Safety Data Sheet
acc. to OSHA HCS

Revision date 08/23/2024

*
1 Identification

· **Product identifier**

· **Product Name: PAH Standard (1X1 mL)**

· **Part number:** PM-525A-1
· **Application of the substance / the mixture** Reagents and Standards for Analytical Chemical Laboratory Use

· **Details of the supplier of the safety data sheet**
· **Manufacturer/Supplier:**
Agilent Technologies, Inc.
5301 Stevens Creek Blvd.
Santa Clara, CA 95051 USA

· **Information department:**
Telephone: 800-227-9770
e-mail: pdl-msds_author@agilent.com
· **Emergency telephone number:** CHEMTREC®: 1-800-424-9300

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2 Hazard(s) identification

· **Classification of the substance or mixture**


GHS02 Flame

Flammable Liquids 2 — H225 Highly flammable liquid and vapor.


GHS08 Health hazard

Carcinogenicity 1B — H350 May cause cancer.


GHS07

Eye Irritation 2A — H319 Causes serious eye irritation.
Specific Target Organ Toxicity - Single Exposure 3 — H336 May cause drowsiness or dizziness.

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


GHS02 GHS07 GHS08

· **Signal word** Danger

· **Hazard-determining components of labeling:**
acetone
benzo[a]pyrene
dibenz[a,h]anthracene
· **Hazard statements**
H225 Highly flammable liquid and vapor.

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H319 Causes serious eye irritation.
H350 May cause cancer.
H336 May cause drowsiness or dizziness.

· **Precautionary statements**

P210	Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
P241	Use explosion-proof electrical/ventilating/lighting/equipment.
P261	Avoid breathing dust/fume/gas/mist/vapors/spray
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P240	Ground/bond container and receiving equipment.
P242	Use only non-sparking tools.
P243	Take precautionary measures against static discharge.
P264	Wash thoroughly after handling.
P271	Use only outdoors or in a well-ventilated area.
P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P303+P361+P353	If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower.
P305+P351+P338	If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P304+P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P312	Call a poison center/doctor if you feel unwell.
P308+P313	IF exposed or concerned: Get medical advice/attention.
P337+P313	If eye irritation persists: Get medical advice/attention.
P370+P378	In case of fire: Use CO2, powder or water spray to extinguish.
P405	Store locked up.
P403+P233	Store in a well-ventilated place. Keep container tightly closed.
P403+P235	Store in a well-ventilated place. Keep cool.
P501	Dispose of contents/container in accordance with local/regional/national/international regulations.

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

Health = 2
Fire = 3
Reactivity = 0

· **HMIS-ratings (scale 0 - 4)**

Health = 2
Fire = 3
Reactivity = 0

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

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3 Composition/information on ingredients

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

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· **Dangerous components:**		
67-64-1	acetone	99.8362%
50-32-8	benzo[a]pyrene	0.0126%
53-70-3	dibenz[a,h]anthracene	0.0126%

4 First-aid measures

· **Description of first aid measures**
· **General information:** Immediately remove any clothing soiled by the product.
· **After inhalation:** Supply fresh air; consult doctor in case of complaints.
· **After skin contact:** Immediately rinse with water.
· **After eye contact:**
Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.
· **After swallowing:** If symptoms persist consult 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** No further relevant information available.
· **Advice for firefighters**
· **Protective equipment:** No special measures required.

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6 Accidental release measures

· **Personal precautions, protective equipment and emergency procedures**
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).
Dispose contaminated material as waste according to section 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:**		
67-64-1	acetone	200 ppm
50-32-8	benzo[a]pyrene	0.6 mg/m³
53-70-3	dibenz[a,h]anthracene	0.093 mg/m³

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56-55-3	benz[a]anthracene	0.6 mg/m³
85-01-8	phenanthrene	5.4 mg/m³
86-73-7	fluorene	6.6 mg/m³
120-12-7	anthracene	48 mg/m³
129-00-0	pyrene	0.15 mg/m³
191-24-2	benzo[ghi]perylene	30 mg/m³
193-39-5	indeno[1,2,3-cd]pyrene	1.2 mg/m³
205-99-2	benz[e]acephenanthrylene	0.12 mg/m³
208-96-8	acenaphthylene	10 mg/m³
218-01-9	chrysene	0.6 mg/m³

· **PAC-2:**

67-64-1	acetone	3200* ppm
50-32-8	benzo[a]pyrene	120 mg/m³
53-70-3	dibenz[a,h]anthracene	1 mg/m³
56-55-3	benz[a]anthracene	1.4 ppm
85-01-8	phenanthrene	1.8 ppm
86-73-7	fluorene	72 mg/m³
120-12-7	anthracene	530 mg/m³
129-00-0	pyrene	1.7 ppm
191-24-2	benzo[ghi]perylene	330 mg/m³
193-39-5	indeno[1,2,3-cd]pyrene	13 mg/m³
205-99-2	benz[e]acephenanthrylene	1.3 mg/m³
208-96-8	acenaphthylene	110 mg/m³
218-01-9	chrysene	12 mg/m³

· **PAC-3:**

67-64-1	acetone	5700* ppm
50-32-8	benzo[a]pyrene	700 mg/m³
53-70-3	dibenz[a,h]anthracene	2.9 mg/m³
56-55-3	benz[a]anthracene	8.5 ppm
85-01-8	phenanthrene	10 ppm
86-73-7	fluorene	430 mg/m³
120-12-7	anthracene	3,200 mg/m³
129-00-0	pyrene	10 ppm
191-24-2	benzo[ghi]perylene	2,000 mg/m³
193-39-5	indeno[1,2,3-cd]pyrene	79 mg/m³
205-99-2	benz[e]acephenanthrylene	7.9 mg/m³
208-96-8	acenaphthylene	660 mg/m³
218-01-9	chrysene	69 mg/m³

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7 Handling and storage

· **Handling:**
· **Precautions for safe handling**
Ensure good ventilation/exhaustion at the workplace.
Open and handle receptacle with care.
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.
· **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.

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8 Exposure controls/personal protection

· **Additional information about design of technical systems:** No further data; see section 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 remaining constituent has no known exposure limits.

67-64-1 acetone	
PEL	Long-term value: 2400 mg/m³, 1000 ppm
REL	Long-term value: 590 mg/m³, 250 ppm
TLV	Short-term value: 500 ppm Long-term value: 250 ppm A4, BEI

50-32-8 benzo[a]pyrene	
PEL	Long-term value: 0.2 mg/m³ see Coal tar pitch volatiles
REL	Long-term value: 0.1 mg/m³ Coal tar pitch volatile; Pocket Guide Apps. A+C
TLV	L; BEIp, A2

· **Ingredients with biological limit values:**	
67-64-1 acetone	
BEI	25 mg/L Medium: urine Time: end of shift Parameter: Acetone (nonspecific)

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50-32-8 benzo[a]pyrene	
BEI	- Medium: urine Time: end of shift at end of workweek Parameter: 1-Hydroxypyrene with hydrolysis (nonquantitative)

· **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:**
When used as intended with Agilent instruments, the use of the product under normal laboratory conditions and with standard practices does not result in significant airborne exposures and therefore respiratory protection is not needed.
Under an emergency condition where a respirator is deemed necessary, use a NIOSH or equivalent approved device/equipment with appropriate organic or acid gas cartridge.
· **Protection of hands:**
Although not recommended for constant contact with the chemicals or for clean-up, nitrile gloves 11-13 mil thickness are recommended for normal use. The breakthrough time is 1 hr. For cleaning a spill where there is direct contact of the chemical, butyl rubber gloves are recommended 12-15 mil thickness with breakthrough times exceeding 4 hrs. Supplier recommendations should be followed.
· **Material of gloves**
For normal use: nitrile rubber, 11-13 mil thickness
For direct contact with the chemical: butyl rubber, 12-15 mil thickness
· **Penetration time of glove material**
For normal use: nitrile rubber: 1 hour
For direct contact with the chemical: butyl rubber: >4 hours
· **Eye protection:**

Tightly sealed goggles

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9 Physical and chemical properties

· **Information on basic physical and chemical properties**
· **General Information**
· **Appearance:**

Form:	Fluid
Color:	Colorless
· **Odor:**	Characteristic
· **Odor threshold:**	Not determined.

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· **pH-value:**	Not determined.
· **Change in condition**	
Melting point/Melting range:	-94.7 °C (-138.5 °F)
Boiling point/Boiling range:	55 °C (131 °F)
· **Flash point:**	-17 °C (1.4 °F)
· **Flammability (solid, gaseous):**	Highly flammable.
· **Auto igniting:**	465 °C (869 °F)
· **Decomposition temperature:**	Not determined.
· **Ignition temperature:**	Product is not selfigniting.
· **Danger of explosion:**	Product is not explosive. However, formation of explosive air/vapor mixtures are possible.
· **Explosion limits:**	
Lower:	2.6 Vol %
Upper:	13 Vol %
· **Vapor pressure at 20 °C (68 °F):**	245.3 hPa (184 mm Hg)
· **Density at 20 °C (68 °F):**	0.791 g/cm³ (6.6009 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/water):**	Not determined.
· **Viscosity:**	
Dynamic:	Not determined.
Kinematic:	Not determined.
· **Solvent content:**	
Organic solvents:	99.8 %
VOC content:	0.00 % 0.0 g/l / 0.00 lb/gal
Solids content:	0.2 %
· **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.

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· **Hazardous decomposition products:** No dangerous decomposition products known.

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11 Toxicological information

· **Information on toxicological effects**
· **Acute toxicity:**

· **LD/LC50 values that are relevant for classification:**		
67-64-1 acetone		
Oral	LD50	5,800 mg/kg (rat)
Dermal	LD50	20,000 mg/kg (rabbit)

· **Primary irritant effect:**
· **on the skin:** No irritant effect.
· **on the eye:** Irritating effect.
· **Sensitization:** No sensitizing effects known.
· **Additional toxicological information:**
The product shows the following dangers according to internally approved calculation methods for preparations:
Irritant

· **Carcinogenic categories**

· **IARC (International Agency for Research on Cancer)**		
50-32-8	benzo[a]pyrene	1
53-70-3	dibenz[a,h]anthracene	2A
56-55-3	benz[a]anthracene	2B
85-01-8	phenanthrene	3
86-73-7	fluorene	3
120-12-7	anthracene	2B
129-00-0	pyrene	3
191-24-2	benzo[ghi]perylene	3
193-39-5	indeno[1,2,3-cd]pyrene	2B
205-99-2	benz[e]acephenanthrylene	2B
207-08-9	benzo[k]fluoranthene	2B
218-01-9	chrysene	2B

· **NTP (National Toxicology Program)**		
50-32-8	benzo[a]pyrene	R
53-70-3	dibenz[a,h]anthracene	R
56-55-3	benz[a]anthracene	R
85-01-8	phenanthrene	R
86-73-7	fluorene	R
120-12-7	anthracene	R
129-00-0	pyrene	R
193-39-5	indeno[1,2,3-cd]pyrene	R
205-99-2	benz[e]acephenanthrylene	R
207-08-9	benzo[k]fluoranthene	R
218-01-9	chrysene	R

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· **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 1 (Self-assessment): slightly hazardous for water
Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.
· **Results of PBT and vPvB assessment**
· **PBT:** Not applicable.
· **vPvB:** Not applicable.
· **Other adverse effects** No further relevant information available.

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.

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14 Transport information

· **Not Regulated, De minimis Quantities**	-
· **UN-Number**	
· **DOT, IMDG, IATA**	UN1993
· **UN proper shipping name**	
· **DOT**	Flammable liquids, n.o.s. (Acetone)
· **IMDG**	FLAMMABLE LIQUID, N.O.S. (ACETONE, dibenz[a,h] anthracene), MARINE POLLUTANT
· **IATA**	FLAMMABLE LIQUID, N.O.S. (ACETONE)
· **Transport hazard class(es)**	
· **DOT**	

· **Class**	3 Flammable liquids

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· **Label**	3
· **IMDG**	
	
· **Class**	3 Flammable liquids
· **Label**	3
· **IATA**	
	
· **Class**	3 Flammable liquids
· **Label**	3
· **Packing group**	
· **DOT, IMDG, IATA**	II
· **Environmental hazards:**	Product contains environmentally hazardous substances: pyrene
· **Marine pollutant:**	Symbol (fish and tree)
· **Special precautions for user**	Warning: Flammable liquids
· **Hazard identification number (Kemler code):**	33
· **EMS Number:**	F-E,S-E
· **Stowage Category**	B
· **Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code**	Not applicable.
· **Transport/Additional information:**	
· **DOT**	
· **Quantity limitations**	On passenger aircraft/rail: 5 L On cargo aircraft only: 60 L
· **IMDG**	
· **Limited quantities (LQ)**	1L
· **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 1993 FLAMMABLE LIQUID, N.O.S. (ACETONE), 3, II, ENVIRONMENTALLY HAZARDOUS

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15 Regulatory information

· **Safety, health and environmental regulations/legislation specific for the substance or mixture**
· **Sara**

· **Section 355 (extremely hazardous substances):**	
129-00-0	pyrene

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· **Section 313 (Specific toxic chemical listings):**	
50-32-8	benzo[a]pyrene
53-70-3	dibenz[a,h]anthracene
56-55-3	benz[a]anthracene
85-01-8	phenanthrene
120-12-7	anthracene
191-24-2	benzo[ghi]perylene
193-39-5	indeno[1,2,3-cd]pyrene
205-99-2	benz[e]acephenanthrylene
207-08-9	benzo[k]fluoranthene
218-01-9	chrysene

· **TSCA (Toxic Substances Control Act):**		
67-64-1	acetone	ACTIVE
50-32-8	benzo[a]pyrene	ACTIVE
53-70-3	dibenz[a,h]anthracene	ACTIVE
56-55-3	benz[a]anthracene	ACTIVE
85-01-8	phenanthrene	ACTIVE
86-73-7	fluorene	ACTIVE
120-12-7	anthracene	ACTIVE
129-00-0	pyrene	ACTIVE
193-39-5	indeno[1,2,3-cd]pyrene	ACTIVE
208-96-8	acenaphthylene	ACTIVE
218-01-9	chrysene	ACTIVE

· **Hazardous Air Pollutants**	
50-32-8	benzo[a]pyrene
53-70-3	dibenz[a,h]anthracene
56-55-3	benz[a]anthracene
85-01-8	phenanthrene
86-73-7	fluorene
120-12-7	anthracene
129-00-0	pyrene
193-39-5	indeno[1,2,3-cd]pyrene
205-99-2	benz[e]acephenanthrylene
207-08-9	benzo[k]fluoranthene
218-01-9	chrysene

· **Proposition 65**

· **Chemicals known to cause cancer:**	
50-32-8	benzo[a]pyrene
53-70-3	dibenz[a,h]anthracene
56-55-3	benz[a]anthracene
120-12-7	anthracene

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193-39-5	indeno[1,2,3-cd]pyrene
205-99-2	benz[e]acephenanthrylene
207-08-9	benzo[k]fluoranthene
218-01-9	chrysene

· **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.

· **Chemicals known to cause developmental toxicity:**
None of the ingredients is listed.

· **Carcinogenic categories**

· **EPA (Environmental Protection Agency)**

67-64-1	acetone	I
50-32-8	benzo[a]pyrene	CaH
53-70-3	dibenz[a,h]anthracene	B2
56-55-3	benz[a]anthracene	B2
85-01-8	phenanthrene	D
86-73-7	fluorene	D
120-12-7	anthracene	D
129-00-0	pyrene	D
191-24-2	benzo[ghi]perylene	D
193-39-5	indeno[1,2,3-cd]pyrene	B2
205-99-2	benz[e]acephenanthrylene	B2
207-08-9	benzo[k]fluoranthene	B2
208-96-8	acenaphthylene	D
218-01-9	chrysene	B2

· **TLV (Threshold Limit Value)**

67-64-1	acetone	A4
50-32-8	benzo[a]pyrene	A2
56-55-3	benz[a]anthracene	A2
205-99-2	benz[e]acephenanthrylene	A2
218-01-9	chrysene	A3

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

50-32-8	benzo[a]pyrene
218-01-9	chrysene

· **National regulations:**
· **Additional classification according to Decree on Hazardous Materials:**
Carcinogenic hazardous material group III (dangerous).

· **Information about limitation of use:**
Workers are not allowed to be exposed to the hazardous carcinogenic materials contained in this preparation.
Exceptions can be made by the authorities in certain cases.

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

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16 Other information

The information contained in this document is based on Agilent's state of knowledge at the time of preparation. No warranty as to its accurateness, completeness or suitability for a particular purpose is expressed or implied.

· **Department issuing SDS:** Document Control / Regulatory
· **Contact:** pdl-acg-regulatory-cq@agilent.com
· **Date of preparation / last revision** 08/23/2024 / 4
· **Abbreviations and acronyms:**
ADR: Accord relatif au transport international des marchandises dangereuses par route (European Agreement Concerning the International Carriage of Dangerous Goods by Road)
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 (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
Flammable Liquids 2: Flammable liquids – Category 2
Eye Irritation 2A: Serious eye damage/eye irritation – Category 2A
Carcinogenicity 1B: Carcinogenicity – Category 1B
Specific Target Organ Toxicity - Single Exposure 3: Specific target organ toxicity (single exposure) – Category 3
· *** Data compared to the previous version altered.**