1 Identification

- Product identifier
- Product Name: PAH Analyte Mix
- Part Number: CLPS-B
- 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.
  - GHS06 Skull and crossbones
    Acute Tox. 2 H310 Fatal in contact with skin.
  - GHS08 Health hazard
    Muta. 1B H340 May cause genetic defects.
    Carc. 1A H350 May cause cancer.
    Repr. 1B H360 May damage fertility or the unborn child.
    STOT RE 1 H372 Causes damage to organs through prolonged or repeated exposure.
    Asp. Tox. 1 H304 May be fatal if swallowed and enters airways.
  - GHS07
    Skin Irrit. 2 H315 Causes skin irritation.
    Eye Irrit. 2A H319 Causes serious eye irritation.
    Skin Sens. 1 H317 May cause an allergic skin reaction.

- Label elements
  - GHS label elements The product is classified and labeled according to the Globally Harmonized System (GHS).
  - Hazard pictograms
    GHS02 GHS06 GHS07 GHS08

- Signal word Danger
- Hazard-determining components of labeling:
  benzene
  acenaphthylene
  benzo[a]pyrene
  dichloromethane
- Hazard statements
  Highly flammable liquid and vapor.

(Contd. on page 2)
Product Name: PAH Analyte Mix

(Contd. of page 1)

Fatal in contact with skin.
Causes skin irritation.
Causes serious eye irritation.
May cause an allergic skin reaction.
May cause genetic defects.
May cause cancer.
May damage fertility or the unborn child.
Causes damage to organs through prolonged or repeated exposure.
May be fatal if swallowed and enters airways.

Precautionary statements
Keep away from heat/sparks/open flames/hot surfaces. No smoking.
IF SWALLOWED: Immediately call a POISON CENTER/doctor.
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.

Classification system:
- NFPA ratings (scale 0 - 4)
  Health = 3
  Fire = 3
  Reactivity = 0

- HMIS-ratings (scale 0 - 4)
  Health = *3
  Fire = 3
  Reactivity = 0

Other hazards

Results of PBT and vPvB assessment
- PBT:
  120-12-7 anthracene, pure
- vPvB: Not applicable.

3 Composition/information on ingredients

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

- Dangerous components:
  - 75-09-2 dichloromethane 48.4%
  - 71-43-2 benzene 48.4%
  - 206-44-0 fluoranthene 0.2%
  - 193-39-5 indeno[1,2,3-cd]pyrene 0.2%
  - 208-96-8 acenaphthylene 0.2%
  - 120-12-7 anthracene, pure 0.2%
  - 191-24-2 Benz[ghi]perylene 0.2%
  - 207-08-9 benz[k]fluoranthene 0.2%
  - 56-55-3 Benzo[a]anthracene 0.2%
  - 205-99-2 benz[ghi]acephenanthrylene 0.2%
  - 50-32-8 benz[a]pyrene 0.2%
  - 91-20-3 naphthalene 0.2%
  - 218-01-9 chrysene 0.2%
  - 58-70-3 dibenz[a,h]anthracene 0.2%

- Chemical identification of the substance/preparation
  - 86-73-7 fluorene 0.2%
  - 83-32-9 acenaphthene 0.2%
  - 85-01-8 phenanthrene, pure 0.2%
  - 129-00-0 pyrene 0.2%

(Contd. on page 3)
4 First-aid measures

- Description of first aid measures
  - General information: 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 wash with water and soap and rinse thoroughly.
- 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, sand, extinguishing powder. Do not use water.
- 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: Mouth respiratory protective device.

6 Accidental release measures

- Personal precautions, protective equipment and emergency procedures: Wear protective equipment. Keep unprotected persons away.
- Environmental precautions:
  - Do not allow product to reach sewage system or any water course.
  - Inform respective authorities in case of seepage into water course or sewage system.
  - Do not allow to enter sewer/ 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.
  - Do not flush with water or aqueous cleansing agents
- 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.

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

**Ingredients with limit values that require monitoring at the workplace:**

<table>
<thead>
<tr>
<th>Component</th>
<th>PEL Short-term value:</th>
<th>Long-term value:</th>
<th>REL Long-term value:</th>
<th>TLV Long-term value:</th>
</tr>
</thead>
<tbody>
<tr>
<td>75-09-2 dichloromethane</td>
<td>125 ppm</td>
<td>25 ppm</td>
<td></td>
<td>174 mg/m³, 50 ppm</td>
</tr>
<tr>
<td>71-43-2 benzene</td>
<td>15 ppm</td>
<td>5 ppm</td>
<td></td>
<td>174 mg/m³, 50 ppm</td>
</tr>
<tr>
<td>56-55-3 benz[a]anthracene</td>
<td></td>
<td>0.2 mg/m³</td>
<td></td>
<td></td>
</tr>
<tr>
<td>205-99-2 benz[e]acephenanthrylene</td>
<td></td>
<td>0.2 mg/m³</td>
<td></td>
<td></td>
</tr>
<tr>
<td>218-01-9 chrysene</td>
<td></td>
<td>0.2 mg/m³</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Ingredients with biological limit values:**

<table>
<thead>
<tr>
<th>Component</th>
<th>BEI</th>
<th>Medium</th>
<th>Time</th>
<th>Parameter</th>
</tr>
</thead>
<tbody>
<tr>
<td>75-09-2 dichloromethane</td>
<td>0.3 mg/L</td>
<td>urine</td>
<td>end of shift</td>
<td>Dichloromethane (semi-quantitative)</td>
</tr>
<tr>
<td>71-43-2 benzene</td>
<td>25 µg/g creatinine</td>
<td>urine</td>
<td>end of shift</td>
<td>5-Phenylmercapturic acid (background)</td>
</tr>
<tr>
<td>56-55-3 benz[a]anthracene</td>
<td></td>
<td>urine</td>
<td>end of shift</td>
<td>1-Hydroxypyrene with hydrolysis (nonquantitative)</td>
</tr>
<tr>
<td>205-99-2 benz[e]acephenanthrylene</td>
<td></td>
<td>urine</td>
<td>end of shift</td>
<td>1-Hydroxypyrene with hydrolysis (nonquantitative)</td>
</tr>
</tbody>
</table>
**Product Name: PAH Analyte Mix**

### 50-32-8 benzo[a]pyrene

**BEI:**
- **Medium:** urine
- **Time:** end of shift at end of workweek
- **Parameter:** 1-Hydroxypyrene with hydrolysis (nonquantitative)

### 218-01-9 chrysene

**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 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.

#### Protection of hands:
- **Protective 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 cannot be calculated in advance and has therefore to be checked prior to the application.
  - **Penetration time of glove material**
    - The exact breakthrough time has to be found out by the manufacturer of the protective gloves and has to be observed.

**Physical and chemical properties**

#### Information on basic physical and chemical properties
- **General Information**
  - **Appearance:** 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:** 40 °C (104 °F)

#### Flammability (solid, gaseous): Not applicable.

#### Ignition temperature:
- **555 °C (1031 °F)**

#### Decomposition temperature:
- Not applicable.
Product Name: PAH Analyte Mix

· Auto igniting: Product is not self-igniting.

· Explosion limits:
  Lower: 1.2 Vol %
  Upper: 22.0 Vol %

· Vapor pressure at 20 °C (68 °F): 453 hPa (340 mm Hg)

· Density Not applicable.
· Relative density Not applicable.
· Vapour density Not applicable.
· Evaporation rate Not applicable.

· Solubility in / Miscibility with Water: Not miscible or difficult to mix.

· Partition coefficient (n-octanol/water): Not applicable.

· Viscosity:
  Dynamic: Not applicable.
  Kinematic: Not applicable.

· Solvent content:
  Organic solvents: 96.8 %
  VOC content: 48.4 %
  Solids content: 3.0 %

· 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:

  75-09-2 dichloromethane
  Oral LD50 1600 mg/kg (rat)
  Inhalative LC50/4 h 88 mg/l (rat)

  71-43-2 benzene
  Oral LD50 4894 mg/kg (rat)
  Dermal LD50 48 mg/kg (mouse)
  Inhalative LC50/4 h 9980 mg/l (mouse)

  91-20-3 naphthalene
  Oral LD50 490 mg/kg (rat)
  Dermal LD50 5000 mg/kg (rat)

· Primary irritant effect:
  · on the skin: Irritant to skin and mucous membranes.
  · 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.
  The product can cause inheritable damage.
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.
  - Ecotoxic effects:
    - Remark: Very toxic for fish
- 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.
    Also poisonous for fish and plankton in water bodies.
    Very toxic for aquatic organisms
- Results of PBT and vPvB assessment
  - PBT:
    120-12-7 anthracene, pure
  - 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.
## 14 Transport Information

- **UN-Number**
  - DOT, ADR, IMDG, IATA
  - UN1992

- **UN proper shipping name**
  - DOT
  - ADR
  - IMDG
  - IATA

- **DOT**
  - **Class**: 3 Flammable liquids
  - **Label**: 3, 6.1

- **ADRR**
  - **Class**: 3 Flammable liquids
  - **Label**: 3+6.1

- **IMDG**
  - **Class**: 3 Flammable liquids
  - **Label**: 3/6.1

- **IATA**
  - **Class**: 3 Flammable liquids
  - **Label**: 3 (6.1)

- **Packing group**
  - DOT, ADR, IMDG, IATA
  - II

- **Environmental hazards:**
  - Product contains environmentally hazardous substances: fluoranthene, benz[a]anthracene
  - Symbol (fish and tree)

- **Marine pollutant:**
  - Symbol (fish and tree)

- **Special marking (ADR):**
  - Warning: Flammable liquids
  - 336

- **EMS Number:**
  - F-E-S-D

- **Segregation groups:**
  - Liquid halogenated hydrocarbons

- **Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code**
  - Not applicable.
41.2.4 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)
  - 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 1992 FLAMMABLE LIQUIDS, TOXIC. N.O.S. (BENZENE, DICHLOROMETHANE), 3 (6.1), II, (D/E), ENVIRONMENTALLY HAZARDOUS

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

- Section 313 (Specific toxic chemical listings):
  - 75-09-2 dichloromethane
  - 71-43-2 benzene
  - 206-44-0 fluoranthene
  - 193-39-5 indeno[1,2,3-cd]pyrene
  - 120-12-7 anthracene, pure
  - 191-24-2 Benz[a]anthracene
  - 207-08-9 benzo[k]fluoranthene
  - 56-55-3 benz[a]anthracene
  - 205-99-2 benz[e]acephenanthrylene
  - 50-32-8 benzo[a]pyrene
  - 91-20-3 naphthalene
  - 218-01-9 chrysene
  - 85-01-8 phenanthrene, pure
  - 53-70-3 dibenz[a,h]anthracene

- TSCA (Toxic Substances Control Act):
  - 75-09-2 dichloromethane
  - 71-43-2 benzene
  - 86-73-7 fluorene
  - 206-44-0 fluoranthene
  - 193-39-5 indeno[1,2,3-cd]pyrene
  - 83-32-9 acenaphthene
  - 208-96-8 acenaphthylene
  - 120-12-7 anthracene, pure
  - 56-55-3 benz[a]anthracene
  - 50-32-8 benzo[a]pyrene
  - 91-20-3 naphthalene
  - 218-01-9 chrysene
  - 85-01-8 phenanthrene, pure
  - 129-00-0 pyrene
  - 53-70-3 dibenz[a,h]anthracene

- Proposition 65
  - Chemicals known to cause cancer:
    - 75-09-2 dichloromethane
    - 71-43-2 benzene
    - 193-39-5 indeno[1,2,3-cd]pyrene
Product Name: PAH Analyte Mix

(Contd. of page 9)

- Chemicals known to cause reproductive toxicity for females:
  None of the ingredients is listed.

- Chemicals known to cause reproductive toxicity for males:
  71-43-2 benzene

- Chemicals known to cause developmental toxicity:
  71-43-2 benzene

- Carcinogenic categories

  - EPA (Environmental Protection Agency)
    70-59-2 dichloromethane L
    71-43-2 benzene A, K/L
    86-73-7 fluorene D
    206-44-0 fluoranthene D
    193-39-7 indeno[1,2,3-cd]pyrene B2
    83-32-9 acenaphthene A (oral)
    208-96-8 acenaphthylene D
    120-12-7 anthracene, pure D
    191-24-2 Benzo(g,h,i)perylene D
    207-08-9 benzo[k]fluoranthene B2
    56-55-3 benzo[a]anthracene B2
    205-99-2 benzo[e]acephenanthrylene B2
    50-32-8 benzo[a]pyrene B2
    91-20-3 naphthalene C, CBD
    218-01-9 chrysene B2

  - TLV (Threshold Limit Value established by ACGIH)
    70-59-2 dichloromethane A3
    71-43-2 benzene A1
    56-55-3 benzo[a]anthracene A2
    205-99-2 benzo[e]acephenanthrylene A2
    50-32-8 benzo[a]pyrene A2
    91-20-3 naphthalene A4
    218-01-9 chrysene A3

  - NIOSH-Ca (National Institute for Occupational Safety and Health)
    70-59-2 dichloromethane
    71-43-2 benzene
    50-32-8 benzo[a]pyrene
    218-01-9 chrysene

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

- Hazard pictograms
  GHS02  GHS06  GHS07  GHS08

- Signal word Danger

- Hazard-determining components of labeling:
  benzene
  acenaphthylene
  benzo[a]pyrene
  dichloromethane

(Contd. on page 11)
Product Name: PAH Analyte Mix

- **Hazard statements**
  - Highly flammable liquid and vapor.
  - Fatal in contact with skin.
  - Causes skin irritation.
  - Causes serious eye irritation.
  - May cause an allergic skin reaction.
  - May cause genetic defects.
  - May cause cancer.
  - May damage fertility or the unborn child.
  - Causes damage to organs through prolonged or repeated exposure.
  - May be fatal if swallowed and enters airways.

- **Precautionary statements**
  - Keep away from heat/sparks/open flames/hot surfaces. No smoking.
  - IF SWALLOWED: Immediately call a POISON CENTER/doctor.
  - 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** 10/29/2015
- **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)
  - NPPA: National Poison Protection Association (USA)
  - HMDI: Hazardous Materials Identification System (USA)
  - VOC: Volatile Organic Compounds (USA, EU)
  - LCLD: Lethal concentration, 50 percent
  - LD50: Lethal dose, 50 percent
  - PBT: Persistent, Bioaccumulative and Toxic
  - vPvB: very Persistent and very Bioaccumulative
  - Flam. Liq. 2: Flammable liquids, Hazard Category 2
  - Acute Tox. 2: Acute toxicity, Hazard Category 2
  - Skin Irrit 2: Skin corrosion/irritation, Hazard Category 2
  - Eye Irrit. 2A: Serious eye damage/eye irritation, Hazard Category 2A
  - Skin Sens. 1: Sensitisation - Skin, Hazard Category 1
  - Mut. 1B: Gene cell mutagenicity, Hazard Category 1B
  - Carc. 1A: Carcinogenicity, Hazard Category 1A
  - Repro. 1B: Reproductive toxicity, Hazard Category 1B
  - STOT RE 1: Specific target organ toxicity - Repeated exposure, Hazard Category 1
  - Asp. Tox. 1: Aspiration hazard, Hazard Category 1