Printing date 06/11/2021 Reviewed on 06/11/2021

1 Identification

· Product identifier

· Trade name: Electrolyte Bromine Index

· Article number: CMS012

· Details of the supplier of the safety data sheet

· Manufacturer/Supplier: Aqua Solutions, Inc. 6913 Highway 225 DEER PARK, TX 77536 USA 800-256-2586

· Information department:

Technical Coordinator

Sherman Nelson shermann@aquasolutions.org

· Emergency telephone number: Chemtrec: 800-424-9300 Canutec: 613-996-6666



*

2 Hazard(s) identification

· Classification of the substance or mixture



GHS02 Flame

Flam. Liq. 2 H225 Highly flammable liquid and vapor.



GHS08 Health hazard

STOT SE 1 H370 Causes damage to the central nervous system and the visual organs.

STOT RE 2 H373 May cause damage to organs through prolonged or repeated exposure.



GHS05 Corrosion

Skin Corr. 1B H314 Causes severe skin burns and eye damage.

Eye Dam. 1 H318 Causes serious eye damage.



GHS07

Acute Tox. 4 H302 Harmful if swallowed.

Acute Tox. 4 H312 Harmful in contact with skin.

- · Label elements
- · GHS label elements The product is classified and labeled according to the Globally Harmonized System (GHS).

 (Contd. on page 2)

-/

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Trade name: Electrolyte Bromine Index

(Contd. of page 1)

· Hazard pictograms









GHS07

· Signal word Danger

· Hazard-determining components of labeling:

Acetic Acid

Methanol (Methyl Alcohol)

Mercuric Acetate

Potassium Bromide

· Hazard statements

Highly flammable liquid and vapor.

Harmful if swallowed or in contact with skin.

Causes severe skin burns and eye damage.

Causes damage to the central nervous system and the visual organs.

May cause damage to organs through prolonged or repeated exposure.

· Precautionary statements

Keep away from heat/sparks/open flames/hot surfaces. - No smoking.

Keep container tightly closed.

Ground/bond container and receiving equipment.

Use explosion-proof electrical/ventilating/lighting/equipment.

Use only non-sparking tools.

Take precautionary measures against static discharge.

Do not breathe dusts or mists.

Wash thoroughly after handling.

Do not eat, drink or smoke when using this product.

Wear protective gloves/protective clothing/eye protection/face protection.

If swallowed: Call a poison center/doctor if you feel unwell.

If swallowed: Rinse mouth. Do NOT induce vomiting.

If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.

IF INHALED: Remove person to fresh air and keep comfortable for breathing.

If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

Immediately call a poison center/doctor.

IF exposed: Call a POISON CENTER or doctor/physician.

Specific treatment (see on this label).

Get medical advice/attention if you feel unwell.

Take off contaminated clothing and wash it before reuse.

Wash contaminated clothing before reuse.

In case of fire: Use for extinction: CO2, powder or water spray.

Store in a well-ventilated place. Keep cool.

Store locked up.

Dispose of contents/container in accordance with local/regional/national/international regulations.

- · Classification system:
- · NFPA ratings (scale 0 4)



Health = 3Fire = 3

Reactivity = 0

(Contd. on page 3)

(Contd. of page 2)

Safety Data Sheet acc. to OSHA HCS

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Trade name: Electrolyte Bromine Index

· HMIS-ratings (scale 0 - 4)

FIRE 3 Health = *3FIRE 3 Fire = 3REACTIVITY 0 Reactivity = 0

- · Other hazards
- · Results of PBT and vPvB assessment
- · **PBT**: Not applicable. · **vPvB**: Not applicable.

3 Composition/information on ingredients

- · Chemical characterization: Mixtures
- · Description: Mixture of the substances listed below with nonhazardous additions.

| · Dangerous components: | | | | |
|-------------------------------------|---------------------------|---------|--|--|
| CAS: 64-19-7 | Acetic Acid | 64.178% | | |
| CAS: 67-56-1 | Methanol (Methyl Alcohol) | 20.904% | | |
| | Potassium Bromide | 1.947% | | |
| CAS: 1600-27-7 | Mercuric Acetate | 0.203% | | |
| · Table of Nonhazardous Ingredients | | | | |
| CAS: 7732-18-5 | Water | 12.768% | | |

4 First-aid measures

- · Description of first aid measures
- · General information:

Immediately remove any clothing soiled by the product.

Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.

- · After inhalation: In case of unconsciousness place patient stably in side position for transportation.
- · After skin contact: Immediately wash with water and soap and rinse thoroughly.
- · After eye contact: Rinse opened eye for several minutes under running water. Then consult a doctor.
- · After swallowing:

Immediately call a doctor.

Drink copious amounts of water and provide fresh air. Immediately call a doctor.

- · Information for doctor:
- · Most important symptoms and effects, both acute and delayed No further relevant information available.
- · Indication of any immediate medical attention and special treatment needed

No further relevant information available.

5 Fire-fighting measures

- · Extinguishing media
- · Suitable extinguishing agents:

CO2, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.

- · For safety reasons unsuitable extinguishing agents: Water with full jet
- · Special hazards arising from the substance or mixture

During heating or in case of fire poisonous gases are produced.

(Contd. on page 4)

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Trade name: Electrolyte Bromine Index

(Contd. of page 3)

- · Advice for firefighters
- · Protective equipment: Mouth respiratory protective device.

6 Accidental release measures

· Personal precautions, protective equipment and emergency procedures

Mount respiratory protective device.

Wear protective equipment. Keep unprotected persons away.

- · Environmental precautions: Do not allow to enter sewers/ surface or ground water.
- · Methods and material for containment and cleaning up:

Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).

Use neutralizing agent.

Dispose contaminated material as waste according to item 13.

Ensure adequate ventilation.

· Reference to other sections

See Section 7 for information on safe handling.

See Section 8 for information on personal protection equipment.

See Section 13 for disposal information.

· Protective Action Criteria for Chemicals

| · PAC-1: | | |
|----------------|---------------------------|----------------------|
| CAS: 64-19-7 | Acetic Acid | <i>5 ppm</i> |
| CAS: 67-56-1 | Methanol (Methyl Alcohol) | 530 ppm |
| CAS: 7758-02-3 | Potassium Bromide | $9.2 \ mg/m^3$ |
| CAS: 1600-27-7 | Mercuric Acetate | $0.048 \ mg/m^3$ |
| · PAC-2: | | |
| CAS: 64-19-7 | Acetic Acid | 35 ppm |
| CAS: 67-56-1 | Methanol (Methyl Alcohol) | 2,100 ppm |
| CAS: 7758-02-3 | Potassium Bromide | 100 mg/m^3 |
| CAS: 1600-27-7 | Mercuric Acetate | $0.064 \ mg/m^3$ |
| · PAC-3: | | |
| CAS: 64-19-7 | Acetic Acid | 250 ppm |
| CAS: 67-56-1 | Methanol (Methyl Alcohol) | 7200* ppm |
| CAS: 7758-02-3 | Potassium Bromide | 610 mg/m^3 |
| CAS: 1600-27-7 | Mercuric Acetate | 3.2 mg/m^3 |

7 Handling and storage

- · Handling:
- · Precautions for safe handling

Ensure good ventilation/exhaustion at the workplace.

Prevent formation of aerosols.

· Information about protection against explosions and fires:

Keep ignition sources away - Do not smoke.

Protect against electrostatic charges.

Keep respiratory protective device available.

- · Conditions for safe storage, including any incompatibilities
- · Storage:
- · Requirements to be met by storerooms and receptacles: Store in a cool location.

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(Contd. of page 4)

- · Information about storage in one common storage facility: Not required.
- · Further information about storage conditions:

Keep receptacle tightly sealed.

Store in cool, dry conditions in well sealed receptacles.

· Specific end use(s) No further relevant information available.

8 Exposure controls/personal protection

- · Additional information about design of technical systems: No further data; see item 7.
- · Control parameters
- · Components with limit values that require monitoring at the workplace:

The following constituents are the only constituents of the product which have a PEL, TLV or other recommended exposure limit.

At this time, the other constituents have no known exposure limits.

| | , |
|-----|-------------------------------------------------------------------------------------|
| CAS | : 64-19-7 Acetic Acid |
| PEL | Long-term value: 25 mg/m³, 10 ppm |
| REL | Short-term value: 37 mg/m³, 15 ppm Long-term value: 25 mg/m³, 10 ppm |
| TLV | Short-term value: 37 mg/m³, 15 ppm Long-term value: 25 mg/m³, 10 ppm |
| CAS | 67-56-1 Methanol (Methyl Alcohol) |
| PEL | Long-term value: 260 mg/m³, 200 ppm |
| REL | Short-term value: 325 mg/m³, 250 ppm Long-term value: 260 mg/m³, 200 ppm Skin |
| TLV | Short-term value: 328 mg/m³, 250 ppm Long-term value: 262 mg/m³, 200 ppm |

· Ingredients with biological limit values:

CAS: 67-56-1 Methanol (Methyl Alcohol)

BEI 15 mg/L

Skin; BEI

LD50 Intraperitoneal: urine

Time: end of shift

LD50: Methanol (background, nonspecific)

- · Additional information: The lists that were valid during the creation were used as basis.
- · Exposure controls
- · Personal protective equipment:
- · General protective and hygienic measures:

Keep away from foodstuffs, beverages and feed.

Immediately remove all soiled and contaminated clothing.

Wash hands before breaks and at the end of work.

Store protective clothing separately.

Avoid contact with the eyes.

Avoid contact with the eyes and skin.

· Breathing equipment:

In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use respiratory protective device that is independent of circulating air.

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(Contd. of page 5)

Safety Data Sheet acc. to OSHA HCS

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Trade name: Electrolyte Bromine Index

· Protection of hands:



Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

· Material of gloves

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

· Penetration time of glove material

The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

· Eye protection:



Tightly sealed goggles

· Body protection: Protective work clothing

9 Physical and chemical properties

· General Information
· Appearance:
Form: Liquid
Color: Colorless
· Odor: Organic

· Information on basic physical and chemical properties

- Odor threshold: Not determined.
- · pH-value: Not determined.
- · Change in condition

Melting point/Melting range: Undetermined.

Boiling point/Boiling range: 64.4 °C (147.9 °F)

- Flash point: $11 \, ^{\circ}C \, (51.8 \, ^{\circ}F)$
- · Flammability (solid, gaseous): Not applicable.
- Ignition temperature: 455 °C (851 °F)
 Decomposition temperature: Not determined.
- · Auto igniting: Product is not selfigniting.
- Danger of explosion: Product is not explosive. However, formation of explosive air/vapor mixtures are possible.
- · Explosion limits:

Lower: 4 Vol %

 Upper: 44 Vol %

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Trade name: Electrolyte Bromine Index

| | | (Contd. of page |
|-----------------------------------------|--------------------------------------------|-----------------|
| · Vapor pressure at 20 °C (68 °F): | 128 hPa (96 mm Hg) | |
| · Density at 20 °C (68 °F): | 0.87153 g/cm³ (7.27292 lbs/gal) | |
| · Relative density | Not determined. | |
| · Vapor density | Not determined. | |
| · Evaporation rate | Not determined. | |
| · Solubility in / Miscibility with | | |
| Water: | Not miscible or difficult to mix. | |
| · Partition coefficient (n-octanol/wate | e r): Not determined. | |
| · Viscosity: | | |
| Dynamic: | Not determined. | |
| Kinematic: | Not determined. | |
| · Solvent content: | | |
| Organic solvents: | 85.1 % | |
| Water: | 12.8 % | |
| VOC content: | 85.08 % | |
| | 741.5 g/l / 6.19 lb/gal | |
| Solids content: | 2.2 % | |
| · Other information | No further relevant information available. | |

10 Stability and reactivity

- · Reactivity No further relevant information available.
- · Chemical stability
- · Thermal decomposition / conditions to be avoided: No decomposition if used according to specifications.
- · Possibility of hazardous reactions No dangerous reactions known.
- · Conditions to avoid No further relevant information available.
- · Incompatible materials: No further relevant information available.
- · Hazardous decomposition products: No dangerous decomposition products known.

11 Toxicological information

. Information on toxicological effects

| · Informatio · Acute toxi | | cological effects |
|----------------------------------------|-------------|------------------------------------|
| · LD/LC50 | values tha | t are relevant for classification: |
| ATE (Acu | te Toxicity | Estimate) |
| Oral | LD50 | 1,717-2,075 mg/kg |
| Dermal | <i>LD50</i> | 1,642 mg/kg |
| Inhalative | LC50/4h | 23.7 mg/l |
| CAS: 64-1 | 9-7 Acetic | : Acid |
| Dermal | LD50 | 1,100 mg/kg (ATE) |
| CAS: 67-56-1 Methanol (Methyl Alcohol) | | |
| Oral | LD50 | 100 mg/kg (ATE) |
| Dermal | LD50 | 300 mg/kg (ATE) |
| Inhalative | LC50/4h | 3 mg/l (ATE) |

(Contd. on page 8)

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(Contd. of page 7)

| CAS: 1600-27-7 Mercuric Acetate | | | |
|---------------------------------|---------|-----------------------|--|
| Oral | LD50 | 5 mg/kg (ATE) | |
| Dermal | LD50 | 5 mg/kg (ATE) | |
| Inhalative | LC50/4h | $0.05 \ mg/l \ (ATE)$ | |

- · Primary irritant effect:
- · on the skin: Caustic effect on skin and mucous membranes.
- · on the eye:

Strong caustic effect.

Strong irritant with the danger of severe eye injury.

- · Sensitization: No sensitizing effects known.
- · Additional toxicological information:

The product shows the following dangers according to internally approved calculation methods for preparations:

Harmful

Corrosive

Irritant

Swallowing will lead to a strong caustic effect on mouth and throat and to the danger of perforation of esophagus and stomach.

- · Carcinogenic categories
- · IARC (International Agency for Research on Cancer)

None of the ingredients is listed.

· NTP (National Toxicology Program)

None of the ingredients is listed.

· OSHA-Ca (Occupational Safety & Health Administration)

None of the ingredients is listed.

12 Ecological information

- · Toxicity
- · Aquatic toxicity: No further relevant information available.
- · Persistence and degradability No further relevant information available.
- · Behavior in environmental systems:
- · Bioaccumulative potential No further relevant information available.
- · Mobility in soil No further relevant information available.
- · Additional ecological information:
- · General notes:

Water hazard class 2 (Self-assessment): hazardous for water

Do not allow product to reach ground water, water course or sewage system.

Must not reach bodies of water or drainage ditch undiluted or unneutralized.

Danger to drinking water if even small quantities leak into the ground.

- · Results of PBT and vPvB assessment
- · PBT: Not applicable.
- · vPvB: Not applicable.
- · Other adverse effects No further relevant information available.

US

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Trade name: Electrolyte Bromine Index

(Contd. of page 8)

13 Disposal considerations

- · Waste treatment methods
- · Recommendation:

Must not be disposed of together with household garbage. Do not allow product to reach sewage system.

- · Uncleaned packagings:
- · Recommendation: Disposal must be made according to official regulations.

| 7 | 1 1 1 | | | | | . • |
|---|-------|--------|---------------------|--------|---------|------|
| | 74 | rang | nort | 11/11/ | ormai | 1011 |
| - | | LIWIUS | $\rho \sigma r \nu$ | | or moun | uon |

| | UN- | Nui | mber |
|--|-----|-----|------|
|--|-----|-----|------|

· DOT, IMDG, IATA

UN2920

· UN proper shipping name

 $\cdot DOT$

Corrosive liquids, flammable, n.o.s. (Acetic acid, glacial,

Methanol)

· IMDG, IATA

CORROSIVE LIQUID, FLAMMABLE, N.O.S. (ACETIC ACID,

GLACIAL, METHANOL)

- · Transport hazard class(es)
- $\cdot DOT$





· Class · Label 3 Flammable liquids

8, 3

· IMDG





· Class · Label 8 Corrosive substances

8/3

 \cdot IATA





· Class

8 Corrosive substances

· Label

8(3)

· Packing group

· DOT, IMDG, IATA

II

· Environmental hazards:

Not applicable.

· Special precautions for user

Warning: Corrosive substances

· Hazard identification number (Kemler code): 883

· EMS Number:

F-E,S-C

· Segregation groups

Acids

(Contd. on page 10)

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Trade name: Electrolyte Bromine Index

| | (Contd. of page |
|----------------------------------------------|----------------------------------------------------|
| · Stowage Category | E |
| · Stowage Code | SW1 Protected from sources of heat. |
| - | SW2 Clear of living quarters. |
| · Transport in bulk according to Annex II of | |
| MARPOL73/78 and the IBC Code | Not applicable. |
| · Transport/Additional information: | |
| \cdot DOT | |
| · Quantity limitations | On passenger aircraft/rail: 1 L |
| | On cargo aircraft only: 5 L |
| · IMDG | |
| · Limited quantities (LQ) | IL |
| · Excepted quantities (EQ) | Code: E2 |
| · · - | Maximum net quantity per inner packaging: 30 ml |
| | Maximum net quantity per outer packaging: 500 ml |
| · UN ''Model Regulation'': | UN 2920 CORROSIVE LIQUID, FLAMMABLE, N.O.S. (ACETI |
| <u> </u> | ACID, GLACIAL, METHANOL), 8 (3), II |

15 Regulatory information

- · Safety, health and environmental regulations/legislation specific for the substance or mixture No further relevant information available.
- · Sara

| Saction 255 (out | wamah harandaya suhatayaas) | | |
|---------------------------|-----------------------------------------------|--------|--|
| | Section 355 (extremely hazardous substances): | | |
| CAS: 1600-27-7 | Mercuric Acetate | | |
| · Section 313 (Spe | cific toxic chemical listings): | | |
| CAS: 67-56-1 | Methanol (Methyl Alcohol) | | |
| CAS: 1600-27-7 | Mercuric Acetate | | |
| · TSCA (Toxic Su | bstances Control Act): | | |
| Acetic Acid | | ACTIVE | |
| Methanol (Methyl Alcohol) | | ACTIVE | |
| Water | | ACTIVE | |
| Potassium Bromi | Potassium Bromide A | | |
| Mercuric Acetate | Mercuric Acetate AC | | |
| · Hazardous Air P | Pollutants | | |
| CAS: 67-56-1 | CAS: 67-56-1 Methanol (Methyl Alcohol) | | |
| CAS: 1600-27-7 | CAS: 1600-27-7 Mercuric Acetate | | |
| · Proposition 65 | | | |

· Chemicals known to cause cancer:

None of the ingredients is listed.

· Chemicals known to cause reproductive toxicity for females:

None of the ingredients is listed.

· Chemicals known to cause reproductive toxicity for males:

None of the ingredients is listed.

(Contd. on page 11)

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· Chemicals known to cause developmental toxicity:

CAS: 67-56-1 Methanol (Methyl Alcohol)

CAS: 1600-27-7 Mercuric Acetate

· Carcinogenic categories

· EPA (Environmental Protection Agency)

None of the ingredients is listed.

· TLV (Threshold Limit Value)

None of the ingredients is listed.

· NIOSH-Ca (National Institute for Occupational Safety and Health)

None of the ingredients is listed.

- · GHS label elements The product is classified and labeled according to the Globally Harmonized System (GHS).
- · Hazard pictograms









GHS02

GHS05

GHS07 GHS08

- · Signal word Danger
- · Hazard-determining components of labeling:

Acetic Acid

Methanol (Methyl Alcohol)

Mercuric Acetate

Potassium Bromide

· Hazard statements

Highly flammable liquid and vapor.

Harmful if swallowed or in contact with skin.

Causes severe skin burns and eye damage.

Causes damage to the central nervous system and the visual organs.

May cause damage to organs through prolonged or repeated exposure.

· Precautionary statements

Keep away from heat/sparks/open flames/hot surfaces. - No smoking.

Keep container tightly closed.

Ground/bond container and receiving equipment.

Use explosion-proof electrical/ventilating/lighting/equipment.

Use only non-sparking tools.

Take precautionary measures against static discharge.

Do not breathe dusts or mists.

Wash thoroughly after handling.

Do not eat, drink or smoke when using this product.

Wear protective gloves/protective clothing/eye protection/face protection.

If swallowed: Call a poison center/doctor if you feel unwell.

If swallowed: Rinse mouth. Do NOT induce vomiting.

If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.

IF INHALED: Remove person to fresh air and keep comfortable for breathing.

If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

Immediately call a poison center/doctor.

IF exposed: Call a POISON CENTER or doctor/physician.

Specific treatment (see on this label).

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Get medical advice/attention if you feel unwell.

Take off contaminated clothing and wash it before reuse.

Wash contaminated clothing before reuse.

In case of fire: Use for extinction: CO2, powder or water spray.

Store in a well-ventilated place. Keep cool.

Store locked up.

Dispose of contents/container in accordance with local/regional/national/international regulations.

· Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

- · Department issuing SDS: Environment protection department.
- · Contact:
- · Date of preparation / last revision

Revision 1.0, 05-07-2021: updated incorrect description of 20% to correct 25%. STN 06/11/2021 / 1.0

· Abbreviations and acronyms:

IMDG: International Maritime Code for Dangerous Goods

DOT: US Department of Transportation

IATA: International Air Transport Association

EINECS: European Inventory of Existing Commercial Chemical Substances

ELINCS: European List of Notified Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

NFPA: National Fire Protection Association (USA)
HMIS: Hazardous Materials Identification System (L.

HMIS: Hazardous Materials Identification System (USA)

VOC: Volatile Organic Compounds (USA, EU)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

PBT: Persistent, Bioaccumulative and Toxic

vPvB: very Persistent and very Bioaccumulative

NIOSH: National Institute for Occupational Safety

OSHA: Occupational Safety & Health

TLV: Threshold Limit Value

PEL: Permissible Exposure Limit

REL: Recommended Exposure Limit

BEI: Biological Exposure Limit

Flam. Liq. 2: Flammable liquids - Category 2

Acute Tox. 4: Acute toxicity - Category 4

Skin Corr. 1B: Skin corrosion/irritation - Category 1B

Eye Dam. 1: Serious eye damage/eye irritation – Category 1

STOT SE 1: Specific target organ toxicity (single exposure) – Category 1

STOT RE 2: Specific target organ toxicity (repeated exposure) – Category 2

* * Data compared to the previous version altered.