

Revision date 08/24/2024

#### 1 Identification

· Product identifier

· Product Name: PAH Standard (1X1 mL)

· Part number: PAH-600-1

· 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

#### 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

Acute Toxicity - Oral 4 H302 Harmful if swallowed.

Eye Irritation 2A H319 Causes serious eye irritation.

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







GHS02

02 GHS07

GHS08

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

acetonitrile

benzo[a]pyrene

dibenz[a,h]anthracene

· Hazard statements

H225 Highly flammable liquid and vapor.

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H302 Harmful if swallowed.

H319 Causes serious eye irritation.

H350 May cause cancer.

#### · Precautionary statements

Keep away from heat/sparks/open flames/hot surfaces. - No smoking. P210 P241 Use explosion-proof electrical/ventilating/lighting/equipment.

P280 Wear protective gloves/protective clothing/eye protection/face protection.

P240 Ground/bond container and receiving equipment.

Keep container tightly closed. P233 P242 Use only non-sparking tools.

P243 Take precautionary measures against static discharge.

P264 Wash thoroughly after handling.

P270 Do not eat, drink or smoke when using this product.

P201 Obtain special instructions before use.

Do not handle until all safety precautions have been read and understood. P202

P303+P361+P353 If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/

P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present

and easy to do. Continue rinsing.

If swallowed: Call a poison center/doctor if you feel unwell. P301+P312 P308+P313 IF exposed or concerned: Get medical advice/attention. If eye irritation persists: Get medical advice/attention. P337+P313

Rinse mouth. P330

P370+P378 In case of fire: Use CO2, powder or water spray to extinguish.

P405 Store locked up.

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 = 2Fire = 3Reactivity = 0

#### · HMIS-ratings (scale 0 - 4)



Health = 2Fire = 3

· 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.

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· Danger	· Dangerous components:		
75-05-8	acetonitrile	99.7968%	
50-32-8	benzo[a]pyrene	0.0127%	
53-70-3	dibenz[a,h]anthracene	0.0127%	

#### 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: 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: 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 No further relevant information available.
- · Advice for firefighters
- · Protective equipment: No special measures required.

#### 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.

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Protectiv	e Action Criteria for Chemicals	(Contd. of page
PAC-1:	CACION CITICITA IOI CHEMICAIS	
75-05-8	acetonitrile	13 ppm
50-32-8	benzo[a]pyrene	$0.6 \text{ mg/m}^3$
	dibenz[a,h]anthracene	0.093 mg/r
56-55-3	benz[a]anthracene	$0.6~\mathrm{mg/m^3}$
83-32-9	acenaphthene	3.6 mg/m <sup>3</sup>
85-01-8	phenanthrene	5.4 mg/m <sup>3</sup>
86-73-7	fluorene	6.6 mg/m³
91-20-3	naphthalene	15 ppm
120-12-7	anthracene	48 mg/m <sup>3</sup>
129-00-0	pyrene	0.15 mg/m
191-24-2	benzo[ghi]perylene	30 mg/m <sup>3</sup>
193-39-5	indeno[1,2,3-cd]pyrene	1.2 mg/m³
205-99-2	benz[e]acephenanthrylene	0.12 mg/m
206-44-0	fluoranthene	8.2 mg/m³
208-96-8	acenaphthylene	10 mg/m <sup>3</sup>
218-01-9	chrysene	0.6 mg/m <sup>3</sup>
PAC-2:		-
75-05-8	acetonitrile	50 ppm
50-32-8	benzo[a]pyrene	120 mg/r
	dibenz[a,h]anthracene	1 mg/m³
56-55-3	benz[a]anthracene	1.4 ppm
83-32-9	acenaphthene	40 mg/m
	phenanthrene	1.8 ppm
86-73-7	fluorene	72 mg/m
91-20-3	naphthalene	83 ppm
120-12-7	anthracene	530 mg/r
129-00-0	pyrene	1.7 ppm
191-24-2	benzo[ghi]perylene	330 mg/r
193-39-5	indeno[1,2,3-cd]pyrene	13 mg/m <sup>2</sup>
205-99-2	benz[e]acephenanthrylene	1.3 mg/m
206-44-0	fluoranthene	8.0 ppm
208-96-8	acenaphthylene	110 mg/r
218-01-9	chrysene	12 mg/m
PAC-3:		1
	acetonitrile	150 ppm
50-32-8	benzo[a]pyrene	$700 \text{ mg/m}^3$
	dibenz[a,h]anthracene	2.9 mg/m <sup>3</sup>
	benz[a]anthracene	8.5 ppm
	acenaphthene	240 mg/m <sup>3</sup>



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85-01-8	phenanthrene	(Contd. of page 4)
	fluorene	430 mg/m <sup>3</sup>
91-20-3	naphthalene	500 ppm
120-12-7	anthracene	3,200 mg/m <sup>3</sup>
129-00-0		10 ppm
	benzo[ghi]perylene	2,000 mg/m <sup>3</sup>
	indeno[1,2,3-cd]pyrene	79 mg/m <sup>3</sup>
	benz[e]acephenanthrylene	7.9 mg/m <sup>3</sup>
	fluoranthene	48 ppm
	acenaphthylene	660 mg/m <sup>3</sup>
218-01-9	chrysene	69 mg/m <sup>3</sup>

#### 7 Handling and storage

- · Handling:
- · Precautions for safe handling

Ensure good ventilation/exhaustion at the workplace.

Open and handle receptacle with care.

· 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.

#### 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.

75-05	5-8 acetonitrile	
PEL	Long-term value: 70 mg/m³, 40 ppm	
REL	Long-term value: 34 mg/m³, 20 ppm	
TLV	Long-term value: 20 ppm Skin, A4	

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#### 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:

#### 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

HS



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9 Physical and chemical propert	ties
Information on basic physical and cl	hemical properties
· General Information	properties
· Appearance:	
Form:	Fluid
Color:	Colorless
· Odor: · Odor threshold:	Aromatic Not determined.
	Not determined.
pH-value:	Not determined.
Change in condition	46 0G ( 50 0 0F)
Melting point/Melting range:	-46 °C (-50.8 °F)
Boiling point/Boiling range:	81 °C (177.8 °F)
· Flash point:	2 °C (35.6 °F)
· Flammability (solid, gaseous):	Highly flammable.
· Auto igniting:	525 °C (977 °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:	4.4 Vol %
Upper:	16 Vol %
· Vapor pressure at 20 °C (68 °F):	0 hPa
· Vapor pressure at 50 °C (122 °F):	330 hPa (247.5 mm Hg)
· Density at 20 °C (68 °F):	0.786 g/cm <sup>3</sup> (6.55917 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	r): Not determined.
· Viscosity:	
Dynamic at 20 °C (68 °F):	0.39 mPas
Kinematic:	Not determined.
· Solvent content:	
VOC content:	0.00 %
	0.0 g/l / 0.00 lb/gal
Solids content:	0.2 %
· Other information	No further relevant information available.



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#### 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
- · Acute toxicity:

· LD/LC50	values tha	t are relevant for classification:
ATE (Acu	ite Toxicity	y Estimate)
Oral	LD50	1,323 mg/kg (rat)
Dermal	LD50	>2,004 mg/kg (rabbit)
Inhalative	LC50/4 h	3,594 mg/L (mouse)

	75-05-8 acetonitrile			
Ī	Oral	LD50	1,320 mg/kg (rat)	
	Dermal	LD50	>2,000 mg/kg (rabbit)	
	Inhalative	LC50/4 h	3,587 mg/L (mouse)	

- · 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: Harmful

Irritant

· Carcinogenic categories

· IARC (In	· 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	
83-32-9	acenaphthene	3	
85-01-8	phenanthrene	3	
86-73-7	fluorene	3	
91-20-3	naphthalene	2B	
120-12-7	anthracene	2B	
129-00-0	pyrene	3	
	benzo[ghi]perylene	3	
193-39-5	indeno[1,2,3-cd]pyrene	2B	



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205-99-2	benz[e]acephenanthrylene	2B
206-44-0	fluoranthene	3
207-08-9	benzo[k]fluoranthene	2B
218-01-9	chrysene	2B
· NTP (Nat	tional 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
91-20-3	naphthalene	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
206-44-0	fluoranthene	R
207-08-9	benzo[k]fluoranthene	R
218-01-9	chrysene	R
· OSHA-C	a (Occupational Safety & Health Administration)	•
None of the	he 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 3 (Self-assessment): extremely hazardous for water

Do not allow product to reach ground water, water course or sewage system, even in small quantities.

Danger to drinking water if even extremely 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.

#### 13 Disposal considerations

- · Waste treatment methods
- · Recommendation:

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

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

#### 14 Transport information

· Not Regulated, De minimis Quantities	-	
· IIN Number		

UN-Number

· DOT, IMDG, IATA UN1648

· UN proper shipping name

 $\cdot$  DOT Acetonitrile solution

 $\cdot$  IMDG ACETONITRILE solution, MARINE POLLUTANT

 $\cdot$  IATA ACETONITRILE solution

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



· Class 3 Flammable liquids

·Label

· IMDG



· Class 3 Flammable liquids

·Label

 $\cdot$  IATA



3 Flammable liquids · Class

·Label

· Packing group

II · DOT, IMDG, IATA

Product contains environmentally hazardous substances: · Environmental hazards:

anthracene

· Marine pollutant: Symbol (fish and tree)

Warning: Flammable liquids · Special precautions for user

· Hazard identification number (Kemler code): 33

· EMS Number: F-E,S-D

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	(Contd. of page 10
· Stowage Category	В
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) · Excepted quantities (EQ)	1L Code: E2 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 500 ml
· UN "Model Regulation":	UN 1648 ACETONITRILE SOLUTION, 3, II, ENVIRONMENTALLY HAZARDOUS

#### 15 Regulatory information

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

	55 (extremely hazardous substances):	
129-00-0	7.7	
	13 (Specific toxic chemical listings):	
75-05-8	acetonitrile	
	benzo[a]pyrene	
	dibenz[a,h]anthracene	
56-55-3	benz[a]anthracene	
	phenanthrene	
91-20-3	naphthalene	
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	
206-44-0	fluoranthene	
207-08-9	benzo[k]fluoranthene	
218-01-9	chrysene	
TSCA (T	oxic Substances Control Act):	
75-05-8	acetonitrile	ACTIV
	benzo[a]pyrene	ACTIV
53-70-3	dibenz[a,h]anthracene	ACTIV
56-55-3	benz[a]anthracene	ACTIV
83-32-9	acenaphthene	ACTIV



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85-01-8	phenanthrene	ACTIVE
86-73-7	fluorene	ACTIVE
91-20-3	naphthalene	ACTIVE
120-12-7	anthracene	ACTIVE
129-00-0	pyrene	ACTIVE
	indeno[1,2,3-cd]pyrene	ACTIVE
206-44-0	fluoranthene	ACTIVE
208-96-8	acenaphthylene	ACTIVE
218-01-9	chrysene	ACTIVE
· Hazardo	us Air Pollutants	
75-05-8	acetonitrile	
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	
91-20-3	naphthalene	
120-12-7	anthracene	
129-00-0	pyrene	
193-39-5	indeno[1,2,3-cd]pyrene	
205-99-2	benz[e]acephenanthrylene	
206-44-0	fluoranthene	
207-08-9	benzo[k]fluoranthene	
218-01-9	chrysene	
· Propositi		
	s known to cause cancer:	
	benzo[a]pyrene	
	dibenz[a,h]anthracene	
	benz[a]anthracene	
	naphthalene	
	anthracene	
	indeno[1,2,3-cd]pyrene	
205-99-2	benz[e]acephenanthrylene	
207-08-9	benzo[k]fluoranthene	
218-01-9	chrysene	
·Chemica	s known to cause reproductive toxicity for females:	
None of t	ne ingredients is listed.	
	s known to cause reproductive toxicity for males:	
None of t	ne ingredients is listed.	
	s known to cause developmental toxicity:	
None of t	ne ingredients is listed.	
		(Contd. on page 1



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•	vironmental Protection Agency)	Long		
	acetonitrile		CBD, I	
	benzo[a]pyrene	CaF	I	
	dibenz[a,h]anthracene	B2		
	benz[a]anthracene	B2		
	phenanthrene	D		
	fluorene	D		
	naphthalene	С, С	CBE	
	anthracene	D		
129-00-0		D		
	benzo[ghi]perylene	D		
	indeno[1,2,3-cd]pyrene	B2		
205-99-2	benz[e]acephenanthrylene	B2		
206-44-0	fluoranthene	D		
207-08-9	benzo[k]fluoranthene	B2		
	acenaphthylene	D		
218-01-9	chrysene	B2		
TLV (Th	reshold Limit Value)			
75-05-8	acetonitrile		A	
50-32-8	benzo[a]pyrene		A	
56-55-3	benz[a]anthracene		A	
91-20-3	naphthalene		A	
205-99-2	benz[e]acephenanthrylene		A	
218-01-9	chrysene		A	
NIOSH-C	Ca (National Institute for Occupational Safety and Health)		•	
50-32-8	benzo[a]pyrene			
210 01 0	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.

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

#### 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.

- · Contact:
- · Date of preparation / last revision 08/24/2024 / 4

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#### 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

Acute Toxicity - Oral 4: Acute toxicity - Category 4

Eye Irritation 2A: Serious eye damage/eye irritation – Category 2A

Carcinogenicity 1B: Carcinogenicity - Category 1B

\* \* Data compared to the previous version altered.

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