

1. Product and company identification

Product name	: Ormco Ultra Flux
Material uses	: Dental product: Orthodontic soldering Flux
Manufacturer	: Ormco Corporation 1717 West Collins Avenue Orange, CA 92867 Telephone no.: 1-800-854-1741
<u>In case of emergency</u>	: CHEMTREC® (24 hours) U.S. : 1-800-424-9300 International: +1-703-527-3887

2. Hazards identification

Physical state	: Liquid. [Paste.]
Color	: White.
Odor	: Odorless.
<u>Emergency overview</u>	
Signal word	: DANGER!
Hazard statements	: CAUSES RESPIRATORY TRACT, DIGESTIVE TRACT, EYE AND SKIN BURNS. HARMFUL IF SWALLOWED. CONTAINS MATERIAL THAT MAY CAUSE TARGET ORGAN DAMAGE, BASED ON ANIMAL DATA. BIRTH DEFECT HAZARD - CAN CAUSE BIRTH DEFECTS. DEVELOPMENTAL HAZARD - CAN CAUSE ADVERSE DEVELOPMENTAL EFFECTS. REPRODUCTIVE HAZARD.
Precautions	: Health effects are based on the uncured material. Avoid exposure - obtain special instructions before use. Do not breathe vapor or mist. Do not ingest. Do not get in eyes or on skin or clothing. Avoid exposure during pregnancy. Use only with adequate ventilation. Keep container tightly closed and sealed until ready for use. Wash thoroughly after handling.
Routes of entry	: Dermal contact. Eye contact. Inhalation. Ingestion.
<u>Potential acute health effects</u>	
Inhalation	: Corrosive to the respiratory system.
Ingestion	: Toxic if swallowed. Corrosive to the digestive tract. Causes burns.
Skin	: Corrosive to the skin. Causes burns.
Eyes	: Corrosive to eyes. Causes burns.
<u>Potential chronic health effects</u>	
Chronic effects	: Contains material that may cause target organ damage, based on animal data.
Carcinogenicity	: No known significant effects or critical hazards.
Mutagenicity	: No known significant effects or critical hazards.
Teratogenicity	: Can cause birth defects.
Developmental effects	: Can cause developmental abnormalities.
Fertility effects	: Can impair fertility.
Target organs	: Contains material which may cause damage to the following organs: the reproductive system, mucous membranes, digestive system, gastrointestinal tract, upper respiratory tract, skin, eyes, bones, central nervous system (CNS), ovary, teeth, testes.
<u>Over-exposure signs/symptoms</u>	
Inhalation	: Adverse symptoms may include the following: respiratory tract irritation coughing

2. Hazards identification

- Ingestion** : Adverse symptoms may include the following:
stomach pains
reduced fetal weight
increase in fetal deaths
skeletal malformations
- Skin** : Adverse symptoms may include the following:
pain or irritation
redness
blistering may occur
reduced fetal weight
increase in fetal deaths
skeletal malformations
- Eyes** : Adverse symptoms may include the following:
pain
watering
redness
reduced fetal weight
increase in fetal deaths
skeletal malformations
- Medical conditions aggravated by over-exposure** : Pre-existing disorders involving any target organs mentioned in this MSDS as being at risk may be aggravated by over-exposure to this product.

3. Composition/information on ingredients

Name	CAS number	%
dipotassium tetraborate	1332-77-0	30-60
boric acid	10043-35-3	10-30
potassium bifluoride	7789-29-9	10-30
potassium pentaborate	11128-29-3	1-5

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

4. First aid measures

- Eye contact** : No special measures are required. In case of contact with eyes, rinse immediately with plenty of water. Get medical attention if symptoms occur.
- Skin contact** : No special measures required. In case of contact, immediately flush skin with plenty of water. Get medical attention if symptoms occur.
- Inhalation** : No special measures required. If inhaled, remove to fresh air. Get medical attention if symptoms occur.
- Ingestion** : Wash out mouth with water. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Get medical attention if adverse health effects persist or are severe.
- Protection of first-aiders** : In case of major fire and large quantities: No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

Antidote information

Product/ingredient name	Antidote information
No antidote information known	

4. First aid measures

Notes to physician : No specific treatment. Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

5. Fire-fighting measures

Flammability of the product : In a fire or if heated, a pressure increase will occur and the container may burst.

Extinguishing media

Suitable : Use an extinguishing agent suitable for the surrounding fire.

Not suitable : None known.

Special exposure hazards : In case of major fire and large quantities: Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.

Hazardous thermal decomposition products : Decomposition products may include the following materials:
halogenated compounds
metal oxide/oxides

Special protective equipment for fire-fighters : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

6. Accidental release measures

Personal precautions : Low release. For professional use only. Handling of product in very small amounts or in situations where release is highly unlikely

Environmental precautions : Low release. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods for cleaning up

Small spill : Small Quantity. For professional use only. Absorb with an inert material and place in an appropriate waste disposal container.

Large spill : Small Quantity. For professional use only. Absorb with an inert material and place in an appropriate waste disposal container.

7. Handling and storage

Handling : No special measures are required for small quantities under normal and intended conditions of product use. For professional use only. Put on appropriate personal protective equipment (see Section 8). Handle with care and dispose in a safe manner.

Storage : Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

8. Exposure controls/personal protection

<u>Occupational exposure limits</u>		TWA (8 hours)			STEL (15 mins)			Ceiling			
Ingredient	List name	ppm	mg/m ³	Other	ppm	mg/m ³	Other	ppm	mg/m ³	Other	Notations
boric acid	US ACGIH 4/2014	-	2	-	-	6	-	-	-	-	[a]
	BC 2/2015	-	2	-	-	6	-	-	-	-	[b]
	ON 1/2013	-	2	-	-	6	-	-	-	-	[a]
potassium bifluoride, as F	US ACGIH 4/2014	-	2.5	-	-	-	-	-	-	-	
	AB 4/2009	-	2.5	-	-	-	-	-	-	-	
	BC 2/2015	-	2.5	-	-	-	-	-	-	-	
	ON 1/2013	-	2.5	-	-	-	-	-	-	-	
	QC 1/2014	-	2.5	-	-	-	-	-	-	-	

Form: [a]Inhalable fraction [b]Inhalable

8. Exposure controls/personal protection

Consult local authorities for acceptable exposure limits.

- Recommended monitoring procedures** : If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment. Reference should be made to appropriate monitoring standards. Reference to national guidance documents for methods for the determination of hazardous substances will also be required.
- Engineering measures** : No special measures are required for small quantities under normal and intended conditions of product use.
- Hygiene measures** : No special measures are required for small quantities under normal and intended conditions of product use.
- Personal protection**
- Respiratory** : No special measures are required for small quantities under normal and intended conditions of product use.
- Hands** : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.
- Eyes** : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles and/or face shield. If inhalation hazards exist, a full-face respirator may be required instead.
- Skin** : No special measures are required for small quantities under normal and intended conditions of product use.
- Environmental exposure controls** : No special measures are required for small quantities under normal and intended conditions of product use.

9. Physical and chemical properties

- Physical state** : Liquid. [Paste.]
- Flash point** : Not available.
- Auto-ignition temperature** : Not available.
- Flammable limits** : Not available.
- Color** : White.
- Odor** : Odorless.
- pH** : 8.8 to 9.1
- Boiling/condensation point** : Not available.
- Melting/freezing point** : 422.4°C (792.3°F)
- Relative density** : 1.49
- Density** : Not available.
- Vapor pressure** : Not available.
- Vapor density** : Not available.
- Odor threshold** : Not available.
- Evaporation rate** : Not available.
- Viscosity** : Not available.
- Solubility** : Easily soluble in the following materials: cold water and hot water.
- LogK_{ow}** : Not available.

10. Stability and reactivity

- Chemical stability** : The product is stable.
- Conditions to avoid** : Avoid temperature: >107.2°C (>225°F)
- Incompatible materials** : Reactive or incompatible with the following materials: acids and alkalis.
- Hazardous decomposition products** : Under normal conditions of storage and use, hazardous decomposition products should not be produced.
- Possibility of hazardous reactions** : Under normal conditions of storage and use, hazardous reactions will not occur.
Under normal conditions of storage and use, hazardous polymerization will not occur.

11. Toxicological information

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
dipotassium tetraborate	LD50 Oral	Rat	>2500 mg/kg	-
boric acid	LD50 Dermal	Rabbit	>2000 mg/kg	-
	LD50 Oral	Rat	2500 mg/kg	-

Chronic toxicity

Not available.

Irritation/Corrosion

Not available.

Sensitizer

Not available.

Carcinogenicity

Classification

Product/ingredient name	ACGIH	IARC	EPA	NIOSH	NTP	OSHA
boric acid	A4	-	-	-	-	-
potassium bifluoride	A4	3	-	-	-	-

Mutagenicity

Not available.

Teratogenicity

Not available.

Reproductive toxicity

Not available.

12. Ecological information

- Ecotoxicity** : This material is harmful to aquatic life with long lasting effects.

Aquatic ecotoxicity

Product/ingredient name	Result	Species	Exposure
boric acid	Acute LC50 45.5 mg/l Fresh water	Crustaceans - Ceriodaphnia dubia	48 hours
	Acute LC50 133000 µg/l Fresh water	Daphnia - Daphnia magna - Neonate	48 hours
	Acute LC50 75 mg/l Marine water	Fish - Pagrus major	96 hours
	Chronic NOEC 6000 µg/l Fresh water	Daphnia - Daphnia magna	21 days
	Chronic NOEC 2100 µg/l Fresh water	Fish - Oncorhynchus mykiss	87 days

Persistence/degradability

Not available.

12. Ecological information

Partition coefficient: n-octanol/water	: Not available.
Bioconcentration factor	: Not available.
Mobility	: Not available.
Toxicity of the products of biodegradation	: Not available.
Other adverse effects	: No known significant effects or critical hazards.

13. Disposal considerations

Waste disposal : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements.

Disposal should be in accordance with applicable regional, national and local laws and regulations.

Refer to Section 7: HANDLING AND STORAGE and Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION for additional handling information and protection of employees.

14. Transport information

Regulatory information	UN number	Proper shipping name	Classes	PG*	Label	Additional information
TDG Classification	UN3266	CORROSIVE LIQUID, BASIC, INORGANIC, N.O.S. (potassium bifluoride)	8	II		Product classified as per the following sections of the Transportation of Dangerous Goods Regulations: 2.40-2.42 (Class 8). Explosive Limit and Limited Quantity Index 1 Passenger Carrying Road or Rail Index 1 Special provisions 16
IMDG Class	UN3266	CORROSIVE LIQUID, BASIC, INORGANIC, N.O.S. (potassium bifluoride)	8	II		Emergency schedules (EmS) F-A, S-B Special provisions 274
IATA-DGR Class	UN3266	Corrosive liquid, basic, inorganic, n.o.s. (potassium bifluoride)	8	II		Passenger and Cargo Aircraft Quantity limitation: 1 L Packaging instructions: 851 Cargo Aircraft Only Quantity limitation: 30 L Packaging instructions: 855 Limited Quantities - Passenger Aircraft Quantity limitation: 0.5 L Packaging instructions: Y840 Special provisions A3, A803

PG* : Packing group

15. Regulatory information

- United States inventory (TSCA 8b)** : All components are listed or exempted.
- WHMIS (Canada)** : Class D-1B: Material causing immediate and serious toxic effects (Toxic).
Class D-2A: Material causing other toxic effects (Very toxic).
Class D-2B: Material causing other toxic effects (Toxic).
Class E: Corrosive material

Canadian lists

- Canadian NPRI** : None of the components are listed.
- CEPA Toxic substances** : The following components are listed: Inorganic fluorides
- Canada inventory** : All components are listed or exempted.

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the Controlled Products Regulations.

International regulations

- International lists** :
- Australia inventory (AICS)**: All components are listed or exempted.
 - China inventory (IECSC)**: All components are listed or exempted.
 - Japan inventory**: Not determined.
 - Korea inventory**: All components are listed or exempted.
 - Malaysia Inventory (EHS Register)**: Not determined.
 - New Zealand Inventory of Chemicals (NZIoC)**: Not determined.
 - Philippines inventory (PICCS)**: Not determined.
 - Taiwan inventory (CSNN)**: All components are listed or exempted.

Chemical Weapons Convention List Schedule I Chemicals : Not listed

Chemical Weapons Convention List Schedule II Chemicals : Not listed

Chemical Weapons Convention List Schedule III Chemicals : Not listed

16. Other information

Label requirements : CAUSES RESPIRATORY TRACT, DIGESTIVE TRACT, EYE AND SKIN BURNS. HARMFUL IF SWALLOWED. CONTAINS MATERIAL THAT MAY CAUSE TARGET ORGAN DAMAGE, BASED ON ANIMAL DATA. BIRTH DEFECT HAZARD - CAN CAUSE BIRTH DEFECTS. DEVELOPMENTAL HAZARD - CAN CAUSE ADVERSE DEVELOPMENTAL EFFECTS. REPRODUCTIVE HAZARD.

Hazardous Material Information System (U.S.A.) :

Health	*	3
Flammability		0
Physical hazards		0

Caution: HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. Although HMIS® ratings are not required on MSDSs under 29 CFR 1910.1200, the preparer may choose to provide them. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered mark of the National Paint & Coatings Association (NPCA). HMIS® materials may be purchased exclusively from J. J. Keller (800) 327-6868.

The customer is responsible for determining the PPE code for this material.

- Date of issue** : 6/30/2015
- Date of previous issue** : No previous validation

16. Other information

Version : 1

Indicates information that has changed from previously issued version.

Notice to reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.

Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.