SECTION 1: Identification of the substance/mixture and of the company/undertaking

- English additional compounds
- Product Name: 4,4’-Methylenedianiline
- Part Number: S-2486
- Application of the substance / the mixture matériau de référence certifié
- Details of the supplier of the safety data sheet
  Manufacturer/Supplier: SPEX CertiPrep, LLC.
  203 Norcross Ave, Metuchen, NJ 08840 USA
  Further information obtainable from: product safety department
  Emergency telephone number:
  Emergency Phone Number (24 hours)
  CHEMTREC (800-424-9300)
  Outside US: 703-527-3887

SECTION 2: Hazards identification

- Classification of the substance or mixture
- Classification according to Regulation (EC) No 1272/2008

GHS02 Flame
Flam. Liq. 2 H225 Highly flammable liquid and vapour.

GHS06 skull and crossbones
Acute Tox. 3 H331 Toxic if inhaled.

GHS08 health hazard
Carc. 1B H350 May cause cancer.
STOT SE 1 H370 Causes damage to organs.

- Labelling according to Regulation (EC) No 1272/2008 The product is classified and labelled according to the CLP regulation.

- Hazard pictograms

GHS02 GHS06 GHS08

- Signal word Danger
- Hazard-determining components of labelling:
  methanol
  4,4’-diaminodiphenylmethane
- Hazard statements
  Highly flammable liquid and vapour.
  Toxic if inhaled.
  May cause cancer.
  Causes damage to organs.

- Precautionary statements
  If medical advice is needed, have product container or label at hand.
  Keep out of reach of children.
  Read label before use.
  Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
  Use explosion-proof electrical/ventilating/lighting/equipment.
  Do not breathe dust/fume/gas/mist/vapours/spray.
  IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
  Store locked up.

(Contd. on page 2)
SECTION 3: Composition/information on ingredients

- 3.2 Chemical characterisation: Mixtures
- Description: Mixture of substances listed below with nonhazardous additions.

- Dangerous components:
  - CAS: 67-56-1
  - EINECS: 200-659-6
  - Index number: 603-001-00-X
  - methanol
    - Flam. Liq. 2, H225; Acute Tox. 3, H301; Acute Tox. 3, H331; STOT SE 1, H370
    - 99.9%
  - CAS: 101-77-9
  - EINECS: 202-974-4
  - Index number: 612-051-00-1
  - 4,4'-diaminodiphenylmethane
    - Mutat. 2, H341; Carc. 1B, H350; STOT SE 1, H370; STOT RE 2, H373;
      Aquatic Chronic 2, H411; Skin Sens. 1, H317
    - 0.1%
  - SVHC
    - 101-77-9 4,4'-diaminodiphenylmethane

- Additional information: For the wording of the listed risk phrases refer to section 16.

SECTION 4: First aid measures

- 4.1 Description of first aid measures
- General information:
  - Immediately remove any clothing soiled by the product.
  - Remove breathing equipment only after contaminated clothing have been completely removed.
  - In case of irregular breathing or respiratory arrest provide artificial respiration.
  - After inhalation:
    - Supply fresh air or oxygen; call for doctor.
    - 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:
    - Do not induce vomiting; call for medical help immediately.

- 4.2 Most important symptoms and effects, both acute and delayed
  No further relevant information available.

- 4.3 Indication of any immediate medical attention and special treatment needed
  No further relevant information available.

SECTION 5: Firefighting measures

- 5.1 Extinguishing media
  - Suitable extinguishing agents: CO2, powder or water spray. Fight larger fires with water spray or alcohol resistant foam.

- 5.2 Special hazards arising from the substance or mixture
  No further relevant information available.

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

SECTION 6: Accidental release measures

- 6.1 Personal precautions, protective equipment and emergency procedures
  Wear protective equipment. Keep unprotected persons away.

- 6.2 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.
  - Dilute with plenty of water.
  - Do not allow to enter sewers/ surface or ground water.

- 6.3 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.

- 6.4 Reference to other sections
  See Section 7 for information on safe handling.
  See Section 8 for information on personal protection equipment.
**SECTION 7: Handling and storage**

- **7.1 Precautions for safe handling**
  - Ensure good ventilation/exhaustion at the workplace.
  - Open and handle receptacle with care.
  - Prevent formation of aerosols.
- **Information about fire - and explosion protection:**
  - Keep ignition sources away - Do not smoke.
  - Protect against electrostatic charges.
  - Keep respirator protective device available.
- **7.2 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 container tightly sealed.
      - Store in cool, dry conditions in well sealed receptacles.
- **7.3 Specific end use(s)**: No further relevant information available.

**SECTION 8: Exposure controls/personal protection**

- **Additional information about design of technical facilities:** No further data; see item 7.
- **8.1 Control parameters**
  - **Ingredients with limit values that require monitoring at the workplace:**
    - 67-56-1 methanol
      - IOELV Long-term value: 260 mg/m³, 200 ppm
      - Skin
        - Additional information: The lists valid during the making were used as basis.
- **8.2 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.
    - Respiratory protection:
      - In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use self-contained respiratory protective device.
    - 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.
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- Eye protection:
  Tightly sealed goggles

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SECTION 9: Physical and chemical properties

- 9.1 Information on basic physical and chemical properties
- General Information
  - Appearance: Liquid
    - Colour: According to product specification
    - Odour: Characteristic
    - Odour threshold: Not applicable.
  - pH-value: Not determined.
  - Change in condition
    - Melting point/Melting range: Undetermined.
    - Boiling point/Boiling range: 64 °C
  - Flash point: 11 °C
  - Flammability (solid, gaseous): Not applicable.
  - Ignition temperature: 455 °C
  - Decomposition temperature: Not applicable.
  - Self-igniting: Product is not self-igniting.
  - Danger of explosion: Product is not explosive. However, formation of explosive air/vapour mixtures are possible.
  - Explosion limits:
    - Lower: 5.5 Vol %
    - Upper: 44.0 Vol %
  - Vapour pressure at 20 °C: 128 hPa
  - Density at 20 °C: 0.79021 g/cm³
  - Relative density: Not applicable.
  - Vapour density: Not applicable.
  - 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:
    - Organic solvents: 99.9 %
    - VOC (EC): 99.90 %
  - Solids content: 0.1 %

- 9.2 Other information
  - No further relevant information available.

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SECTION 10: Stability and reactivity

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

(Contd. on page 5)
SECTION 11: Toxicological information

- 11.1 Information on toxicological effects
  - Acute toxicity
    Toxic if inhaled.
  - LD/LC50 values relevant for classification:
    - 67-56-1 methanol
      Oral LD50 5628 mg/kg (rat)
      Dermal LD50 15800 mg/kg (rabbit)
    - 101-77-9 4,4'-diaminodiphenylmethane
      Oral LD50 662 mg/kg (rat)
  - Primary irritant effect:
    - Skin corrosion/irritation
      Based on available data, the classification criteria are not met.
    - Serious eye damage/irritation
      Based on available data, the classification criteria are not met.
    - Respiratory or skin sensitisation
      Based on available data, the classification criteria are not met.
  - CMR effects (carcinogenity, mutagenicity and toxicity for reproduction)
    - Germ cell mutagenicity
      Based on available data, the classification criteria are not met.
    - Carcinogenicity
      May cause cancer.
    - Reproductive toxicity
      Based on available data, the classification criteria are not met.
    - STOT-single exposure
      Causes damage to organs.
    - STOT-repeated exposure
      Based on available data, the classification criteria are not met.
  - Aspiration hazard
    Based on available data, the classification criteria are not met.

SECTION 12: Ecological information

- 12.1 Toxicity
  - Aquatic toxicity: No further relevant information available.
- 12.2 Persistence and degradability
  - No further relevant information available.
- 12.3 Bioaccumulative potential
  - No further relevant information available.
- 12.4 Mobility in soil
  - No further relevant information available.
- Additional ecological information:
  - General notes:
    Water hazard class 3 (German Regulation) (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.
  - 12.5 Results of PBT and vPvB assessment
    - PBT: Not applicable.
    - vPvB: Not applicable.
  - 12.6 Other adverse effects
    No further relevant information available.

SECTION 13: Disposal considerations

- 13.1 Waste treatment methods
  - Recommendation
    Must not be disposed together with household garbage. Do not allow product to reach sewage system.
  - Uncleaned packaging:
    - Recommendation
      Disposal must be made according to official regulations.
    - Recommended cleansing agents: Water, if necessary together with cleansing agents.

SECTION 14: Transport information

- 14.1 UN-Number
  - ADR, IMDG, IATA
    UN1230
- 14.2 UN proper shipping name
  - ADR
    1230 METHANOL
  - IMDG, IATA
    METHANOL

(Contd. on page 6)
Product Name: 4,4'-Methylenedianiline

- 14.3 Transport hazard class(es)
  - ADR
  - IMDG
  - IATA

- 14.4 Packing group
  - ADR, IMDG, IATA: II

- 14.5 Environmental hazards:
  Not applicable.

- 14.6 Special precautions for user
  - Warning: Flammable liquids.
  - EMS Number: F-E,S-D

- 14.7 Transport in bulk according to Annex II of Marpol and the IBC Code
  Not applicable.

- Transport/Additional information:
  - Limited quantities (LQ) ADR: 1L
    Code: E2
    Maximum net quantity per inner packaging: 30 ml
    Maximum net quantity per outer packaging: 500 ml
  - Transport category II
  - Tunnel restriction code D/E

- IMDG
  - Limited quantities (LQ): 1L
    Code: E2
    Maximum net quantity per inner packaging: 30 ml
    Maximum net quantity per outer packaging: 500 ml

- UN "Model Regulation":
  UN 1230 METHANOL, 3 (6.1), II, (D/E)

SECTION 15: Regulatory information

- 15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture
  - Directive 2012/18/EU
  - Named dangerous substances - ANNEX I: None of the ingredients is listed.

- 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.
41.2.4  Other regulations, limitations and prohibitive regulations

- Substances of very high concern (SVHC) according to REACH, Article 57

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

SECTION 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.

- Relevant phrases
  H225 Highly flammable liquid and vapour.
  H301 Toxic if swallowed.
  H311 Toxic in contact with skin.
  H317 May cause an allergic skin reaction.
  H331 Toxic if inhaled.
  H341 Suspected of causing genetic defects.
  H350 May cause cancer.
  H370 Causes damage to organs.
  H373 May cause damage to organs through prolonged or repeated exposure.
  H411 Toxic to aquatic life with long lasting effects.

- Department issuing SDS: product safety department

- Contact:
  SPEX CertiPrep, LLC.
  1-732-549-7144

- 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
  IATA: International Air Transport Association
  GHS: Globally Harmonised System of Classification and Labelling of Chemicals
  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)
  VOC: Volatile Organic Compounds (USA, EU)
  LC50: Lethal concentration, 50 percent
  LD50: Lethal dose, 50 percent
  PBT: Persistent, Bioaccumulative and Toxic
  SVHC: Substances of Very High Concern
  vPvB: very Persistent and very Bioaccumulative
  Flam. Liq. 2: Flammable liquids, Hazard Category 2
  Acute Tox. 3: Acute toxicity, Hazard Category 3
  Skin Sens. 1: Sensitisation - Skin, Hazard Category 1
  Mut. 2: Germ cell mutagenicity, Hazard Category 2
  Carc. 1B: Carcinogenicity, Hazard Category 1B
  STOT SE 1: Specific target organ toxicity - Single exposure, Hazard Category 1
  STOT RE 2: Specific target organ toxicity - Repeated exposure, Hazard Category 2
  Aquatic Chronic 2: Hazardous to the aquatic environment - Chronic Hazard, Category 2