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

1.1 Product identifier

Identification of the substance: Sulphuric acid
Article number: 4623
Registration number (REACH): 01-2119458838-20-xxxx
Index No: 016-020-00-8
EC number: 231-639-5
CAS number: 7664-93-9

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses: laboratory chemical

1.3 Details of the supplier of the safety data sheet

Carl Roth GmbH + Co KG
Schoemperlenstr. 3-5
D-76185 Karlsruhe
Germany

Telephone: +49 (0) 721 - 56 06 0
Telefax: +49 (0) 721 - 56 06 149
e-mail: sicherheit@carlroth.de
Website: www.carlroth.de

Competent person responsible for the safety data sheet: Department Health, Safety and Environment
e-mail (competent person): sicherheit@carlroth.de

1.4 Emergency telephone number

Emergency information service: Poison Centre Munich: +49/(0)89 19240

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008 (CLP)

<table>
<thead>
<tr>
<th>Classification acc. to GHS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Section</td>
</tr>
<tr>
<td>---------</td>
</tr>
<tr>
<td>2.16</td>
</tr>
<tr>
<td>3.2</td>
</tr>
<tr>
<td>3.3</td>
</tr>
<tr>
<td>4.1A</td>
</tr>
<tr>
<td>4.1C</td>
</tr>
</tbody>
</table>
For full text of Hazard- and EU Hazard-statements: see SECTION 16.

### 2.2 Label elements

**Labelling according to Regulation (EC) No 1272/2008 (CLP)**

#### Signal word

**Danger**

#### Pictograms

Danger.

#### Hazard statements

- **H290**: May be corrosive to metals.
- **H314**: Causes severe skin burns and eye damage.
- **H412**: Harmful to aquatic life with long lasting effects.

#### Precautionary statements

**Precautionary statements - prevention**

- **P260**: Do not breathe dust/fume/gas/mist/vapours/spray.
- **P280**: Wear protective gloves/protective clothing/eye protection/face protection.

**Precautionary statements - response**

- **P303+P361+P353**: IF ON SKIN (or hair): take off immediately all contaminated clothing. Rinse skin with water/shower.
- **P305+P351+P338**: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- **P390**: Absorb spillage to prevent material damage.

**Precautionary statements - disposal**

**P501**: Dispose of contents/container to industrial combustion plant.

**Labeling of packages where the contents do not exceed 125 ml**

**Signal word**: Danger

#### Signal word

**Danger**

#### Symbol(s)

![Danger symbol]

- **H314**: Causes severe skin burns and eye damage.
- **H412**: Harmful to aquatic life with long lasting effects.
- **P303+P361+P353**: IF ON SKIN (or hair): take off immediately all contaminated clothing. Rinse skin with water/shower.
- **P305+P351+P338**: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

### 2.3 Other hazards

There is no additional information.
Take off immediately all contaminated clothing. Self-protection of the first aider.

Provide fresh air. In all cases of doubt, or when symptoms persist, seek medical advice.

After contact with skin, wash immediately with plenty of water. Immediate medical treatment required because corrosive injuries that are not treated are hard to cure.

In case of contact with eyes flush immediately with plenty of flowing water for 10 to 15 minutes holding eyelids apart and consult an ophthalmologist. Protect uninjured eye.

Rinse mouth immediately and drink plenty of water. Call a physician immediately. If swallowed danger of perforation of the esophagus and the stomach (strong corrosive effects).

Treat symptomatically.

SECTION 3: Composition/information on ingredients

3.1 Substances

<table>
<thead>
<tr>
<th>Name of substance</th>
<th>Sulphuric acid</th>
</tr>
</thead>
<tbody>
<tr>
<td>Index No</td>
<td>016-020-00-8</td>
</tr>
<tr>
<td>Registration number (REACH)</td>
<td>01-2119458838-20-xxxx</td>
</tr>
<tr>
<td>EC number</td>
<td>231-639-5</td>
</tr>
<tr>
<td>CAS number</td>
<td>7664-93-9</td>
</tr>
<tr>
<td>Molecular formula</td>
<td>H₂SO₄</td>
</tr>
<tr>
<td>Molar mass</td>
<td>98.07 g/mol</td>
</tr>
</tbody>
</table>

SECTION 4: First aid measures

4.1 Description of first aid measures

General notes
Take off immediately all contaminated clothing. Self-protection of the first aider.

Following inhalation
Provide fresh air. In all cases of doubt, or when symptoms persist, seek medical advice.

Following skin contact
After contact with skin, wash immediately with plenty of water. Immediate medical treatment required because corrosive injuries that are not treated are hard to cure.

Following eye contact
In case of contact with eyes flush immediately with plenty of flowing water for 10 to 15 minutes holding eyelids apart and consult an ophthalmologist. Protect uninjured eye.

Following ingestion
Rinse mouth immediately and drink plenty of water. Call a physician immediately. If swallowed danger of perforation of the esophagus and the stomach (strong corrosive effects).

4.2 Most important symptoms and effects, both acute and delayed
Corrosion, Gastrointestinal complaints, Cough, Risk of blindness, Gastric perforation, Risk of serious damage to eyes, Vomiting, Dyspnoea

4.3 Indication of any immediate medical attention and special treatment needed
Treat symptomatically.
SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media
Co-ordinate fire-fighting measures to the fire surroundings
water spray, foam, dry extinguishing powder, carbon dioxide (CO2)

Unsuitable extinguishing media
water jet

5.2 Special hazards arising from the substance or mixture

Non-combustible.

Hazardous combustion products
In case of fire may be liberated: sulphur oxides (SOx)

5.3 Advice for firefighters

Do not allow firefighting water to enter drains or water courses. Fight fire with normal precautions from a reasonable distance. Wear self-contained breathing apparatus. Wear full chemical protective clothing.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

For non-emergency personnel
Special danger of slipping by leaking/spilling product. Wearing of suitable protective equipment (including personal protective equipment referred to under Section 8 of the safety data sheet) to prevent any contamination of skin, eyes and personal clothing. Avoid contact with skin, eyes and clothes. Do not breathe vapour/spray.

6.2 Environmental precautions
Keep away from drains, surface and ground water. Retain contaminated washing water and dispose it. The product is an acid. Before discharge into sewage plants the product normally needs to be neutralised.

6.3 Methods and material for containment and cleaning up

Advices on how to contain a spill
Covering of drains.

Advices on how to clean up a spill
Absorb with liquid-binding material (e.g. sand, diatomaceous earth, acid- or universal binding agents).

Other information relating to spills and releases
Place in appropriate containers for disposal.

Reference to other sections
When diluting/dissolving, always have the water ready first, then slowly stir in the product. Handle and open container with care.

**Advice on general occupational hygiene**
Wash hands before breaks and after work. Keep away from food, drink and animal feedingstuffs.

### Incompatible substances or mixtures
Observe hints for combined storage.

### Consideration of other advice
- **Ventilation requirements**
  Use local and general ventilation.
- **Specific designs for storage rooms or vessels**
  Recommended storage temperature: 15 - 25 °C.

### Specific end use(s)
No information available.

### SECTION 8: Exposure controls/personal protection

#### 8.1 Control parameters

**National limit values**

**Occupational exposure limit values (Workplace Exposure Limits)**

<table>
<thead>
<tr>
<th>Country</th>
<th>Name of agent</th>
<th>CAS No</th>
<th>Notation</th>
<th>Identifier</th>
<th>TWA [mg/m³]</th>
<th>STEL [mg/m³]</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>JP</td>
<td>sulphuric acid</td>
<td>7664-93-9</td>
<td></td>
<td>OEL</td>
<td></td>
<td></td>
<td>JSOH</td>
</tr>
</tbody>
</table>

**Notation**
- **STEL** Short-term exposure limit: a limit value above which exposure should not occur and which is related to a 15-minute period unless otherwise specified
- **TWA** Time-weighted average (long-term exposure limit): measured or calculated in relation to a reference period of 8 hours time-weighted average

**Relevant DNELs/DMELs/PNECs and other threshold levels**

- **human health values**

<table>
<thead>
<tr>
<th>Endpoint</th>
<th>Threshold level</th>
<th>Protection goal, route of exposure</th>
<th>Used in</th>
<th>Exposure time</th>
</tr>
</thead>
<tbody>
<tr>
<td>DNEL</td>
<td>0,1 mg/m³</td>
<td>human, inhalatory</td>
<td>worker (industry)</td>
<td>acute - local effects</td>
</tr>
<tr>
<td>DNEL</td>
<td>0,05 mg/m³</td>
<td>human, inhalatory</td>
<td>worker (industry)</td>
<td>chronic - local effects</td>
</tr>
</tbody>
</table>

- **environmental values**
8.2 Exposure controls

Individual protection measures (personal protective equipment)

Eye/face protection
Use safety goggle with side protection. Wear face protection.

Skin protection

• hand protection
Wear suitable gloves. Chemical protection gloves are suitable, which are tested according to EN 374. Check leak-tightness/impermeability prior to use. For special purposes, it is recommended to check the resistance to chemicals of the protective gloves mentioned above together with the supplier of these gloves.

• type of material
FKM: fluoro-elastomer

• material thickness
0.7mm.

• breakthrough times of the glove material
>480 minutes (permeation: level 6)

• other protection measures
Take recovery periods for skin regeneration. Preventive skin protection (barrier creams/ointments) is recommended.

Respiratory protection
Respiratory protection necessary at: Aerosol or mist formation. P2 (filters at least 94 % of airborne particles, colour code: White). Observe the wear time limits according GefStoffV in combination with the rules for using respiratory protection apparatus (BGR 190).

Environmental exposure controls
Keep away from drains, surface and ground water.

<table>
<thead>
<tr>
<th>Endpoint</th>
<th>Threshold level</th>
<th>Environmental compartment</th>
<th>Exposure time</th>
</tr>
</thead>
<tbody>
<tr>
<td>PNEC</td>
<td>0.0025 mg/l</td>
<td>freshwater</td>
<td>short-term (single instance)</td>
</tr>
<tr>
<td>PNEC</td>
<td>0.00025 mg/l</td>
<td>marine water</td>
<td>short-term (single instance)</td>
</tr>
<tr>
<td>PNEC</td>
<td>8.8 mg/l</td>
<td>sewage treatment plant (STP)</td>
<td>short-term (single instance)</td>
</tr>
<tr>
<td>PNEC</td>
<td>0.002 mg/kg</td>
<td>freshwater sediment</td>
<td>short-term (single instance)</td>
</tr>
<tr>
<td>PNEC</td>
<td>0.002 mg/kg</td>
<td>marine sediment</td>
<td>short-term (single instance)</td>
</tr>
</tbody>
</table>

PNEC: Point of No Effect Concentration

Endpoint | Threshold level | Environmental compartment | Exposure time |
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>PNEC</td>
<td>0.0025 mg/l</td>
<td>freshwater</td>
<td>short-term (single instance)</td>
</tr>
<tr>
<td>PNEC</td>
<td>0.00025 mg/l</td>
<td>marine water</td>
<td>short-term (single instance)</td>
</tr>
<tr>
<td>PNEC</td>
<td>8.8 mg/l</td>
<td>sewage treatment plant (STP)</td>
<td>short-term (single instance)</td>
</tr>
<tr>
<td>PNEC</td>
<td>0.002 mg/kg</td>
<td>freshwater sediment</td>
<td>short-term (single instance)</td>
</tr>
<tr>
<td>PNEC</td>
<td>0.002 mg/kg</td>
<td>marine sediment</td>
<td>short-term (single instance)</td>
</tr>
</tbody>
</table>
### SECTION 9: Physical and chemical properties

#### 9.1 Information on basic physical and chemical properties

**Appearance**

- **Physical state**: liquid (fluid)
- **Colour**: colourless
- **Odour**: odourless
- **Odour threshold**: No data available

**Other physical and chemical parameters**

- **pH (value)**: \(<1\) (20 °C)
- **Melting point/freezing point**: \(-15 °C\)
- **Initial boiling point and boiling range**: 295 - 315 °C
- **Flash point**: not determined
- **Evaporation rate**: no data available
- **Flammability (solid, gas)**: not relevant (fluid)

**Explosive limits**

- **lower explosion limit (LEL)**: this information is not available
- **upper explosion limit (UEL)**: this information is not available

**Explosion limits of dust clouds**: not relevant

- **Vapour pressure**: \(<0.01\) hPa at 20 °C
- **Density**: 1.84 \(g/cm^3\) at 20 °C
- **Vapour density**: This information is not available.
- **Bulk density**: Not applicable
- **Relative density**: Information on this property is not available.

**Solubility(ies)**

- **Water solubility**: soluble, miscible in any proportion

**Partition coefficient**

- **n-octanol/water (log KOW)**: This information is not available.

**Auto-ignition temperature**: Information on this property is not available.

**Decomposition temperature**: 338 °C

**Viscosity**

- **dynamic viscosity**: 26.9 mPa s at 20 °C

**Explosive properties**: none

**Oxidising properties**: none
9.2 Other information
There is no additional information.

SECTION 10: Stability and reactivity

10.1 Reactivity
substance or mixture corrosive to metals, strong oxidisers

10.2 Chemical stability
The material is stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.

10.3 Possibility of hazardous reactions
Violent reaction with: Alkali metals, Carbide, Alkaline earth metal, Peroxides, Phosphorus oxides (e.g. P2O5), Perchlorates, Ammonia (NH3), Metals, Organic substances

10.4 Conditions to avoid
Decompostion takes place from temperatures above: 338 °C.

10.5 Incompatible materials
different metals

10.6 Hazardous decomposition products
Hazardous combustion products: see section 5.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity

<table>
<thead>
<tr>
<th>Exposure route</th>
<th>Endpoint</th>
<th>Value</th>
<th>Species</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>oral</td>
<td>LD50</td>
<td>2.140 mg/kg</td>
<td>rat</td>
<td>ECHA</td>
</tr>
</tbody>
</table>

Skin corrosion/irritation
Causes severe burns.

Serious eye damage/eye irritation
Causes serious eye damage.

Respiratory or skin sensitisation
Shall not be classified as a respiratory or skin sensitiser.

Summary of evaluation of the CMR properties
Shall not be classified as germ cell mutagenic, carcinogenic nor as a reproductive toxicant

- Specific target organ toxicity - single exposure
Shall not be classified as a specific target organ toxicant (single exposure).

- Specific target organ toxicity - repeated exposure
Shall not be classified as a specific target organ toxicant (repeated exposure).

Aspiration hazard
Shall not be classified as presenting an aspiration hazard.
Symptoms related to the physical, chemical and toxicological characteristics

- **If swallowed**
  - vomiting, If swallowed danger of perforation of the esophagus and the stomach (strong corrosive effects), Spasms
- **If in eyes**
  - causes burns, Causes serious eye damage, risk of blindness
- **If inhaled**
  - corrosive to the respiratory tract
- **If on skin**
  - causes severe burns, causes poorly healing wounds

**Other information**

None.

### SECTION 12: Ecological information

12.1 **Toxicity**

Harmful to aquatic life. Harmful to aquatic life with long lasting effects.

**Aquatic toxicity (acute)**

Harmful to aquatic organisms.

<table>
<thead>
<tr>
<th>Endpoint</th>
<th>Value</th>
<th>Species</th>
<th>Source</th>
<th>Exposure time</th>
</tr>
</thead>
<tbody>
<tr>
<td>EC50</td>
<td>&gt;100 mg/l</td>
<td>aquatic invertebrates</td>
<td>ECHA</td>
<td>48 h</td>
</tr>
</tbody>
</table>

**Aquatic toxicity (chronic)**

May cause long-term adverse effects in the aquatic environment.

<table>
<thead>
<tr>
<th>Endpoint</th>
<th>Value</th>
<th>Species</th>
<th>Source</th>
<th>Exposure time</th>
</tr>
</thead>
<tbody>
<tr>
<td>NOEC</td>
<td>0.025 mg/l</td>
<td>fish</td>
<td>ECHA</td>
<td>65 d</td>
</tr>
</tbody>
</table>

12.2 **Process of degradability**

The methods for determining the biological degradability are not applicable to inorganic substances.

12.3 **Bioaccumulative potential**

Data are not available.

12.4 **Mobility in soil**

Data are not available.

12.5 **Results of PBT and vPvB assessment**

Data are not available.

12.6 **Other adverse effects**

Slightly hazardous to water.
This material and its container must be disposed of as hazardous waste. Dispose of contents/container in accordance with local/regional/national/international regulations.

Do not empty into drains. Avoid release to the environment. Refer to special instructions/safety data sheets.

It is a dangerous waste; only packagings which are approved (e.g. acc. to ADR) may be used.

The allocation of waste identity numbers/waste descriptions must be carried out according to the EEC, specific to the industry and process.

Waste shall be separated into the categories that can be handled separately by the local or national waste management facilities. Please consider the relevant national or regional provisions.

SECTION 14: Transport information

14.1 UN number 1830

14.2 UN proper shipping name SULPHURIC ACID

Hazardous ingredients Sulphuric acid

14.3 Transport hazard class(es)

Class 8 (corrosive substances)

14.4 Packing group II (substance presenting medium danger)

14.5 Environmental hazards none (non-environmentally hazardous acc. to the dangerous goods regulations)

14.6 Special precautions for user

Provisions for dangerous goods (ADR) should be complied within the premises.

14.7 Transport in bulk according to Annex II of MARPOL and the IBC Code

The cargo is not intended to be carried in bulk.

14.8 Information for each of the UN Model Regulations

- Transport of dangerous goods by road, rail and inland waterway (ADR/RID/ADN)

UN number 1830

Proper shipping name SULPHURIC ACID

Particulars in the transport document UN1830, SULPHURIC ACID, 8, II, (E)

Class 8

Classification code C1

Packing group II

Danger label(s) 8
SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

Relevant provisions of the European Union (EU)

- Regulation 649/2012/EU concerning the export and import of hazardous chemicals (PIC)
  Not listed.
- Regulation 1005/2009/EC on substances that deplete the ozone layer (ODS)
  Not listed.
Not listed.

For this substance a chemical safety assessment has been carried out.

• Regulation 850/2004/EC on persistent organic pollutants (POP)
  Not listed.
• Restrictions according to REACH, Annex XVII
  not listed
• List of substances subject to authorisation (REACH, Annex XIV)
  not listed

Directive 2011/65/EU on the restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS) - Annex II
  not listed

Regulation 166/2006/EC concerning the establishment of a European Pollutant Release and Transfer Register (PRTR)
  not listed

Directive 2000/60/EC establishing a framework for Community action in the field of water policy (WFD)
  not listed

National inventories
Substance is listed in the following national inventories:
  - EINECS/ELINCS/NLP (Europe)
  - REACH (Europe)

15.2 Chemical Safety Assessment
For this substance a chemical safety assessment has been carried out.

SECTION 16: Other information

Abbreviations and acronyms

<table>
<thead>
<tr>
<th>Abbr.</th>
<th>Descriptions of used abbreviations</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADN</td>
<td>Accord européen relatif au transport international des marchandises dangereuses par voies de navigation intérieures (European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways)</td>
</tr>
<tr>
<td>ADR</td>
<td>Accord européen relatif au transport international des marchandises dangereuses par route (European Agreement concerning the International Carriage of Dangerous Goods by Road)</td>
</tr>
<tr>
<td>CAS</td>
<td>Chemical Abstracts Service (service that maintains the most comprehensive list of chemical substances)</td>
</tr>
<tr>
<td>CLP</td>
<td>Regulation (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures</td>
</tr>
<tr>
<td>CMR</td>
<td>Carcinogenic, Mutagenic or toxic for Reproduction</td>
</tr>
<tr>
<td>DMEL</td>
<td>Derived Minimal Effect Level</td>
</tr>
<tr>
<td>DNEL</td>
<td>Derived No-Effect Level</td>
</tr>
<tr>
<td>EINECS</td>
<td>European Inventory of Existing Commercial Chemical Substances</td>
</tr>
<tr>
<td>ELINCS</td>
<td>European List of Notified Chemical Substances</td>
</tr>
<tr>
<td>EmS</td>
<td>Emergency Schedule</td>
</tr>
<tr>
<td>GHS</td>
<td>“Globally Harmonized System of Classification and Labelling of Chemicals” developed by the United Nations</td>
</tr>
<tr>
<td>IMDG</td>
<td>International Maritime Dangerous Goods Code</td>
</tr>
<tr>
<td>index No</td>
<td>the Index number is the identification code given to the substance in Part 3 of Annex VI to Regulation (EC) No 1272/2008</td>
</tr>
<tr>
<td>JSOH</td>
<td>Japan Society of Occupational Health &quot;Journal of Occupational Health&quot;: Recommendation of Occupational Exposure Limits</td>
</tr>
</tbody>
</table>
The above information describes exclusively the safety requirements of the product and is based on our present-day knowledge. The information is intended to give you advice about the safe handling of the product named in this safety data sheet, for storage, processing, transport and disposal. The information cannot be transferred to other products. In the case of mixing the product with other products or in the case of processing, the information on this safety data sheet is not necessarily valid for the new made-up material.

<table>
<thead>
<tr>
<th>Abbr.</th>
<th>Descriptions of used abbreviations</th>
</tr>
</thead>
<tbody>
<tr>
<td>MARPOL</td>
<td>International Convention for the Prevention of Pollution from Ships (abbr. of &quot;Marine Pollutant)</td>
</tr>
<tr>
<td>NLP</td>
<td>No-Longer Polymer</td>
</tr>
<tr>
<td>OEL</td>
<td>workplace exposure limit</td>
</tr>
<tr>
<td>PBT</td>
<td>Persistent, Bioaccumulative and Toxic</td>
</tr>
<tr>
<td>PNEC</td>
<td>Predicted No-Effect Concentration</td>
</tr>
<tr>
<td>REACH</td>
<td>Registration, Evaluation, Authorisation and Restriction of Chemicals</td>
</tr>
<tr>
<td>RID</td>
<td>Règlement concernant le transport International ferroviaire des marchandises Dangereuses (Regulations concerning the International carriage of Dangerous goods by Rail)</td>
</tr>
<tr>
<td>STEL</td>
<td>short-term exposure limit</td>
</tr>
<tr>
<td>TWA</td>
<td>time-weighted average</td>
</tr>
<tr>
<td>vPvB</td>
<td>very Persistent and very Bioaccumulative</td>
</tr>
</tbody>
</table>

**Key literature references and sources for data**
- Regulation (EC) No. 1272/2008 (CLP, EU GHS)

**List of relevant phrases (code and full text as stated in chapter 2 and 3)**

<table>
<thead>
<tr>
<th>Code</th>
<th>Text</th>
</tr>
</thead>
<tbody>
<tr>
<td>H290</td>
<td>may be corrosive to metals</td>
</tr>
<tr>
<td>H314</td>
<td>causes severe skin burns and eye damage</td>
</tr>
<tr>
<td>H318</td>
<td>causes serious eye damage</td>
</tr>
<tr>
<td>H402</td>
<td>harmful to aquatic life</td>
</tr>
<tr>
<td>H412</td>
<td>harmful to aquatic life with long lasting effects</td>
</tr>
</tbody>
</table>

**Disclaimer**

The above information describes exclusively the safety requirements of the product and is based on our present-day knowledge. The information is intended to give you advice about the safe handling of the product named in this safety data sheet, for storage, processing, transport and disposal. The information cannot be transferred to other products. In the case of mixing the product with other products or in the case of processing, the information on this safety data sheet is not necessarily valid for the new made-up material.