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

· Product identifier
· Trade name: Levoglucosan
· Part number: N-4688, N-4688-10MG
· CAS Number: 498-07-7
· EC number: 207-855-0
· Relevant identified uses of the substance or mixture and uses advised against
  Reagents and Standards for Analytical Chemical Laboratory Use
· Details of the supplier of the safety data sheet
· Manufacturer/Supplier:
  Agilent Technologies Manufacturing GmbH & Co. KG
  Hewlett-Packard-Str.8
  76337 Waldbronn
  Germany
· Further information obtainable from:
  Telephone: 0800 603 1000
  pdl-msds_author@agilent.com
· Emergency telephone number: CHEMTREC®: +(44)-870-8200418

2 Hazards identification

· Classification of the substance or mixture
· Classification according to Regulation (EC) No 1272/2008
  The substance is not classified, according to the CLP regulation.
· Label elements
· Labelling according to Regulation (EC) No 1272/2008 Void
· Hazard pictograms Void
· Signal word Void
· Hazard statements Void
· Other hazards
· Results of PBT and vPvB assessment
  · PBT: Not applicable.
  · vPvB: Not applicable.

3 Composition/information on ingredients

· Chemical characterisation: Substances
· CAS No. Description
  498-07-7 1,6-anhydro-ß-D-glucose
· Identification number(s)
  · EC number: 207-855-0

4 First aid measures

· Description of first aid measures
· General information: No special measures required.
· After inhalation: Supply fresh air; consult doctor in case of complaints.

(Contd. on page 2)
Trade name: Levoglucosan

48.1.26

· After skin contact: Generally the product does not irritate the skin.
· After eye contact: Rinse opened eye for several minutes under running water.
· 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 Firefighting measures

· Extinguishing media
· Suitable extinguishing agents: Use fire extinguishing methods suitable to surrounding conditions.
· 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: Not required.
· Environmental precautions: Do not allow to enter sewers/ surface or ground water.
· Methods and material for containment and cleaning up: Pick up mechanically.
· 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: No special measures required.
· Information about fire - and explosion protection: No special measures required.
· Conditions for safe storage, including any incompatibilities
· Storage:
   · Requirements to be met by storerooms and receptacles: No special requirements.
   · Information about storage in one common storage facility: Not required.
   · Further information about storage conditions: None.
· Specific end use(s) No further relevant information available.

8 Exposure controls/personal protection

· Additional information about design of technical facilities: No further data; see item 7.
· Control parameters
· Ingredients with limit values that require monitoring at the workplace: Not required.
· Additional information: The lists valid during the making were used as basis.
Trade name: Levoglucosan

- **Exposure controls**
- **Personal protective equipment:**
- **General protective and hygienic measures:**
The usual precautionary measures are to be adhered to when handling chemicals.
- **Respiratory protection:**
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 11-13mil thickness are recommended for normal use. The breakthrough time is 1hr. For cleaning a spill where there is direct contact of the chemical, butyl rubber gloves are recommended 12-15mil 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
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.
- **Penetration time of glove material**
For normal use: nitrile rubber: 1 hour
For direct contact with the chemical: butyl rubber: > 4 hours
- **Eye protection:** Not required.

### 9 Physical and chemical properties
- **Information on basic physical and chemical properties**
- **General Information**
- **Appearance:**
  - Form: Solid
  - Colour: Not determined.
- **Odour:** Characteristic
- **Odour threshold:** Not determined.
- **pH-value:** Not applicable.
- **Change in condition**
  - Melting point/freezing point: 174-177 °C
  - Initial boiling point and boiling range: Undetermined.
- **Flash point:** Not applicable.
- **Flammability (solid, gas):** Product is not flammable.
- **Decomposition temperature:** Not determined.
- **Auto-ignition temperature:** Not determined.
- **Explosive properties:** Product does not present an explosion hazard.
- **Explosion limits:**
  - Lower: Not determined.
Safety data sheet
according to 1907/2006/EC, Article 31

Trade name: Levoglucosan

Upper:
- Vapour pressure: Not applicable.
- Density: Not determined.
- Relative density: Not determined.
- Vapour density: Not applicable.
- Evaporation rate: Not applicable.
- Solubility in / Miscibility with water: Insoluble.
- Partition coefficient: n-octanol/water: Not determined.
- Viscosity:
  - Dynamic: Not applicable.
  - Kinematic: Not applicable.
- Solvent content: VOC (EC) 0.00 %
- Solids content: 100.0 %
- 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: Based on available data, the classification criteria are not met.
  - 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 (carcinogenicity, mutagenicity and toxicity for reproduction):
  - Germ cell mutagenicity: Based on available data, the classification criteria are not met.
  - Carcinogenicity: Based on available data, the classification criteria are not met.
  - Reproductive toxicity: Based on available data, the classification criteria are not met.
  - STOT-single exposure: Based on available data, the classification criteria are not met.
  - 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.
12 Ecological information

- Toxicity
- Aquatic toxicity: No further relevant information available.
- Persistence and degradability No further relevant information available.
- Behaviour 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 (German Regulation) (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 Smaller quantities can be disposed of with household waste.
- Uncleaned packaging:
  - Recommendation: Disposal must be made according to official regulations.

14 Transport information

- UN-Number
  - ADR, ADN, IMDG, IATA not regulated
- UN proper shipping name
  - ADR, ADN, IMDG, IATA not regulated
- Transport hazard class(es)
  - ADR, ADN, IMDG, IATA Class not regulated
- Packing group
  - ADR, IMDG, IATA not regulated
- Environmental hazards:
  - Not applicable.
- Special precautions for user
  - Not applicable.
- Transport in bulk according to Annex II of Marpol and the IBC Code
  - Not applicable.
- UN "Model Regulation": not regulated
Trade name: Levoglucosan

15 Regulatory information

- Safety, health and environmental regulations/legislation specific for the substance or mixture
- Directive 2012/18/EU
- Named dangerous substances - ANNEX I Substance is not listed.
- 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.

- 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
  CAS: Chemical Abstracts Service (division of the American Chemical Society)
  VOC: Volatile Organic Compounds (USA, EU)
  PBT: Persistent, Bioaccumulative and Toxic
  vPvB: very Persistent and very Bioaccumulative