SECTION I - IDENTIFICATION OF MATERIALS

Chemical Name/Composition: Bone Wax
Trade Name & Synonyms: ETHICON Bone Wax
Chemical Family: insect Wax / Mineral Wax Blend

SECTION II - SIGNIFICANT COMPONENTS AND CONTAMINANTS

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS Number (ETHICON ID#)</th>
<th>%</th>
<th>Exposure Limits (Reference)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beeswax</td>
<td>8012-89-3 (1432)</td>
<td>72.63</td>
<td>None Established by OSHA or ACGIH</td>
</tr>
<tr>
<td>Paraffin Wax</td>
<td>8002-74-2 (3898)</td>
<td>14.87</td>
<td>2 mg/m³ - ACGIH - TLV (8 hr.) (fumes)</td>
</tr>
<tr>
<td>Isopropyl Palmitate</td>
<td>142-91-6 (2068)</td>
<td>12.5</td>
<td>None Established by OSHA or ACGIH</td>
</tr>
</tbody>
</table>

Note: None of the above components are listed on the NTP, IARC, or ACGIH carcinogen list.

SECTION III - PHYSICAL DATA

Appearance and Odor: Homogenous cream to light yellow waxy solid with a very slight waxy odor
Rolling Point: NAP
Melting Point: 51-64°
Specific Gravity: 0.9 for beeswax / paraffin wax blend
Odor Threshold: NAV*
Vapor Press: NAP
Evap. Rate: (mm of Mercury) NAP
pH: NAP
Vapor Density (Air=1): NAP
Solub. In Water: Insoluble
BONE WAX

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

Flashpoint (Specify Method): 400°F (C.O.C.)  Upper Explosive Limit (UEL): NAP

Auto Ignition Temperature: NAP

Lower Explosive Limit (LEL): NAP

Fire Extinguishing Media: (Data from beeswax / mineral wax blend)
Use dry chemical

Special Fire Fighting Procedures/Unusual Fire and Explosion Hazards: (Data from beeswax/mineral blend)
No special firefighting procedures.
No unusual fire and explosion hazards.
Thermal decomposition of bone wax may give off hydrocarbon compounds, carbon monoxide and carbon dioxide.

Note: NAV - Not Available
NAP - Not Applicable

SECTION V - HEALTH HAZARD DATA

Toxicity:
Since Bone wax is a combination of waxes and isopropyl palmitate, potential acute and chronic health hazards will be similar to the individual components.

Health Hazards

Variability Among Individuals
Individuals may show varying sensitivity.

Effects of Overexposure (Signs and symptoms of exposure)
None expected during normal conditions of use.

Health Hazards (from review of paraffin, beeswax, isopropyl palmitate MSDSs)

Eyes
Product contacting the eyes may cause eye irritation, primarily from mechanical action.

Skin
Prolonged or repeated skin contact may cause irritation or dermatitis in certain sensitive individuals.
SECTION V - HEALTH HAZARD DATA
(continued)

Inhalation
Inhalation is not expected during normal use of this product. However, if the product is in a particulate form, the hazards are expected to be similar to a nuisance dust (i.e., nose, throat and pulmonary irritation).

Pre-existing Medical Conditions Which May Be Aggravated by Exposure
Skin contact may aggravate existing dermatitis.

SECTION VI - EMERGENCY AND FIRST AID PROCEDURES

Eye Contact
If product gets into eyes, flush with clear water for 15 minutes or until irritation subsides. If irritation persists, call a physician.

Skin Contact
In case of skin contact, wash skin thoroughly with soap and water.

Inhalation
If particulate is inhaled, remove from exposure. If breathing is irregular, call a physician immediately.

Ingestion
If ingested, call a physician immediately.

SECTION VII - REACTIVITY

General Reactivity
This product is stable and will not react violently with water. Hazardous polymerization will not occur. Avoid contact with strong nucleotides.

SECTION VIII - ENVIRONMENTAL INFORMATION

Steps To Be Taken In Case Material Is Released or Spilled

If molten, allow to solidify. Sweep up spilled material and place in disposal container. No specific handling required. Observe applicable local, state or federal regulations for waste material disposal.
BONE WAX

SECTION IX - PROTECTION AND PRECAUTIONS

Ventilation
If in a particulate form, use adequate ventilation to keep dust levels below nuisance dust exposure levels (i.e., 10 mg/m³).

Respiratory Protection
If in a particulate form, use respiratory protection as required.

Protective Gloves
Sensitive individuals may require gloves to avoid prolonged or repeated skin contact.

Eye Protection
Use safety glasses, goggles or face shield when particulates are generated.

Other Protective Equipment
None needed.

Work Practices/Engineering Controls
None needed.

Personal Hygiene
Routine personal hygiene.

MSDS/1/26-29

RECEIVED TIME OCT.26. 1:44PM PRINT TIME OCT.26. 1:48PM TOTAL P.05
DESCRIPTION
ETHICON® Bone Wax is a sterile mixture of beeswax, paraffin, and isopropyl palmitate, a wax-softening agent. It is opaque and has a waxy odor.

ACTIONS
ETHICON Bone Wax achieves local hemostasis of bone by acting as a mechanical tamponade barrier. It does not act biochemically and is minimally resorbable.

INDICATIONS
ETHICON Bone Wax may be used for the control of bleeding from bone surfaces.

CONTRAINDICATIONS
Bone Wax should not be used where rapid osseous regeneration and fusion are desired.

WARNINGS
ETHICON Bone Wax should not be resterilized or subjected to excessive heat. Bone Wax may inhibit osteogenesis and may act as a physical barrier to the reparative process. Do not use if package is opened or damaged. Discard opened, unused bone wax.

PRECAUTIONS
Bone Wax should be used sparingly. Excess Bone Wax should be removed from the operative site. The package should be opened just prior to use to minimize the possibility of contamination and excessive drying.
ADVERSE REACTION
Mild inflammatory reactions have been reported in tissues immediately adjacent to the site of implantation. Studies have suggested that Bone Wax as a foreign body may impair the ability of cancellous bone to clear bacteria. In animal models, the local accumulation of foreign body giant cells has been observed and histologic examination has revealed the appearance of macrophages and occasionally polymorphonuclear leukocytes and lymphocytes.

DOSAGE ADMINISTRATION
Bone Wax should be used immediately after removal from the package. Using aseptic technique, Bone Wax should be warmed to desired consistency by manipulation with the fingers or by immersion of the unopened foil packet in a warm sterile solution.

HOW SUPPLIED
ETHICON Bone Wax is available sterile in individual foil envelopes, each containing 2.5 grams, and packaged in an individually sealed overwrap packet.