Safety Data Sheet
acc. to OSHA HCS

Printing date 03/18/2019 Reviewed on 03/18/2019

1 Identification

· **Product identifier**

· **Product Name: PAH Combination Mix**

· **Part Number:** 8310-A
· **Application of the substance / the mixture** Certified Reference Material

· **Details of the supplier of the safety data sheet**
· **Manufacturer/Supplier:**
SPEX CertiPrep, LLC.
203 Norcross Ave, Metuchen,
NJ 08840 USA

· **Information department:** product safety department
· **Emergency telephone number:**
Emergency Phone Number (24 hours)
CHEMTREC (800-424-9300)
Outside US: 703-527-3887

2 Hazard(s) identification

· **Classification of the substance or mixture**

GHS02 Flame

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

GHS08 Health hazard

Carc. 1B H350 May cause cancer.

GHS07

Acute Tox. 4 H312 Harmful in contact with skin.
Acute Tox. 4 H332 Harmful if inhaled.
Eye Irrit. 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 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.
H312+H332 Harmful in contact with skin or if inhaled.
H319 Causes serious eye irritation.
H350 May cause cancer.
· **Precautionary statements**
Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
Use explosion-proof electrical/ventilating/lighting/equipment.
If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
Store locked up.
Dispose of contents/container in accordance with local/regional/national/international regulations.

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· **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.

3 Composition/information on ingredients

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

· **Dangerous components:**		
75-05-8	acetonitrile	99.2%
50-32-8	benzo[a]pyrene	0.05%
53-70-3	dibenz[a,h]anthracene	0.05%

· **Chemical identification of the substance/preparation**		
86-73-7	fluorene	0.05%
193-39-5	indeno[1,2,3-cd]pyrene	0.05%
83-32-9	acenaphthene	0.05%
208-96-8	acenaphthylene	0.05%
120-12-7	anthracene	0.05%
191-24-2	Benzo(g,h,i)perylene	0.05%
207-08-9	benzo[k]fluoranthene	0.05%
205-99-2	benz[e]acephenanthrylene	0.05%
56-55-3	benz[a]anthracene	0.05%
91-20-3	naphthalene	0.05%
218-01-9	chrysene	0.05%
85-01-8	phenanthrene, pure	0.05%
129-00-0	pyrene	0.05%
206-44-0	fluoranthene	0.05%

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. If required, provide artificial respiration. Keep patient warm. Consult doctor if symptoms persist.
In case of unconsciousness place patient stably in side position for transportation.
· **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:** Do not give anything to eat or drink - Do not induce vomitting
· **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.

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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.
· **Special hazards arising from the substance or mixture** No further relevant information available.
· **Advice for firefighters**
· **Protective equipment:** Mouth respiratory protective device.

6 Accidental release measures

· **Personal precautions, protective equipment and emergency procedures** Wear protective equipment. Keep unprotected persons away.
· **Environmental precautions:**
Dilute with plenty of water.
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 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:**		
75-05-8	acetonitrile	13 ppm
86-73-7	fluorene	6.6 mg/m³
193-39-5	indeno[1,2,3-cd]pyrene	1.2 mg/m³
83-32-9	acenaphthene	3.6 mg/m³
208-96-8	acenaphthylene	10 mg/m³
120-12-7	anthracene	48 mg/m³
191-24-2	Benzo(g,h,i)perylene	30 mg/m³
50-32-8	benzo[a]pyrene	0.6 mg/m³
205-99-2	benz[e]acephenanthrylene	0.12 mg/m³
56-55-3	benz[a]anthracene	0.6 mg/m³
91-20-3	naphthalene	15 ppm
218-01-9	chrysene	0.6 mg/m³
85-01-8	phenanthrene, pure	5.4 mg/m³
129-00-0	pyrene	0.15 mg/m³
53-70-3	dibenz[a,h]anthracene	0.093 mg/m³
206-44-0	fluoranthene	8.2 mg/m³

· **PAC-2:**		
75-05-8	acetonitrile	50 ppm
86-73-7	fluorene	72 mg/m³
193-39-5	indeno[1,2,3-cd]pyrene	13 mg/m³
83-32-9	acenaphthene	40 mg/m³
208-96-8	acenaphthylene	110 mg/m³
120-12-7	anthracene	530 mg/m³
191-24-2	Benzo(g,h,i)perylene	330 mg/m³
50-32-8	benzo[a]pyrene	120 mg/m³
205-99-2	benz[e]acephenanthrylene	1.3 mg/m³
56-55-3	benz[a]anthracene	120 mg/m³
91-20-3	naphthalene	83 ppm
218-01-9	chrysene	12 mg/m³
85-01-8	phenanthrene, pure	59 mg/m³
129-00-0	pyrene	1.7 mg/m³
53-70-3	dibenz[a,h]anthracene	1 mg/m³
206-44-0	fluoranthene	90 mg/m³

· **PAC-3:**		
75-05-8	acetonitrile	150 ppm

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86-73-7	fluorene	430 mg/m³
193-39-5	indeno[1,2,3-cd]pyrene	79 mg/m³
83-32-9	acenaphthene	240 mg/m³
208-96-8	acenaphthylene	660 mg/m³
120-12-7	anthracene	3,200 mg/m³
191-24-2	Benzo(g,h,i)perylene	2,000 mg/m³
50-32-8	benzo[a]pyrene	700 mg/m³
205-99-2	benz[e]acephenanthrylene	7.9 mg/m³
56-55-3	benz[a]anthracene	700 mg/m³
91-20-3	naphthalene	500 ppm
218-01-9	chrysene	69 mg/m³
85-01-8	phenanthrene, pure	360 mg/m³
129-00-0	pyrene	110 mg/m³
53-70-3	dibenz[a,h]anthracene	2.9 mg/m³
206-44-0	fluoranthene	400 mg/m³

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.

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 remaining constituent has no known exposure limits.

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

· **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)

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· **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.
· **Respiratory protection:**
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.
· **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

9 Physical and chemical properties

· **Information on basic physical and chemical properties**	
· **General Information**	
· **Appearance:**	
Form:	Liquid
Color:	According to product specification
· **Odor:**	Characteristic
· **Odour Threshold:**	Not applicable.
· **pH-value:**	Not applicable.
· **Change in condition**	
Melting point/Melting range:	Undetermined.
Boiling point/Boiling range:	81 °C (177.8 °F)
· **Flash point:**	< 23 °C (<73.4 °F)
· **Flammability (solid, gaseous):**	Not applicable.
· **Ignition temperature:**	525 °C (977 °F)
· **Decomposition temperature:**	Not applicable.
· **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:	4.4 Vol %
Upper:	16 Vol %
· **Vapor pressure at 20 °C (68 °F):**	97 hPa (72.8 mm Hg)
· **Density**	Not applicable.
· **Relative density**	Not applicable.
· **Vapor density**	Not applicable.

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· **Evaporation rate**	Not applicable.
· **Solubility in / Miscibility with**	
Water:	Fully miscible.
· **Partition coefficient (n-octanol/water):**	Not applicable.
· **Viscosity:**	
Dynamic:	Not applicable.
Kinematic:	Not applicable.
· **Solvent content:**	
VOC content:	0.00 %
Solids content:	0.7 %
· **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**
· **Acute toxicity:**

· **LD/LC50 values that are relevant for classification:**		
75-05-8 acetonitrile		
Oral	LD50	2,730 mg/kg (rat)
Dermal	LD50	1,250 mg/kg (rabbit)

· **Primary 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 (International Agency for Research on Cancer)**		
86-73-7	fluorene	3
193-39-5	indeno[1,2,3-cd]pyrene	2B
83-32-9	acenaphthene	3
120-12-7	anthracene	3
191-24-2	Benzo(g,h,i)perylene	3
207-08-9	benzo[k]fluoranthene	2B
50-32-8	benzo[a]pyrene	1
205-99-2	benz[e]acephenanthrylene	2B
56-55-3	benz[a]anthracene	2B
91-20-3	naphthalene	2B
218-01-9	chrysene	2B
85-01-8	phenanthrene, pure	3
129-00-0	pyrene	3
53-70-3	dibenz[a,h]anthracene	2A
206-44-0	fluoranthene	3

· **NTP (National Toxicology Program)**		
86-73-7	fluorene	R
193-39-5	indeno[1,2,3-cd]pyrene	R

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120-12-7	anthracene	R
207-08-9	benzo[k]fluoranthene	R
50-32-8	benzo[a]pyrene	R
205-99-2	benz[e]acephenanthrylene	R
56-55-3	benz[a]anthracene	R
91-20-3	naphthalene	R
218-01-9	chrysene	R
85-01-8	phenanthrene, pure	R
129-00-0	pyrene	R
53-70-3	dibenz[a,h]anthracene	R
206-44-0	fluoranthene	R

· **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 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.

· **Uncleaned packagings:**
· **Recommendation:** Disposal must be made according to official regulations.
· **Recommended cleansing agent:** Water, if necessary with cleansing agents.

14 Transport information

· **UN-Number**	
· **DOT, ADR, IMDG, IATA**	UN1648
· **UN proper shipping name**	
· **DOT**	Acetonitrile
· **ADR**	1648 ACETONITRILE, ENVIRONMENTALLY HAZARDOUS
· **IMDG**	ACETONITRILE, MARINE POLLUTANT
· **IATA**	ACETONITRILE

· **Transport hazard class(es)**

· **DOT, IATA**

· **Class** 3 Flammable liquids

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· **Label**	3
· **ADR, IMDG**	
· **Class**	3 Flammable liquids
· **Label**	3
· **Packing group**	
· **DOT, ADR, IMDG, IATA**	II
· **Environmental hazards:**	Product contains environmentally hazardous substances: benzo[a]pyrene
· **Marine pollutant:**	Symbol (fish and tree)
· **Special marking (ADR):**	Symbol (fish and tree)
· **Special precautions for user**	Warning: Flammable liquids
· **Danger code (Kemler):**	33
· **EMS Number:**	F-E,S-D
· **Stowage Category**	B
· **Stowage Code**	SW2 Clear of living quarters.
· **Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code**	Not applicable.
· **Transport/Additional information:**	
· **ADR**	
· **Excepted quantities (EQ)**	Code: E2 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 500 ml
· **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 1648 ACETONITRILE, 3, II, ENVIRONMENTALLY HAZARDOUS

15 Regulatory information

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

· **Section 313 (Specific toxic chemical listings):**	
75-05-8	acetonitrile
193-39-5	indeno[1,2,3-cd]pyrene
120-12-7	anthracene
191-24-2	Benzo(g,h,i)perylene
207-08-9	benzo[k]fluoranthene
50-32-8	benzo[a]pyrene
205-99-2	benz[e]acephenanthrylene
56-55-3	benz[a]anthracene
91-20-3	naphthalene
218-01-9	chrysene
85-01-8	phenanthrene, pure
53-70-3	dibenz[a,h]anthracene
206-44-0	fluoranthene

· **TSCA (Toxic Substances Control Act):**	
75-05-8	acetonitrile
86-73-7	fluorene
193-39-5	indeno[1,2,3-cd]pyrene
83-32-9	acenaphthene
208-96-8	acenaphthylene

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120-12-7	anthracene
50-32-8	benzo[a]pyrene
56-55-3	benz[a]anthracene
91-20-3	naphthalene
218-01-9	chrysene
85-01-8	phenanthrene, pure
129-00-0	pyrene
53-70-3	dibenz[a,h]anthracene
206-44-0	fluoranthene

· **TSCA new (21st Century Act): (Substances not listed)**

53-70-3	dibenz[a,h]anthracene

· **Proposition 65**

· **Chemicals known to cause cancer:**

193-39-5	indeno[1,2,3-cd]pyrene
207-08-9	benzo[k]fluoranthene
50-32-8	benzo[a]pyrene
205-99-2	benz[e]acephenanthrylene
56-55-3	benz[a]anthracene
91-20-3	naphthalene
218-01-9	chrysene
53-70-3	dibenz[a,h]anthracene

· **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)**

75-05-8	acetonitrile	CBD, D
86-73-7	fluorene	D
193-39-5	indeno[1,2,3-cd]pyrene	B2
83-32-9	acenaphthene	A (oral)
208-96-8	acenaphthylene	D
120-12-7	anthracene	D
191-24-2	Benzo(g,h,i)perylene	D
207-08-9	benzo[k]fluoranthene	B2
50-32-8	benzo[a]pyrene	CaH
205-99-2	benz[e]acephenanthrylene	B2
56-55-3	benz[a]anthracene	B2
91-20-3	naphthalene	C, CBD
218-01-9	chrysene	B2
85-01-8	phenanthrene, pure	D
129-00-0	pyrene	D
53-70-3	dibenz[a,h]anthracene	B2
206-44-0	fluoranthene	D

· **TLV (Threshold Limit Value established by ACGIH)**

75-05-8	acetonitrile	A4
50-32-8	benzo[a]pyrene	A2
205-99-2	benz[e]acephenanthrylene	A2
56-55-3	benz[a]anthracene	A2
91-20-3	naphthalene	A4
218-01-9	chrysene	A3

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

50-32-8	benzo[a]pyrene

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218-01-9	chrysene

· **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:**
acetonitrile
benzo[a]pyrene
dibenz[a,h]anthracene
· **Hazard statements**
H225 Highly flammable liquid and vapor.
H312+H332 Harmful in contact with skin or if inhaled.
H319 Causes serious eye irritation.
H350 May cause cancer.
· **Precautionary statements**
Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
Use explosion-proof electrical/ventilating/lighting/equipment.
If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
Store locked up.
Dispose of contents/container in accordance with local/regional/national/international regulations.

· **National regulations:**

· **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

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:** product safety department
· **Contact:**
SPEX CertiPrep, LLC.
1-732-549-7144
· **Date of preparation / last revision** 03/18/2019 / -
· **Abbreviations and acronyms:**
ADR: Accord européen sur le transport 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
ACGIH: American Conference of Governmental Industrial Hygienists
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
Flam. Liq. 2: Flammable liquids – Category 2
Acute Tox. 4: Acute toxicity – Category 4
Eye Irrit. 2A: Serious eye damage/eye irritation – Category 2A
Carc. 1B: Carcinogenicity – Category 1B