the substance during use	39,959549 Pa
Process temperature	40 °C
Duration and Frequency of activity	60 min 5 days per week
Indoor/Outdoor	Indoor
	Operation is carried out at ambient or elevated temperatures
Risk Management Measures	
Wear suitable respiratory protection.	Effectiveness: 90 %
Provide a good standard of general ventilation (not less than 3 - 5 air changes per hour)	Effectiveness: 30 %
Use suitable chemically resistant gloves	Effectiveness: 80 %
Avoid contact with eyes.	
In case of potential exposure: Use suitable eye protection.	
Exposure estimate and reference to its source	
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Worker
	Worker - dermal, long-term - systemic
Exposure estimate	0,2743 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,013061
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	0,0852 mg/m3
Risk Characterization Ratio (RCR)	0,00115
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra	

Contributing exposure scenario	
Use descriptors covered	PROC10: Roller application or brushing Use domain: industrial
Operational conditions	
Concentration of the substance	adipic acid Content: >= 0 % - <= 5 %
Physical state	liquid
Vapour pressure of the substance during use	39,959549 Pa
Process temperature	40 °C
Duration and Frequency of activity	60 min 5 days per week
Indoor/Outdoor	Indoor
	Operation is carried out at ambient or elevated temperatures
Risk Management Measures	
Wear suitable respiratory protection.	Effectiveness: 90 %
Provide a good standard of general ventilation (not less than 3 - 5 air changes per hour)	Effectiveness: 30 %
Use suitable chemically resistant gloves	Effectiveness: 80 %
Avoid contact with eyes.	
In case of potential exposure: Use suitable eye protection.	
Exposure estimate and reference to its source	
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Worker
	Worker - dermal, long-term - systemic
Exposure estimate	1,0971 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,052245
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	0,1705 mg/m3
Risk Characterization Ratio (RCR)	0,02301
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra	

Contributing exposure scenario	
Use descriptors covered	PROC13: Treatment of articles by dipping and pouring. Use domain: industrial
Operational conditions	
Concentration of the substance	adipic acid Content: >= 0 % - <= 5 %
Physical state	liquid
Vapour pressure of the substance during use	39,959549 Pa
Process temperature	40 °C
Duration and Frequency of activity	60 min 5 days per week
Indoor/Outdoor	Indoor
	Operation is carried out at ambient or elevated temperatures
Risk Management Measures	
Wear suitable respiratory protection.	Effectiveness: 90 %
Provide a good standard of general ventilation (not less than 3 - 5 air changes per hour)	Effectiveness: 30 %
Use suitable chemically resistant gloves	Effectiveness: 80 %
Avoid contact with eyes.	
In case of potential exposure: Use suitable eye protection.	
Exposure estimate and reference to its source	
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Worker
	Worker - dermal, long-term - systemic
Exposure estimate	0,5486 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,026122
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	0,1705 mg/m3
Risk Characterization Ratio (RCR)	0,02301
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra	

3. Short title of exposure scenario
Use as an intermediate, Use as Monomer
ERC6a, ERC6c, ERC6d; PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC9

Control of exposure and risk management measures	
Use descriptors covered	ERC6a: Use of intermediate
Operational conditions	
Annual amount per site	75.330.000 kg
Minimum emission days per year	300
Emission factor air	0,4 ppm
Emission factor water	8 ppm
Emission factor soil	0,1 %
	Values provided in per mill
Receive Surf. Water (Flow rate)	18.000 m3/d
Dilution factor river	10
Dilution factor coast	100
Risk Management Measures	
Type of STP	Municipal STP
Assumed sewage treatment plant flow (m3/d)	2.000 m3/d
Exposure estimate and reference to its source	
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Environment
Risk Characterization Ratio (RCR)	0,094447
	Risk from environmental exposure is driven by soil.
Maximum amount of safe use	2.658,6 t/day
Risk from environmental exposure is driven by soil.	

Control of exposure and risk management measures	
Use descriptors covered	ERC6c: Use of monomer in polymerisation processes at industrial site (inclusion or not into/onto article)
Operational conditions	
Annual amount per site	75.330.000 kg
Minimum emission days per year	300
Emission factor air	0,4 ppm
Emission factor water	8 ppm
Emission factor soil	0 %
	Values provided in per mill
Receive Surf. Water (Flow rate)	18.000 m3/d
Dilution factor river	10
Dilution factor coast	100
Risk Management Measures	
Type of STP	Municipal STP
Assumed sewage treatment plant flow (m3/d)	2.000 m3/d
Exposure estimate and reference to its source	
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Environment
Risk Characterization Ratio (RCR)	0,094447
	Risk from environmental exposure is driven by soil.
Maximum amount of safe use	2.658,6 t/day
Risk from environmental exposure is driven by soil.	

Control of exposure and risk management measures	
Use descriptors covered	ERC6d: Use of reactive process regulators in polymerisation processes at industrial site (inclusion or not into/onto article)
Operational conditions	
Annual amount per site	75.330.000 kg
Minimum emission days per year	300
Emission factor air	0,4 ppm
Emission factor water	2 ppm
Emission factor soil	0,025 %
	Values provided in per mill
Receive Surf. Water (Flow rate)	18.000 m3/d
Dilution factor river	10
Dilution factor coast	100
Risk Management Measures	
Type of STP	Municipal STP
Assumed sewage treatment plant flow (m3/d)	2.000 m3/d
Exposure estimate and reference to its source	
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Environment
Risk Characterization Ratio (RCR)	0,023682
	Risk from environmental exposure is driven by soil.
Maximum amount of safe use	10.602,9 t/day
Risk from environmental exposure is driven by soil.	

Contributing exposure scenario	
Use descriptors covered	PROC1: Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions. Use domain: industrial
Operational conditions	
Concentration of the substance	adipic acid Content: >= 0 % - <= 100 %
Physical state	liquid
Vapour pressure of the substance during use	39,959549 Pa
Process temperature	40 °C
Duration and Frequency of activity	480 min 5 days per week
Indoor/Outdoor	Indoor
	Operation is carried out at ambient or elevated temperatures
Risk Management Measures	
Provide a good standard of general ventilation (not less than 3 - 5 air changes per hour)	Effectiveness: 30 %
Exposure estimate and reference to its source	
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Worker
	Worker - dermal, long-term - systemic
Exposure estimate	0,0343 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,001633
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	0,0426 mg/m3
Risk Characterization Ratio (RCR)	0,000575
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra	

Contributing exposure scenario	
Use descriptors covered	PROC2: Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions Use domain: industrial
Operational conditions	
Concentration of the substance	adipic acid Content: >= 0 % - <= 100 %
Physical state	liquid
Vapour pressure of the substance during use	39,959549 Pa
Process temperature	40 °C
Duration and Frequency of activity	480 min 5 days per week
Indoor/Outdoor	Indoor
	Operation is carried out at ambient or elevated temperatures
Risk Management Measures	
Wear suitable respiratory protection.	Effectiveness: 90 %
Provide a good standard of general ventilation (not less than 3 - 5 air changes per hour)	Effectiveness: 30 %
Use suitable chemically resistant gloves	Effectiveness: 80 %
Avoid contact with eyes.	
In case of potential exposure: Use suitable eye protection.	
Exposure estimate and reference to its source	
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Worker
	Worker - dermal, long-term - systemic
Exposure estimate	0,2743 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,013061
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	0,4262 mg/m3
Risk Characterization Ratio (RCR)	0,005752
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra	

Contributing exposure scenario	
Use descriptors covered	PROC3: Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition Use domain: industrial
Operational conditions	
Concentration of the substance	adipic acid Content: >= 0 % - <= 100 %
Physical state	liquid
Vapour pressure of the substance during use	39,959549 Pa
Process temperature	40 °C
Duration and Frequency of activity	480 min 5 days per week
Indoor/Outdoor	Indoor
	Operation is carried out at ambient or elevated temperatures
Risk Management Measures	
Wear suitable respiratory protection.	Effectiveness: 90 %
Provide a good standard of general ventilation (not less than 3 - 5 air changes per hour)	Effectiveness: 30 %
Use suitable chemically resistant gloves	Effectiveness: 80 %
Avoid contact with eyes.	
In case of potential exposure: Use suitable eye protection.	
Exposure estimate and reference to its source	
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Worker
	Worker - dermal, long-term - systemic
Exposure estimate	0,1371 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,006531
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	1,2787 mg/m3
Risk Characterization Ratio (RCR)	0,017257
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra	

Contributing exposure scenario	
Use descriptors covered	PROC4: Chemical production where opportunity for exposure arises Use domain: industrial
Operational conditions	
Concentration of the substance	adipic acid Content: >= 0 % - <= 100 %
Physical state	liquid
Vapour pressure of the substance during use	39,959549 Pa
Process temperature	40 °C
Duration and Frequency of activity	60 min 5 days per week
Indoor/Outdoor	Indoor
	Operation is carried out at ambient or elevated temperatures
Risk Management Measures	
Wear suitable respiratory protection.	Effectiveness: 90 %
Provide a good standard of general ventilation (not less than 3 - 5 air changes per hour)	Effectiveness: 30 %
Use suitable chemically resistant gloves	Effectiveness: 80 %
Avoid contact with eyes.	
In case of potential exposure: Use suitable eye protection.	
Exposure estimate and reference to its source	
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Worker
	Worker - dermal, long-term - systemic
Exposure estimate	1,3714 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,065306
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	0,4262 mg/m3
Risk Characterization Ratio (RCR)	0,005752
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra	

Contributing exposure scenario	
Use descriptors covered	PROC8a: Transfer of substance or mixture (charging and discharging) at non-dedicated facilities Use domain: industrial
Operational conditions	
Concentration of the substance	adipic acid Content: >= 0 % - <= 100 %
Physical state	Solid, low dustiness
Vapour pressure of the substance during use	39,959549 Pa
Process temperature	40 °C
Duration and Frequency of activity	480 min 5 days per week
Indoor/Outdoor	Indoor
	Operation is carried out at ambient or elevated temperatures
Risk Management Measures	
Wear suitable respiratory protection.	Effectiveness: 90 %
Provide a good standard of general ventilation (not less than 3 - 5 air changes per hour)	Effectiveness: 30 %
Use suitable chemically resistant gloves	Effectiveness: 80 %
Avoid contact with eyes.	
In case of potential exposure: Use suitable eye protection.	
Exposure estimate and reference to its source	
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Worker
	Worker - dermal, long-term - systemic
Exposure estimate	2,7429 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,130612
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	0,035 mg/m3
Risk Characterization Ratio (RCR)	0,000472
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra	

Contributing exposure scenario	
Use descriptors covered	PROC8a: Transfer of substance or mixture (charging and discharging) at non-dedicated facilities Use domain: industrial
Operational conditions	
Concentration of the substance	adipic acid Content: >= 0 % - <= 100 %
Physical state	liquid
Vapour pressure of the substance during use	39,959549 Pa
Process temperature	40 °C
Duration and Frequency of activity	15 min 5 days per week
Indoor/Outdoor	Indoor
	Operation is carried out at ambient or elevated temperatures
Risk Management Measures	
Wear suitable respiratory protection.	Effectiveness: 90 %
Provide a good standard of general ventilation (not less than 3 - 5 air changes per hour)	Effectiveness: 30 %
Use suitable chemically resistant gloves	Effectiveness: 80 %
Avoid contact with eyes.	
In case of potential exposure: Use suitable eye protection.	
Exposure estimate and reference to its source	
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Worker
	Worker - dermal, long-term - systemic
Exposure estimate	2,7429 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,130612
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	0,4262 mg/m3
Risk Characterization Ratio (RCR)	0,005752
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra	

Contributing exposure scenario	
Use descriptors covered	PROC8b: Transfer of substance or mixture (charging and discharging) at dedicated facilities Use domain: industrial
Operational conditions	
Concentration of the substance	adipic acid Content: >= 0 % - <= 100 %
Physical state	Solid, low dustiness
Vapour pressure of the substance during use	39,959549 Pa
Process temperature	40 °C
Duration and Frequency of activity	480 min 5 days per week
Indoor/Outdoor	Indoor
	Operation is carried out at ambient or elevated temperatures
Risk Management Measures	
Wear suitable respiratory protection.	Effectiveness: 90 %
Provide a good standard of general ventilation (not less than 3 - 5 air changes per hour)	Effectiveness: 30 %
Use suitable chemically resistant gloves	Effectiveness: 80 %
Avoid contact with eyes.	
In case of potential exposure: Use suitable eye protection.	
Exposure estimate and reference to its source	
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Worker
	Worker - dermal, long-term - systemic
Exposure estimate	2,7429 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,130612
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	0,007 mg/m3
Risk Characterization Ratio (RCR)	0,000094
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra	

Contributing exposure scenario	
Use descriptors covered	PROC8b: Transfer of substance or mixture (charging and discharging) at dedicated facilities Use domain: industrial
Operational conditions	
Concentration of the substance	adipic acid Content: >= 0 % - <= 100 %
Physical state	liquid
Vapour pressure of the substance during use	39,959549 Pa
Process temperature	40 °C
Duration and Frequency of activity	15 min 5 days per week
Indoor/Outdoor	Indoor
	Operation is carried out at ambient or elevated temperatures
Risk Management Measures	
Wear suitable respiratory protection.	Effectiveness: 90 %
Provide a good standard of general ventilation (not less than 3 - 5 air changes per hour)	Effectiveness: 30 %
Use suitable chemically resistant gloves	Effectiveness: 80 %
Avoid contact with eyes.	
In case of potential exposure: Use suitable eye protection.	
Exposure estimate and reference to its source	
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Worker
	Worker - dermal, long-term - systemic
Exposure estimate	2,7429 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,130612
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	0,4262 mg/m3
Risk Characterization Ratio (RCR)	0,005752
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra	

Contributing exposure scenario	
Use descriptors covered	PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing). Use domain: industrial
Operational conditions	
Concentration of the substance	adipic acid Content: >= 0 % - <= 100 %
Physical state	Solid, low dustiness
Vapour pressure of the substance during use	39,959549 Pa
Process temperature	40 °C
Duration and Frequency of activity	480 min 5 days per week
Indoor/Outdoor	Indoor
	Operation is carried out at ambient or elevated temperatures
Risk Management Measures	
Wear suitable respiratory protection.	Effectiveness: 90 %
Provide a good standard of general ventilation (not less than 3 - 5 air changes per hour)	Effectiveness: 30 %
Use suitable chemically resistant gloves	Effectiveness: 80 %
Avoid contact with eyes.	
In case of potential exposure: Use suitable eye protection.	
Exposure estimate and reference to its source	
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Worker
	Worker - dermal, long-term - systemic
Exposure estimate	1,3714 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,065306
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	0,007 mg/m3
Risk Characterization Ratio (RCR)	0,000094
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra	

Contributing exposure scenario	
Use descriptors covered	PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing). Use domain: industrial
Operational conditions	
Concentration of the substance	adipic acid Content: >= 0 % - <= 100 %
Physical state	liquid
Vapour pressure of the substance during use	39,959549 Pa
Process temperature	40 °C
Duration and Frequency of activity	15 min 5 days per week
Indoor/Outdoor	Indoor
	Operation is carried out at ambient or elevated temperatures
Risk Management Measures	
Wear suitable respiratory protection.	Effectiveness: 90 %
Provide a good standard of general ventilation (not less than 3 - 5 air changes per hour)	Effectiveness: 30 %
Use suitable chemically resistant gloves	Effectiveness: 80 %
Avoid contact with eyes.	
In case of potential exposure: Use suitable eye protection.	
Exposure estimate and reference to its source	
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Worker
	Worker - dermal, long-term - systemic
Exposure estimate	1,3714 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,065306
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	0,4262 mg/m3
Risk Characterization Ratio (RCR)	0,005752
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra	

4. Short title of exposure scenario
Production of Machine dish washing products (tablets)
ERC5; PROC2, PROC5, PROC8a, PROC13, PROC14

Control of exposure and risk management measures	
Use descriptors covered	ERC5: Use at industrial site leading to inclusion into/onto article
Operational conditions	
Annual amount per site	2.430.000 kg
Minimum emission days per year	100
Emission factor air	2 ppm
Emission factor water	0,004 %
Emission factor soil	0,1 %
	Values provided in per mill
Receive Surf. Water (Flow rate)	18.000 m3/d
Dilution factor river	10
Dilution factor coast	100
Risk Management Measures	
Type of STP	Municipal STP
Assumed sewage treatment plant flow (m3/d)	2.000 m3/d
Exposure estimate and reference to its source	
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Environment
Risk Characterization Ratio (RCR)	0,015216
	Risk from environmental exposure is driven by soil.
Maximum amount of safe use	1.597 t/day
Risk from environmental exposure is driven by soil.	

Contributing exposure scenario	
Use descriptors covered	PROC2: Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions Use domain: industrial
Operational conditions	
Concentration of the substance	adipic acid Content: >= 0 % - <= 100 %
Physical state	liquid
Vapour pressure of the substance during use	39,959549 Pa
Process temperature	40 °C
Duration and Frequency of activity	240 min 5 days per week
Indoor/Outdoor	Indoor
	Operation is carried out at ambient or elevated temperatures
Risk Management Measures	
Wear suitable respiratory protection.	Effectiveness: 90 %
Provide a good standard of general ventilation (not less than 3 - 5 air changes per hour)	Effectiveness: 30 %
Use suitable chemically resistant gloves	Effectiveness: 80 %
Avoid contact with eyes.	
In case of potential exposure: Use suitable eye protection.	
Exposure estimate and reference to its source	
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Worker
	Worker - dermal, long-term - systemic
Exposure estimate	0,2743 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,013061
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	0,2557 mg/m3
Risk Characterization Ratio (RCR)	0,003451
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra	

Contributing exposure scenario	
Use descriptors covered	PROC5: Mixing or blending in batch processes Use domain: industrial
Operational conditions	
Concentration of the substance	adipic acid Content: >= 0 % - <= 100 %
Physical state	liquid
Vapour pressure of the substance during use	39,959549 Pa
Process temperature	40 °C
Duration and Frequency of activity	60 min 5 days per week
Indoor/Outdoor	Indoor
	Operation is carried out at ambient or elevated temperatures
Risk Management Measures	
Wear suitable respiratory protection.	Effectiveness: 90 %
Provide a good standard of general ventilation (not less than 3 - 5 air changes per hour)	Effectiveness: 30 %
Use suitable chemically resistant gloves	Effectiveness: 80 %
Avoid contact with eyes.	
In case of potential exposure: Use suitable eye protection.	
Exposure estimate and reference to its source	
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Worker
	Worker - dermal, long-term - systemic
Exposure estimate	2,7429 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,130612
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	0,4262 mg/m3
Risk Characterization Ratio (RCR)	0,005752
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra	

Contributing exposure scenario	
Use descriptors covered	PROC8a: Transfer of substance or mixture (charging and discharging) at non-dedicated facilities Use domain: industrial
Operational conditions	
Concentration of the substance	adipic acid Content: >= 0 % - <= 100 %
Physical state	liquid
Vapour pressure of the substance during use	39,959549 Pa
Process temperature	40 °C
Duration and Frequency of activity	15 min 5 days per week
Indoor/Outdoor	Indoor
	Operation is carried out at ambient or elevated temperatures
Risk Management Measures	
Wear suitable respiratory protection.	Effectiveness: 90 %
Provide a good standard of general ventilation (not less than 3 - 5 air changes per hour)	Effectiveness: 30 %
Use suitable chemically resistant gloves	Effectiveness: 80 %
Avoid contact with eyes.	
In case of potential exposure: Use suitable eye protection.	
Exposure estimate and reference to its source	
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Worker
	Worker - dermal, long-term - systemic
Exposure estimate	2,7429 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,130612
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	0,4262 mg/m3
Risk Characterization Ratio (RCR)	0,005752
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra	

Contributing exposure scenario	
Use descriptors covered	PROC13: Treatment of articles by dipping and pouring. Use domain: industrial
Operational conditions	
Concentration of the substance	adipic acid Content: >= 0 % - <= 100 %
Physical state	liquid
Vapour pressure of the substance during use	39,959549 Pa
Process temperature	40 °C
Duration and Frequency of activity	15 min 5 days per week
Indoor/Outdoor	Indoor
	Operation is carried out at ambient or elevated temperatures
Risk Management Measures	
Wear suitable respiratory protection.	Effectiveness: 90 %
Provide a good standard of general ventilation (not less than 3 - 5 air changes per hour)	Effectiveness: 30 %
Use suitable chemically resistant gloves	Effectiveness: 80 %
Avoid contact with eyes.	
In case of potential exposure: Use suitable eye protection.	
Exposure estimate and reference to its source	
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Worker
	Worker - dermal, long-term - systemic
Exposure estimate	2,7429 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,130612
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	0,4262 mg/m3
Risk Characterization Ratio (RCR)	0,005752
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra	

Contributing exposure scenario	
Use descriptors covered	PROC14: Tabletting, compression, extrusion, pelletisation, granulation Use domain: industrial
Operational conditions	
Concentration of the substance	adipic acid Content: >= 0 % - <= 100 %
Physical state	Solid, low dustiness
Vapour pressure of the substance during use	39,959549 Pa
Process temperature	40 °C
Duration and Frequency of activity	15 min 5 days per week
Indoor/Outdoor	Indoor
	Operation is carried out at ambient or elevated temperatures
Risk Management Measures	
Wear suitable respiratory protection.	Effectiveness: 90 %
Provide a good standard of general ventilation (not less than 3 - 5 air changes per hour)	Effectiveness: 30 %
Use suitable chemically resistant gloves	Effectiveness: 80 %
Avoid contact with eyes.	
In case of potential exposure: Use suitable eye protection.	
Exposure estimate and reference to its source	
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Worker
	Worker - dermal, long-term - systemic
Exposure estimate	0,6857 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,032653
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	0,007 mg/m3
Risk Characterization Ratio (RCR)	0,000094
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra	

5. Short title of exposure scenario
Use in Flue Gas Desulphurization
ERC6b; PROC16

Control of exposure and risk management measures	
Use descriptors covered	ERC6b: Use of reactive processing aid at industrial site (no inclusion into or onto article)
Operational conditions	
Annual amount per site	540.000 kg
Minimum emission days per year	20
Emission factor air	0,002 %
Emission factor water	0,2 %
Emission factor soil	0,025 %
Receive Surf. Water (Flow rate)	18.000 m3/d
Dilution factor river	10
Dilution factor coast	100
Risk Management Measures	
Type of STP	Municipal STP
Assumed sewage treatment plant flow (m3/d)	2.000 m3/d
Exposure estimate and reference to its source	
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Environment
Risk Characterization Ratio (RCR)	0,168903
	Risk from environmental exposure is driven by soil.
Maximum amount of safe use	159.855,5 kg/d
Risk from environmental exposure is driven by soil.	

Contributing exposure scenario	
Use descriptors covered	PROC16: Use of fuels Use domain: industrial
Operational conditions	
Concentration of the substance	adipic acid Content: >= 0 % - <= 100 %
Physical state	liquid
Vapour pressure of the substance during use	39,959549 Pa
Process temperature	40 °C
Duration and Frequency of activity	60 min 5 days per week
Indoor/Outdoor	Indoor
	Operation is carried out at ambient or elevated temperatures
Risk Management Measures	
Wear suitable respiratory protection.	Effectiveness: 90 %
Provide a good standard of general ventilation (not less than 3 - 5 air changes per hour)	Effectiveness: 30 %
Use suitable chemically resistant gloves	Effectiveness: 80 %
Avoid contact with eyes.	
In case of potential exposure: Use suitable eye protection.	
Exposure estimate and reference to its source	
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Worker
	Worker - dermal, long-term - systemic
Exposure estimate	0,0686 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,003265
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	0,0852 mg/m3
Risk Characterization Ratio (RCR)	0,00115
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra	

6. Short title of exposure scenario
Use as laboratory reagent/agent
ERC8a, ERC8b; PROC15

Control of exposure and risk management measures	
Use descriptors covered	ERC8a: Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor)
Operational conditions	
Annual amount per site	1.000 kg
Minimum emission days per year	365
Emission factor air	1 %
Emission factor water	4 %
Emission factor soil	0 %
Receive Surf. Water (Flow rate)	18.000 m3/d
Dilution factor river	10
Dilution factor coast	100
Risk Management Measures	
Type of STP	Municipal STP
Assumed sewage treatment plant flow (m3/d)	2.000 m3/d
Exposure estimate and reference to its source	
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Environment
Risk Characterization Ratio (RCR)	0,006264
	Risk from environmental exposure is driven by soil.
Maximum amount of safe use	0,874819 kg/d
Risk from environmental exposure is driven by soil.	

Control of exposure and risk management measures	
Use descriptors covered	ERC8b: Widespread use of reactive processing aid (no inclusion into or onto article, indoor)
Operational conditions	
Annual amount per site	1.000 kg
Minimum emission days per year	365
Emission factor air	0,001 %
Emission factor water	0,08 %
Emission factor soil	0 %
Receive Surf. Water (Flow rate)	18.000 m3/d
Dilution factor river	10
Dilution factor coast	100
Risk Management Measures	
Type of STP	Municipal STP
Assumed sewage treatment plant flow (m3/d)	2.000 m3/d
Exposure estimate and reference to its source	
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Environment
Risk Characterization Ratio (RCR)	0,000428
	Risk from environmental exposure is driven by freshwater sediment.
Maximum amount of safe use	12,8 kg/d
Risk from environmental exposure is driven by freshwater sediment.	

Contributing exposure scenario	
Use descriptors covered	PROC15: Use a laboratory reagent. Use domain: professional
Operational conditions	
Concentration of the substance	adipic acid Content: >= 0 % - <= 100 %
Physical state	Solid, low dustiness
Vapour pressure of the substance during use	39,959549 Pa
Process temperature	40 °C
Duration and Frequency of activity	480 min 5 days per week
Indoor/Outdoor	Indoor
	Operation is carried out at ambient or elevated temperatures
Risk Management Measures	
Lokale Absaugung	Effectiveness: 80 %
Provide a good standard of general ventilation (not less than 3 - 5 air changes per hour)	Effectiveness: 30 %
Use suitable chemically resistant gloves	Effectiveness: 80 %
Avoid contact with eyes.	
In case of potential exposure: Use suitable eye protection.	
Exposure estimate and reference to its source	
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Worker
	Worker - dermal, long-term - systemic
Exposure estimate	0,0686 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,003265
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	0,014 mg/m3
Risk Characterization Ratio (RCR)	0,000189
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra	

Contributing exposure scenario	
Use descriptors covered	PROC15: Use a laboratory reagent. Use domain: professional
Operational conditions	
Concentration of the substance	adipic acid Content: >= 0 % - <= 100 %
Physical state	liquid
Vapour pressure of the substance during use	39,959549 Pa
Process temperature	40 °C
Duration and Frequency of activity	480 min 5 days per week
Indoor/Outdoor	Indoor
	Operation is carried out at ambient or elevated temperatures
Risk Management Measures	
Lokale Absaugung	Effectiveness: 80 %
Provide a good standard of general ventilation (not less than 3 - 5 air changes per hour)	Effectiveness: 30 %
Use suitable chemically resistant gloves	Effectiveness: 80 %
Avoid contact with eyes.	
In case of potential exposure: Use suitable eye protection.	
Exposure estimate and reference to its source	
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Worker
	Worker - dermal, long-term - systemic
Exposure estimate	0,0686 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,003265
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	4,2625 mg/m3
Risk Characterization Ratio (RCR)	0,057523
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra	

7. Short title of exposure scenario
Use in/as Laundry agents, (use in professional settings)
ERC8a; PROC8b, PROC9

Control of exposure and risk management measures	
Use descriptors covered	ERC8a: Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor)
Operational conditions	
Annual amount per site	100 kg
Minimum emission days per year	365
Emission factor air	100 %
Emission factor water	100 %
Emission factor soil	0 %
Receive Surf. Water (Flow rate)	18.000 m3/d
Dilution factor river	10
Dilution factor coast	100
Risk Management Measures	
Type of STP	Municipal STP
Assumed sewage treatment plant flow (m3/d)	2.000 m3/d
Exposure estimate and reference to its source	
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Environment
Risk Characterization Ratio (RCR)	0,015651
	Risk from environmental exposure is driven by soil.
Maximum amount of safe use	0,035011 kg/d
Risk from environmental exposure is driven by soil.	

Contributing exposure scenario	
Use descriptors covered	PROC8b: Transfer of substance or mixture (charging and discharging) at dedicated facilities Use domain: professional
Operational conditions	
Concentration of the substance	adipic acid Content: >= 0 % - <= 13 %
Physical state	Solid, low dustiness
Vapour pressure of the substance during use	39,959549 Pa
Process temperature	40 °C
Duration and Frequency of activity	480 min 5 days per week
Indoor/Outdoor	Indoor
	Operation is carried out at ambient or elevated temperatures
Risk Management Measures	
Wear suitable respiratory protection..	Effectiveness: 90 %
Provide a good standard of general ventilation (not less than 3 - 5 air changes per hour)	Effectiveness: 30 %
Use suitable chemically resistant gloves	Effectiveness: 80 %
Avoid contact with eyes.	
In case of potential exposure: Use suitable eye protection.	
Exposure estimate and reference to its source	
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, worker, modified version, The concentration of the substance has been considered using a linear approach.
	Worker - dermal, long-term - systemic
Exposure estimate	0,3566 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,01698
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, worker, modified version, The concentration of the substance has been considered using a linear approach.
	Worker - inhalation, long-term - systemic
Exposure estimate	0,0045 mg/m3
Risk Characterization Ratio (RCR)	0,000061
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra Please note that a modified version has been used (see exposure estimates)	

Contributing exposure scenario	
Use descriptors covered	PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing). Use domain: professional
Operational conditions	
Concentration of the substance	adipic acid Content: >= 0 % - <= 13 %
Physical state	Solid, low dustiness
Vapour pressure of the substance during use	39,959549 Pa
Process temperature	40 °C
Duration and Frequency of activity	480 min 5 days per week
Indoor/Outdoor	Indoor
	Operation is carried out at ambient or elevated temperatures
Risk Management Measures	
Wear suitable respiratory protection..	Effectiveness: 90 %
Provide a good standard of general ventilation (not less than 3 - 5 air changes per hour)	Effectiveness: 30 %
Use suitable chemically resistant gloves	Effectiveness: 80 %
Avoid contact with eyes.	
In case of potential exposure: Use suitable eye protection.	
Exposure estimate and reference to its source	
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, worker, modified version, The concentration of the substance has been considered using a linear approach.
	Worker - dermal, long-term - systemic
Exposure estimate	0,1783 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,00849
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, worker, modified version, The concentration of the substance has been considered using a linear approach.
	Worker - inhalation, long-term - systemic
Exposure estimate	0,0045 mg/m3
Risk Characterization Ratio (RCR)	0,000061
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra Please note that a modified version has been used (see exposure estimates)	

8. Short title of exposure scenario
Use of Machine dish washing products
ERC8a, ERC11a; PC35

Control of exposure and risk management measures	
Use descriptors covered	ERC8a: Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor)
Operational conditions	
Annual amount per site	450 kg
Minimum emission days per year	365
Emission factor air	100 %
Emission factor water	100 %
Emission factor soil	0 %
Receive Surf. Water (Flow rate)	18.000 m3/d
Dilution factor river	10
Dilution factor coast	100
Risk Management Measures	
Type of STP	Municipal STP
Assumed sewage treatment plant flow (m3/d)	2.000 m3/d
Exposure estimate and reference to its source	
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Environment
Risk Characterization Ratio (RCR)	0,057794
	Risk from environmental exposure is driven by soil.
Maximum amount of safe use	0,042665 kg/d
Risk from environmental exposure is driven by soil.	

Control of exposure and risk management measures	
Use descriptors covered	ERC11a: Widespread use of articles with low release (indoor)
Operational conditions	
Annual amount per site	450 kg
Minimum emission days per year	365
Emission factor air	0,05 %
Emission factor water	0,05 %
Emission factor soil	0 %
Receive Surf. Water (Flow rate)	18.000 m3/d
Dilution factor river	10
Dilution factor coast	100
Risk Management Measures	
Type of STP	Municipal STP
Assumed sewage treatment plant flow (m3/d)	2.000 m3/d
Exposure estimate and reference to its source	
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Environment
Risk Characterization Ratio (RCR)	0,000359
	Risk from environmental exposure is driven by freshwater sediment.
Maximum amount of safe use	6,9 kg/d
Risk from environmental exposure is driven by freshwater sediment.	

Contributing exposure scenario	
Use descriptors covered	PC35: Washing and Cleaning Products (including solvent based products).
Operational conditions	
Concentration of the substance	adipic acid Content: >= 0 % - <= 13 %
Vapour pressure of the substance during use	9,7 Pa
Duration and Frequency of activity	Exposure duration: 6 min 365 uses per year
Indoor/Outdoor	Indoor
Exposed skin area	Two fingertips (2 cm2)
Uptake fraction dermal	100 %
	Amount per use 20 g Relevant for inhalative exposure estimates
Exposure estimate and reference to its source	
Assessment method	EASY TRA v4.2, Other consideration (non-standard tool)
	Consumer - dermal, long-term - systemic
Exposure estimate	2,76 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,368
Assessment method	EASY TRA v4.2, Other consideration (non-standard tool)
	Consumer - inhalation, long-term - systemic
Exposure estimate	0,0001 mg/m3
Risk Characterization Ratio (RCR)	0,000001
Assessment method	EASY TRA v4.2, Other consideration (non-standard tool)
	Consumer - oral, long-term - systemic
Exposure estimate	0,0001 mg/m3
Risk Characterization Ratio (RCR)	0,000001
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra..	

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