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

1.1. Product identifier
Tiutol KF

1.2. Relevant identified uses of the substance or mixture and uses advised against
Use of the substance/mixture
Disinfectant for haemodialysis monitors

1.3. Details of the supplier of the safety data sheet
Manufacturer
Company name: B. Braun Medical AG
Street: Seesatz 17
Place: CH-6204 Sempach
Responsible Department: Telephone: +41 (0) 58 50 00
E-Mail: info.bbmch@bbraun.com
Responsible for the safety data sheet: sds@gbk-ingelheim.de

Supplier
Company name: B. Braun Avitum AG
Street: Schwarzenberger Weg 73 - 79
Place: D-34212 Melsungen
Responsible Department: Zentrale Service / Logistik und Supply Chain
Telephone: +49 (0) 5661 71-4422
E-Mail: logistics.service@bbraun.com

1.4. Emergency telephone number:
INTERNATIONAL: +49 - (0) 6132 - 84463, GBK GmbH (24h - 7d/w - 365d/a)
England and Wales: NHS Direct - 0845 4647; Scotland: NHS 24 - 08454 24 24 24

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture according to 1272/2008/EC
Hazard categories:
Skin corrosion/irritation: Skin Corr. 1B
Serious eye damage/eye irritation: Eye Dam. 1
Hazard Statements:
Causes severe skin burns and eye damage.

2.2. Label elements
Hazardous components which must be listed on the label
Sodium hydroxide
Sodium hypochlorite
Signal word:
Danger

Pictograms:

Hazard statements
H314 Causes severe skin burns and eye damage.

Precautionary statements
P280 Wear protective gloves/protective clothing/eye protection/face protection.
P301+P330+P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
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.
P310 Immediately call a POISON CENTER/doctor.
P405 Store locked up.
Special labelling of certain mixtures
EUH031 Contact with acids liberates toxic gas.

Additional advice on labelling
Classification and labelling according to Regulation (EC) No 1272/2008 Annex I paragraph 3.2.3.4.2 (pH value).

2.3. Other hazards
Not known.

SECTION 3: Composition/information on ingredients

3.2. Mixtures
Chemical characterization
Alkaline concentrate

Hazardous components

<table>
<thead>
<tr>
<th>CAS No</th>
<th>Chemical name</th>
<th>Index No</th>
<th>REACH No</th>
<th>Classification according to Regulation (EC) No. 1272/2008 [CLP]</th>
</tr>
</thead>
<tbody>
<tr>
<td>1310-73-2</td>
<td>Sodium hydroxide</td>
<td>&lt; 5 %</td>
<td></td>
<td>Met. Corr. 1, Skin Corr. 1A; H290 H314</td>
</tr>
<tr>
<td>7681-52-9</td>
<td>Sodium hypochlorite 3,9% Cl active</td>
<td>&lt; 10 %</td>
<td></td>
<td>Skin Corr. 1B, Aquatic Acute 1 (M-Factor = 10); H314 H400 EUH031</td>
</tr>
</tbody>
</table>

Full text of H and EUH statements: see section 16.

SECTION 4: First aid measures

4.1. Description of first aid measures
General information
Remove contaminated soaked clothing immediately.
Dem behandelnden Arzt dieses Sicherheitsdatenblatt vorzeigen.
Call a physician immediately.

After inhalation
Move victim to fresh air.
Seek medical treatment immediately.

After contact with skin
Wash off immediately with soap and plenty of water.
If symptoms persist, call a physician.

After contact with eyes
Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes.
Seek medical treatment by eye specialist.

After ingestion
Do not induce vomiting.
Rinse out mouth and give plenty of water to drink.
Never give anything by mouth to an unconscious person.
Summon a doctor immediately.
Induce vomiting only upon the advice of a physician.

4.2. Most important symptoms and effects, both acute and delayed
Causes severe skin burns and eye damage.
Hazard of gastric perforation.

4.3. Indication of any immediate medical attention and special treatment needed
Treat symptoms.

SECTION 5: Firefighting measures
5.1. Extinguishing media

**Suitable extinguishing media**
Product does not burn, fire-extinguishing activities according to surrounding.

**Unsuitable extinguishing media**
Full water jet.

5.2. Special hazards arising from the substance or mixture
Fire may produce:
- Nitrogen oxides (NOx).
- Sulfur oxide.
- Chlorine (Cl2).

5.3. Advice for firefighters
Wear self-contained breathing apparatus and protective suit.

Additional information
Cool containers at risk with water spray jet.
Fire residues and contaminated firefighting water must be disposed of in accordance with the local regulations.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures
In case of vapour formation use respirator.
Ensure adequate ventilation.
Use personal protective clothing.
Contact with acids liberates toxic gas.

6.2. Environmental precautions
Clean contaminated surface thoroughly.
Do not discharge into the drains/surface waters/ground water.

6.3. Methods and material for containment and cleaning up
Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder).
Shovel into suitable container for disposal.

6.4. Reference to other sections
Observe protective instructions (see Sections 7 and 8).
Information for disposal see section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling
Advice on safe handling
Keep container tightly closed.
Handle and open container with care.
Use only in thoroughly ventilated areas.

Advice on protection against fire and explosion
No special protective measures against fire required.

7.2. Conditions for safe storage, including any incompatibilities
Requirements for storage rooms and vessels
Keep container tightly closed in a dry, cool and well-ventilated place.
Do not use aluminium or light metal containers for warehousing.

Advice on storage compatibility
Corroses base metals.
Do not store with acids.
Contact with acids liberates toxic gas.

Further information on storage conditions
Keep away from food, drink and animal feeding stuffs.

7.3. Specific end use(s)
Disinfectant for haemodialysis monitors

SECTION 8: Exposure controls/personal protection
8.1. Control parameters

Exposure limits (EH40)

<table>
<thead>
<tr>
<th>CAS No</th>
<th>Substance</th>
<th>ppm</th>
<th>mg/m³</th>
<th>fibres/ml</th>
<th>Category</th>
<th>Origin</th>
</tr>
</thead>
<tbody>
<tr>
<td>1310-73-2</td>
<td>Sodium hydroxide</td>
<td></td>
<td></td>
<td></td>
<td>TWA (8 h)</td>
<td>WEL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2</td>
<td>STEL (15 min)</td>
<td>WEL</td>
</tr>
</tbody>
</table>

8.2. Exposure controls

Appropriate engineering controls
Ensure adequate ventilation, especially in confined areas.

Protective and hygiene measures
Wash hands before breaks and immediately after handling the product.
When using do not eat, drink or smoke.
Treat subsequently with skin cream.
Avoid contact with skin, eyes and clothing.
Remove and wash contaminated clothes before re-use.

Eye/face protection
Tightly fitting goggles (EN 166).
Eye wash bottle with pure water (EN 15154).

Hand protection
Protective gloves resistant to chemicals made off natural-rubber latex, minimum coat thickness 0.6 mm, permeation resistance (wear duration) approx. 480 minutes, i.e. protective glove <Lapren 706> made by www.kcl.de.
This recommendation refers exclusively to the chemical compatibility and the lab test conforming to EN 374 carried out under lab conditions.
Requirements can vary as a function of the use. Therefore it is necessary to adhere additionally to the recommendations given by the manufacturer of protective gloves.

Skin protection
Boots.
Rubber apron (EN 467).

Respiratory protection
In case of insufficient ventilation wear suitable respiratory equipment (gas filter type B) (EN 14387).

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state: Liquid
Colour: Light yellow
Odour: Chlorine

pH-Value (at 20 °C): approx. 13.5 Concentrate

Changes in the physical state
Flash point: n.a.
Lower explosion limits: n.a.
Ignition temperature: n.a.
Density (at 20 °C): 1.24 g/cm³
Water solubility: Miscible
(at 20 °C)

9.2. Other information
No data available.

SECTION 10: Stability and reactivity

10.1. Reactivity
No decomposition if stored and applied as directed.
10.2. Chemical stability
Stable under normal conditions.

10.3. Possibility of hazardous reactions
May develop chlorine if mixed with acidic solutions. Reactions with metals, with evolution of hydrogen.

10.4. Conditions to avoid
Stable under normal conditions.

10.5. Incompatible materials
Metals.

10.6. Hazardous decomposition products
May develop chlorine if mixed with acidic solutions.
Nitrous oxides (NOx)
Sulphurous oxides (SOx)

SECTION 11: Toxicological information

11.1. Information on toxicological effects
Acute toxicity
Based on available data, the classification criteria are not met.
No toxicological data available.

Irritation and corrosivity
Causes severe skin burns and eye damage.

Sensitising effects
Based on available data, the classification criteria are not met.

STOT-single exposure
Based on available data, the classification criteria are not met.

Severe effects after repeated or prolonged exposure
Based on available data, the classification criteria are not met.

Carcinogenic/mutagenic/toxic effects for reproduction
Based on available data, the classification criteria are not met.

Aspiration hazard
Based on available data, the classification criteria are not met.

Additional information on tests
Classification in compliance with the assessment procedure specified in the EC guidelines 1999/45/EC.

Practical experience
Observations relevant to classification
Product causes burns to eyes, skin and mucous membranes.

Other observations
Classification in compliance with the assessment procedure specified in the Regulation (EC) no 1272/2008.

Further information
Hazard of gastric perforation.
Liquid product causes severe burns, irritation of digestive system and bad healing sores.
Inhalation of mist causes irritation of respiratory system.
Risk of strong eye injuries..

SECTION 12: Ecological information

12.1. Toxicity
Ecological data are not available.

12.2. Persistence and degradability
Biodegradable (OECD): > 80%.
Biologically degradable after neutralization.

12.3. Bioaccumulative potential
No data available.
12.4. Mobility in soil
No data available.

12.5. Results of PBT and vPvB assessment
No data available.

12.6. Other adverse effects
Low hazard to waters.
A pH-change becomes possible in water.

Further information
Do not flush into surface water or sanitary sewer system.

SECTION 13: Disposal considerations

13.1. Waste treatment methods
Advice on disposal
Where possible recycling is preferred to disposal.
Can be disposed of as a solid waste or burned in a suitable installation subject to local regulations.

Waste disposal number of contaminated packaging
070601 WASTES FROM ORGANIC CHEMICAL PROCESSES; wastes from the MFSU of fats, grease, soaps, detergents, disinfectants and cosmetics; aqueous washing liquids and mother liquors
Classified as hazardous waste.

Contaminated packaging
Empty containers should be taken for local recycling, recovery or waste disposal.
Contaminated packaging should be emptied as far as possible and after appropriate cleansing may be taken for reuse.
Contaminated packagings are to be treated like the product itself.

SECTION 14: Transport information

Land transport (ADR/RID)

14.1. UN number: UN 1824
14.2. UN proper shipping name: SODIUM HYDROXIDE SOLUTION
14.3. Transport hazard class(es): II
14.4. Packing group: II
Hazard label: 8

Classification code: C5
Limited quantity: 1 L / 30 kg
Excepted quantity: E2
Transport category: 2
Hazard No: 80
Tunnel restriction code: E

Inland waterways transport (ADN)

14.1. UN number: UN 1824
14.2. UN proper shipping name: SODIUM HYDROXIDE SOLUTION
14.3. Transport hazard class(es): II
14.4. Packing group: II
Hazard label: 8

Classification code: C5
Limited quantity: 1 L / 30 kg
### Marine transport (IMDG)

<table>
<thead>
<tr>
<th>14.1. UN number:</th>
<th>UN 1824</th>
</tr>
</thead>
<tbody>
<tr>
<td>14.2. UN proper shipping name:</td>
<td>SODIUM HYDROXIDE, SOLUTION</td>
</tr>
<tr>
<td>14.3. Transport hazard class(es):</td>
<td>II</td>
</tr>
<tr>
<td>14.4. Packing group:</td>
<td>8</td>
</tr>
<tr>
<td>Hazard label:</td>
<td>8</td>
</tr>
</tbody>
</table>

Marine pollutant: No
Limited quantity: 1 L / 30 kg
Excepted quantity: E2
EmS: F-A, S-B

### Air transport (ICAO)

<table>
<thead>
<tr>
<th>14.1. UN number:</th>
<th>UN 1824</th>
</tr>
</thead>
<tbody>
<tr>
<td>14.2. UN proper shipping name:</td>
<td>SODIUM HYDROXIDE, SOLUTION</td>
</tr>
<tr>
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<td>II</td>
</tr>
<tr>
<td>14.4. Packing group:</td>
<td>8</td>
</tr>
<tr>
<td>Hazard label:</td>
<td>8</td>
</tr>
</tbody>
</table>

Limited quantity Passenger: 0.5 L
Passenger LQ: Y840
Excepted quantity: E2
IATA-packing instructions - Passenger: 851
IATA-max. quantity - Passenger: 1 L
IATA-packing instructions - Cargo: 855
IATA-max. quantity - Cargo: 30 L

### 14.5. Environmental hazards

ENVIRONMENTALLY HAZARDOUS: no

### 14.6. Special precautions for user

Handle in accordance with good industrial hygiene and safety practice.

### 14.7. Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code

The transport takes place only in approved and appropriate packaging.

### SECTION 15: Regulatory information

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

**EU regulatory information**

2004/42/EC (VOC): 0%

**Additional information**

Regulation (EC) No 648/2004 (Regulation on detergents):
Polycarboxylates < 5%
Ingredients subject to the labelling obligation according to SCCP: -

**National regulatory information**

Employment restrictions: Observe employment restrictions for young people. Observe employment restrictions for child bearing mothers and nursing.
Water contaminating class (D): 1 - slightly water contaminating

### 15.2. Chemical safety assessment

For this substance a chemical safety assessment has not been carried out.
SECTION 16: Other information

Abbreviations and acronyms
ADR = Accord européen relatif au transport international des marchandises Dangereuses par Route
RID = Règlement concernant le transport international ferroviaire de marchandises dangereuses
ADN = Accord européen relatif au transport international des marchandises dangereuses par voie de navigation intérieure
IMDG = International Maritime Code for Dangerous Goods
IATA/ICAO = International Air Transport Association / International Civil Aviation Organization
MARPOL = International Convention for the Prevention of Pollution from Ships
IBC-Code = International Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk
GHS = Globally Harmonized System of Classification and Labelling of Chemicals
REACH = Registration, Evaluation, Authorization and Restriction of Chemicals
CAS = Chemical Abstract Service
EN = European norm
ISO = International Organization for Standardization
DIN = Deutsche Industrie Norm
PBT = Persistent Bioaccumulative and Toxic
vPvB = Very Persistent and very Bio-accumulative
LD = Lethal dose
LC = Lethal concentration
EC = Effect concentration
IC = Median immobilisation concentration or median inhibitory concentration

Relevant H and EUH statements (number and full text)
H290 May be corrosive to metals.
H314 Causes severe skin burns and eye damage.
H400 Very toxic to aquatic life.
EUH031 Contact with acids liberates toxic gas.

Further Information
Data of items 4 to 8, as well as 10 to 12, do partly not refer to the use and the regular employing of the product (in this sense consult information on use and on product), but to liberation of major amounts in case of accidents and irregularities.
The information describes exclusively the safety requirements for the product(s) and is based on the present level of our knowledge.
The delivery specifications are contained in the corresponding product sheet.
This data does not constitute a guarantee for the characteristics of the product(s) as defined by the legal warranty regulations.
(n.a. = not applicable; n.d. = not determined)

(The data for the hazardous ingredients were taken respectively from the last version of the sub-contractor's safety data sheet.)