



## Safety Data Sheet

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### SECTION 1: Identification

#### 1.1. Product identifier

3M Unitek Soldering Flux (700-202)

#### Product Identification Numbers

70-2020-8861-6

#### 1.2. Recommended use and restrictions on use

##### Recommended use

Orthodontic use, Orthodontic use

#### 1.3. Supplier's details

**MANUFACTURER:** 3M  
**DIVISION:** Oral Care Solutions Division  
**ADDRESS:** 3M Center, St. Paul, MN 55144-1000, USA  
**Telephone:** 1-888-3M HELPS (1-888-364-3577)

#### 1.4. Emergency telephone number

1-800-364-3577 or (651) 737-6501 (24 hours)

### SECTION 2: Hazard identification

This document has been prepared in accordance with the U.S. OSHA Hazard Communication Standard, which requires the inclusion of all known hazards of the product or ingredients regardless of the potential risk. The risks of the hazards communicated in this document may vary depending on the potential for exposure.

#### 2.1. Hazard classification

Acute Toxicity (oral): Category 4.  
Serious Eye Damage/Irritation: Category 1.  
Skin Corrosion/Irritation: Category 1B.  
Reproductive Toxicity: Category 1B.  
Specific Target Organ Toxicity (respiratory irritation): Category 3.  
Specific Target Organ Toxicity (repeated exposure): Category 1.

#### 2.2. Label elements

##### Signal word

Danger

**Symbols**

Corrosion | Exclamation mark | Health Hazard |

**Pictograms****Hazard Statements**

Harmful if swallowed.

Causes severe skin burns and eye damage.

May cause respiratory irritation.

May damage fertility or the unborn child.

Causes damage to organs through prolonged or repeated ingestion exposure:  
musculoskeletal system |**Precautionary Statements****Prevention:**

Obtain special instructions before use.

Do not handle until all safety precautions have been read and understood.

Do not breathe dust/fume/gas/mist/vapors/spray.

Use only in a well-ventilated area.

Wear protective gloves, protective clothing, and eye/face protection.

Do not eat, drink or smoke when using this product.

Wash thoroughly after handling.

**Response:**

IF INHALED: Remove person to fresh air and keep comfortable for breathing.

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.

Immediately call a POISON CENTER or doctor/physician.

Wash contaminated clothing before reuse.

IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.

**Storage:**

Store in a well-ventilated place. Keep container tightly closed.

**Disposal:**

Dispose of contents/container in accordance with applicable local/regional/national/international regulations.

**2.3. Hazards not otherwise classified**

May cause chemical gastrointestinal burns. May cause chemical respiratory tract burns.

**SECTION 3: Composition/information on ingredients**

| Ingredient            | C.A.S. No. | % by Wt                |
|-----------------------|------------|------------------------|
| POTASSIUM TETRABORATE | 1332-77-0  | 30 - 40 Trade Secret * |
| BORIC ACID            | 10043-35-3 | 20 - 30 Trade Secret * |
| POTASSIUM BIFLUORIDE  | 7789-29-9  | 20 - 30 Trade Secret * |

|                               |            |                        |
|-------------------------------|------------|------------------------|
| WATER                         | 7732-18-5  | 10 - 20 Trade Secret * |
| BORON POTASSIUM OXIDE (B5KO8) | 11128-29-3 | 1 - 5 Trade Secret *   |
| SODIUM LAURYL SULFATE         | 151-21-3   | < 0.5 Trade Secret *   |

\*The specific chemical identity and/or exact percentage (concentration) of this composition has been withheld as a trade secret.

## SECTION 4: First aid measures

### 4.1. Description of first aid measures

#### Inhalation:

Remove person to fresh air. Get immediate medical attention.

#### Skin Contact:

Immediately flush with large amounts of water for at least 15 minutes. Remove contaminated clothing. Get immediate medical attention. Wash clothing before reuse.

#### Eye Contact:

Immediately flush with large amounts of water for at least 15 minutes. Remove contact lenses if easy to do. Continue rinsing. Immediately get medical attention.

#### If Swallowed:

Rinse mouth. Do not induce vomiting. Get immediate medical attention.

### 4.2. Most important symptoms and effects, both acute and delayed

See Section 11.1. Information on toxicological effects.

### 4.3. Indication of any immediate medical attention and special treatment required

Not applicable

## SECTION 5: Fire-fighting measures

### 5.1. Suitable extinguishing media

Material will not burn. Use a fire fighting agent suitable for the surrounding fire.

### 5.2. Special hazards arising from the substance or mixture

None inherent in this product.

#### Hazardous Decomposition or By-Products

##### Substance

Carbon monoxide  
Carbon dioxide  
Oxides of Sulfur

##### Condition

During Combustion  
During Combustion  
During Combustion

### 5.3. Special protective actions for fire-fighters

No special protective actions for fire-fighters are anticipated.

## SECTION 6: Accidental release measures

### 6.1. Personal precautions, protective equipment and emergency procedures

Evacuate area. Ventilate the area with fresh air. For large spill, or spills in confined spaces, provide mechanical ventilation to disperse or exhaust vapors, in accordance with good industrial hygiene practice. Refer to other sections of this SDS for

information regarding physical and health hazards, respiratory protection, ventilation, and personal protective equipment.

## 6.2. Environmental precautions

Avoid release to the environment. For larger spills, cover drains and build dikes to prevent entry into sewer systems or bodies of water.

## 6.3. Methods and material for containment and cleaning up

Collect as much of the spilled material as possible. Place in a closed container approved for transportation by appropriate authorities. Clean up residue with detergent and water. Seal the container. Dispose of collected material as soon as possible.

# SECTION 7: Handling and storage

## 7.1. Precautions for safe handling

Avoid prolonged or repeated skin contact. Do not handle until all safety precautions have been read and understood. Do not breathe dust/fume/gas/mist/vapors/spray. Do not get in eyes, on skin, or on clothing. Do not eat, drink or smoke when using this product. Wash thoroughly after handling. Avoid release to the environment. Wash contaminated clothing before reuse. Do not get in eyes. Use personal protective equipment (gloves, respirators, etc.) as required.

## 7.2. Conditions for safe storage including any incompatibilities

Store in a well-ventilated place. Keep container tightly closed. Store away from acids.

# SECTION 8: Exposure controls/personal protection

## 8.1. Control parameters

### Occupational exposure limits

If a component is disclosed in section 3 but does not appear in the table below, an occupational exposure limit is not available for the component.

| Ingredient | C.A.S. No. | Agency | Limit type   | Additional Comments            |
|------------|------------|--------|--|--------------------------------|
| BORIC ACID | 10043-35-3 | ACGIH  | TWA(inhalable fraction):2 mg/m3;STEL(inhalable fraction):6 mg/m3 | A4: Not class. as human carcin |
| FLUORIDES  | 7789-29-9  | ACGIH  | TWA(as F):2.5 mg/m3  | A4: Not class. as human carcin |
| FLUORIDES  | 7789-29-9  | OSHA   | TWA(as dust):2.5 mg/m3;TWA(as F):2.5 mg/m3                       |                                |

ACGIH : American Conference of Governmental Industrial Hygienists

AIHA : American Industrial Hygiene Association

CMRG : Chemical Manufacturer's Recommended Guidelines

OSHA : United States Department of Labor - Occupational Safety and Health Administration

TWA: Time-Weighted-Average

STEL: Short Term Exposure Limit

CEIL: Ceiling

## 8.2. Exposure controls

### 8.2.1. Engineering controls

Use in a well-ventilated area.

### 8.2.2. Personal protective equipment (PPE)

#### Eye/face protection

Select and use eye/face protection to prevent contact based on the results of an exposure assessment. The following eye/face protection(s) are recommended:

Safety Glasses with side shields

**Skin/hand protection**

See Section 7.1 for additional information on skin protection.

**Respiratory protection**

None required.

## SECTION 9: Physical and chemical properties

**9.1. Information on basic physical and chemical properties**

|  |   |
|--|---|
| <b>General Physical Form:</b>                  | Liquid  |
| <b>Specific Physical Form:</b>                 | Paste   |
| <b>Odor, Color, Grade:</b>                     | White creamy paste, odorless                        |
| <b>Odor threshold</b>                          | <i>No Data Available</i>                            |
| <b>pH</b>                                      | 8.1 [ <i>Details: (50% flux/water)</i> ]            |
| <b>Melting point</b>                           | <i>Not Applicable</i>                               |
| <b>Boiling Point</b>                           | <i>No Data Available</i>                            |
| <b>Boiling Point</b>                           | No boiling point                                    |
| <b>Flash Point</b>                             | No flash point                                      |
| <b>Evaporation rate</b>                        | <i>No Data Available</i>                            |
| <b>Flammability (solid, gas)</b>               | Not Applicable                                      |
| <b>Flammable Limits(LEL)</b>                   | <i>Not Applicable</i>                               |
| <b>Flammable Limits(UEL)</b>                   | <i>Not Applicable</i>                               |
| <b>Vapor Pressure</b>                          | <i>Not Applicable</i>                               |
| <b>Vapor Density</b>                           | <i>Not Applicable</i>                               |
| <b>Density</b>                                 | <i>Not Applicable</i>                               |
| <b>Specific Gravity</b>                        | 1.68 [ <i>@ 72 °F</i> ] [ <i>Ref Std: WATER=1</i> ] |
| <b>Solubility in Water</b>                     | Moderate  |
| <b>Solubility- non-water</b>                   | <i>No Data Available</i>                            |
| <b>Partition coefficient: n-octanol/ water</b> | <i>No Data Available</i>                            |
| <b>Autoignition temperature</b>                | <i>Not Applicable</i>                               |
| <b>Decomposition temperature</b>               | <i>No Data Available</i>                            |
| <b>Viscosity</b>                               | <i>No Data Available</i>                            |
| <b>Volatile Organic Compounds</b>              | <i>No Data Available</i>                            |
| <b>Percent volatile</b>                        | <i>No Data Available</i>                            |
| <b>VOC Less H2O &amp; Exempt Solvents</b>      | <i>No Data Available</i>                            |

## SECTION 10: Stability and reactivity

**10.1. Reactivity**

This material may be reactive with certain agents under certain conditions - see the remaining headings in this section.

**10.2. Chemical stability**

Stable.

**10.3. Possibility of hazardous reactions**

Hazardous polymerization will not occur.

**10.4. Conditions to avoid**

Not determined

**10.5. Incompatible materials**

Alkali and alkaline earth metals

#### 10.6. Hazardous decomposition products

| <u>Substance</u> | <u>Condition</u> |
|------------------|------------------|
| None known.      |                  |

Refer to section 5.2 for hazardous decomposition products during combustion.

### SECTION 11: Toxicological information

The information below may not be consistent with the material classification in Section 2 if specific ingredient classifications are mandated by a competent authority. In addition, toxicological data on ingredients may not be reflected in the material classification and/or the signs and symptoms of exposure, because an ingredient may be present below the threshold for labeling, an ingredient may not be available for exposure, or the data may not be relevant to the material as a whole.

This document has been prepared in accordance with the U.S. OSHA Hazard Communication Standard, which requires the inclusion of all known hazards of the product or ingredients regardless of the potential risk. The risks of the hazards communicated in this document may vary depending on the potential for exposure.

#### 11.1. Information on Toxicological effects

##### Signs and Symptoms of Exposure

Based on test data and/or information on the components, this material may produce the following health effects:

##### Inhalation:

Respiratory Tract Corrosion: Signs/symptoms may include nasal discharge, severe nose and throat pain, chest tightness and pain, coughing up blood, wheezing, and breathlessness, possibly progressing to respiratory failure.

May cause additional health effects (see below).

##### Skin Contact:

Corrosive (Skin Burns): Signs/symptoms may include localized redness, swelling, itching, intense pain, blistering, ulceration, and tissue destruction.

##### Eye Contact:

Corrosive (Eye Burns): Signs/symptoms may include cloudy appearance of the cornea, chemical burns, severe pain, tearing, ulcerations, significantly impaired vision or complete loss of vision.

##### Ingestion:

Harmful if swallowed. Gastrointestinal Corrosion: Signs/symptoms may include severe mouth, throat and abdominal pain; nausea; vomiting; and diarrhea; blood in the feces and/or vomitus may also be seen.

May cause additional health effects (see below).

##### Additional Health Effects:

##### Prolonged or repeated exposure may cause target organ effects:

Exposures needed to cause the following health effect(s) are not expected during normal, intended use:

Hard Tissue Effects: Signs/symptoms may include color changes in the teeth and nails; changes in development of bone, teeth or nails; weakening of the bones; and/or hair loss.

##### Reproductive/Developmental Toxicity:

Contains a chemical or chemicals which can cause birth defects or other reproductive harm.

**Toxicological Data**

If a component is disclosed in section 3 but does not appear in a table below, either no data are available for that endpoint or the data are not sufficient for classification.

**Acute Toxicity**

| Name                  | Route                | Species                 | Value   |
|-----------------------|----------------------|-------------------------|---|
| Overall product       | Ingestion            |                         | No data available; calculated ATE 300 - 2,000 mg/kg |
| POTASSIUM BIFLUORIDE  | Ingestion            | official classification | LD50 estimated to be 50 - 300 mg/kg                 |
| SODIUM LAURYL SULFATE | Inhalation-Dust/Mist |                         | LC50 > 0.975 mg/l                                   |
| SODIUM LAURYL SULFATE | Dermal               | Rabbit                  | LD50 580 mg/kg                                      |
| SODIUM LAURYL SULFATE | Ingestion            | Rat                     | LD50 1,650 mg/kg                                    |

ATE = acute toxicity estimate

**Skin Corrosion/Irritation**

| Name                  | Species                 | Value     |
|-----------------------|-------------------------|-----------|
| POTASSIUM BIFLUORIDE  | official classification | Corrosive |
| SODIUM LAURYL SULFATE | Rabbit                  | Irritant  |

**Serious Eye Damage/Irritation**

| Name                  | Species                 | Value     |
|-----------------------|-------------------------|-----------|
| POTASSIUM BIFLUORIDE  | official classification | Corrosive |
| SODIUM LAURYL SULFATE | Rabbit                  | Corrosive |

**Skin Sensitization**

For the component/components, either no data are currently available or the data are not sufficient for classification.

**Respiratory Sensitization**

For the component/components, either no data are currently available or the data are not sufficient for classification.

**Germ Cell Mutagenicity**

For the component/components, either no data are currently available or the data are not sufficient for classification.

**Carcinogenicity**

For the component/components, either no data are currently available or the data are not sufficient for classification.

**Reproductive Toxicity****Reproductive and/or Developmental Effects**

For the component/components, either no data are currently available or the data are not sufficient for classification.

**Target Organ(s)****Specific Target Organ Toxicity - single exposure**

| Name                 | Route      | Target Organ(s)        | Value                            | Species                | Test Result         | Exposure Duration |
|----------------------|------------|------------------------|----------------------------------|------------------------|---------------------|-------------------|
| POTASSIUM BIFLUORIDE | Inhalation | respiratory irritation | May cause respiratory irritation | Professional judgement | NOAEL not available |                   |

|                       |            |                        |                                  |                        |                     |  |
|-----------------------|------------|------------------------|----------------------------------|------------------------|---------------------|--|
| SODIUM LAURYL SULFATE | Inhalation | respiratory irritation | May cause respiratory irritation | similar health hazards | NOAEL Not available |  |
|-----------------------|------------|------------------------|----------------------------------|------------------------|---------------------|--|

**Specific Target Organ Toxicity - repeated exposure**

| Name                 | Route      | Target Organ(s)                 | Value  | Species | Test Result          | Exposure Duration      |
|----------------------|------------|---------------------------------|--|---------|----------------------|------------------------|
| POTASSIUM BIFLUORIDE | Inhalation | bone, teeth, nails, and/or hair | Causes damage to organs through prolonged or repeated exposure | Human   | NOAEL not available  | occupational exposure  |
| POTASSIUM BIFLUORIDE | Ingestion  | bone, teeth, nails, and/or hair | Causes damage to organs through prolonged or repeated exposure | Human   | NOAEL 0.33 mg/kg/day | environmental exposure |

**Aspiration Hazard**

For the component/components, either no data are currently available or the data are not sufficient for classification.

Please contact the address or phone number listed on the first page of the SDS for additional toxicological information on this material and/or its components.

**SECTION 12: Ecological information****Ecotoxicological information**

Please contact the address or phone number listed on the first page of the SDS for additional ecotoxicological information on this material and/or its components.

**Chemical fate information**

Please contact the address or phone number listed on the first page of the SDS for additional chemical fate information on this material and/or its components.

**SECTION 13: Disposal considerations****13.1. Disposal methods**

Dispose of contents/ container in accordance with the local/regional/national/international regulations.

Dispose of waste product in a permitted industrial waste facility. As a disposal alternative, incinerate in a permitted waste incineration facility.

**EPA Hazardous Waste Number (RCRA):** Not regulated

**SECTION 14: Transport Information**

For Transport Information, please visit <http://3M.com/Transportinfo> or call 1-800-364-3577 or 651-737-6501.

**SECTION 15: Regulatory information****15.1. US Federal Regulations**

Contact 3M for more information.

**311/312 Hazard Categories:**

Fire Hazard - No    Pressure Hazard - No    Reactivity Hazard - No    Immediate Hazard - Yes    Delayed Hazard - Yes

**15.2. State Regulations**

Contact 3M for more information.



### 15.3. Chemical Inventories

The components of this material are in compliance with the provisions of Australia National Industrial Chemical Notification and Assessment Scheme (NICNAS). Certain restrictions may apply. Contact the selling division for additional information.

The components of this product are in compliance with the new substance notification requirements of CEPA.

The components of this material are in compliance with the China "Measures on Environmental Management of New Chemical Substance". Certain restrictions may apply. Contact the selling division for additional information.

The components of this material are in compliance with the provisions of the Korean Toxic Chemical Control Law. Certain restrictions may apply. Contact the selling division for additional information.

The components of this material are in compliance with the provisions of Japan Chemical Substance Control Law. Certain restrictions may apply. Contact the selling division for additional information.

The components of this material are in compliance with the provisions of Philippines RA 6969 requirements. Certain restrictions may apply. Contact the selling division for additional information.

The components of this product are in compliance with the chemical notification requirements of TSCA.

Contact 3M for more information.

### 15.4. International Regulations

Contact 3M for more information.

**This SDS has been prepared to meet the U.S. OSHA Hazard Communication Standard, 29 CFR 1910.1200.**

## SECTION 16: Other information

### NFPA Hazard Classification

**Health: 3 Flammability: 1 Instability: 0 Special Hazards: None**

National Fire Protection Association (NFPA) hazard ratings are designed for use by emergency response personnel to address the hazards that are presented by short-term, acute exposure to a material under conditions of fire, spill, or similar emergencies. Hazard ratings are primarily based on the inherent physical and toxic properties of the material but also include the toxic properties of combustion or decomposition products that are known to be generated in significant quantities.

|                        |           |                         |          |
|------------------------|-----------|-------------------------|----------|
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