PRODUCT NAME
AMMO-CAT

STATEMENT OF HAZARDOUS NATURE
Not considered a hazardous substance according to OSHA 29 CFR 1910.1200.

SUPPLIER
Company: Aquarium Pharmaceuticals Incorporated
Address: PO Box 218
         50 East Hamilton Street
         Chalfont
         PA, 18914-0218
         PA, 18914
         USA
         USA
         Telephone: +1 215 822 8181
         Telephone: +1 215 822 8181
         Emergency Tel: +1800 222 1222 (US Only)

PRODUCT USE
Used according to manufacturers directions. For product 81A.

SYNONYMS

Section 2 - COMPOSITION / INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>NAME</th>
<th>CAS RN</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>zeolites</td>
<td>1318-02-1</td>
<td>N/S</td>
</tr>
</tbody>
</table>

Section 3 - HAZARDS IDENTIFICATION

CANADIAN WHMIS SYMBOLS
None

EMERGENCY OVERVIEW
RISK

POTENTIAL HEALTH EFFECTS
ACUTE HEALTH EFFECTS

SWALLOWED
The material has NOT been classified as "harmful by ingestion". This is because of the lack of corroborating animal or human evidence. The material may still be damaging to the health of the individual, following ingestion, especially where pre-existing organ (e.g. liver, kidney) damage is evident. Present definitions of harmful or toxic substances are generally based on doses producing mortality.
(death) rather than those producing morbidity (disease, ill-health).
Gastrointestinal tract discomfort may produce nausea and vomiting. In an
occupational setting however, unintentional ingestion is not thought to be cause
for concern.

**EYE**
Although the material is not thought to be an irritant, direct contact with the
eye may cause transient discomfort characterized by tearing or conjunctival
redness (as with windburn). Slight abrasive damage may also result. The material
may produce foreign body irritation in certain individuals.

**SKIN**
The material is not thought to produce adverse health effects or skin irritation
following contact (as classified using animal models). Nevertheless, good
hygiene practice requires that exposure be kept to a minimum and that suitable
gloves be used in an occupational setting.

**INHALED**
The material is not thought to produce adverse health effects or irritation of
the respiratory tract (as classified using animal models). Nevertheless, good
hygiene practice requires that exposure be kept to a minimum and that suitable
control measures be used in an occupational setting.

**CHRONIC HEALTH EFFECTS**
Long term exposure to high dust concentrations may cause changes in lung
function i.e. pneumoconiosis; caused by particles less than 0.5 micron
penetrating and remaining in the lung. Prime symptom is breathlessness; lung
shadows show on X-ray.

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**Section 4 - FIRST AID MEASURES**

**SWALLOWED**
- Immediately give a glass of water.
- First aid is not generally required. If in doubt, contact a Poisons
  Information Center or a doctor.

**EYE**
If this product comes in contact with eyes:
- Wash out immediately with water.
- If irritation continues, seek medical attention.
- Removal of contact lenses after an eye injury should only be undertaken by
  skilled personnel.

**SKIN**
If skin or hair contact occurs:
- Flush skin and hair with running water (and soap if available).
- Seek medical attention in event of irritation.

**INHALED**
- If fumes or combustion products are inhaled remove from contaminated area.
- Other measures are usually unnecessary.

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continued...
NOTES TO PHYSICIAN
    Treat symptomatically.

Section 5 - FIRE FIGHTING MEASURES

Flash Point (F): Not Applicable
Lower Explosive Limit (%): Not Applicable
Upper Explosive Limit (%): Not Applicable
Autoignition Temp (F): Not Applicable

EXTINGUISHING MEDIA
- There is no restriction on the type of extinguisher which may be used.
Use extinguishing media suitable for surrounding area.

FIRE FIGHTING
- Alert Emergency Responders and tell them location and nature of hazard.
- Wear breathing apparatus plus protective gloves for fire only.
- Prevent, by any means available, spillage from entering drains or water course.
- Use fire fighting procedures suitable for surrounding area.
- Do not approach containers suspected to be hot.
- Cool fire exposed containers with water spray from a protected location.
- If safe to do so, remove containers from path of fire.
- Equipment should be thoroughly decontaminated after use.

GENERAL FIRE HAZARDS/HAZARDOUS COMBUSTIBLE PRODUCTS
- Non combustible.
- Not considered to be a significant fire risk, however containers may burn.

FIRE INCOMPATIBILITY
None known.

PERSONAL PROTECTION
    Glasses:
    Chemical goggles.
    Gloves:
    When handling larger quantities:
    General purpose rubber glove.
    Respirator:
    Particulate

Section 6 - ACCIDENTAL RELEASE MEASURES

MINOR SPILLS
- Clean up all spills immediately.
- Avoid contact with skin and eyes.
- Wear impervious gloves and safety glasses.
- Use dry clean up procedures and avoid generating dust.
- Sweep up or vacuum up (consider explosion-proof machines designed to be grounded during storage and use).
- Place spilled material in clean, dry, sealable, labeled container.
MAJOR SPILLS
- Clear area of personnel and move upwind.
- Alert Emergency Responders and tell them location and nature of hazard.
- Control personal contact by using protective equipment and dust respirator.
- Prevent spillage from entering drains, sewers or water courses.
- Avoid generating dust.
- Sweep, shovel up.
- Recover product wherever possible.
- Put residues in labeled plastic bags or other containers for disposal.
- If contamination of drains or waterways occurs, advise emergency services.

ACUTE EXPOSURE GUIDELINE LEVELS (AEGL) (in ppm)

AEGL 1: The airborne concentration of a substance above which it is predicted that the general population, including susceptible individuals, could experience notable discomfort, irritation, or certain asymptomatic nonsensory effects. However, the effects are not disabling and are transient and reversible upon cessation of exposure.

AEGL 2: The airborne concentration of a substance above which it is predicted that the general population, including susceptible individuals, could experience irreversible or other serious, long-lasting adverse health effects or an impaired ability to escape.

AEGL 3: The airborne concentration of a substance above which it is predicted that the general population, including susceptible individuals, could experience life-threatening health effects or death.

Section 7 - HANDLING AND STORAGE

PROCEDURE FOR HANDLING
- Limit all unnecessary personal contact.
- Wear protective clothing when risk of exposure occurs.
- Use in a well-ventilated area.
- Avoid contact with incompatible materials.
- When handling, DO NOT eat, drink or smoke.
- Keep containers securely sealed when not in use.
- Avoid physical damage to containers.
- Always wash hands with soap and water after handling.
- Work clothes should be laundered separately.
- Use good occupational work practice.
- Observe manufacturer's storing and handling recommendations.
- Atmosphere should be regularly checked against established exposure standards to ensure safe working conditions are maintained.

RECOMMENDED STORAGE METHODS
Multi ply paper bag with sealed plastic liner or heavy gauge plastic bag.
NOTE: Bags should be stacked, blocked, interlocked, and limited in height so that they are stable and secure against sliding or collapse. Check that all containers are clearly labelled and free from leaks. Packing as recommended by manufacturer.
STORAGE REQUIREMENTS
Observe manufacturer's storing and handling recommendations.

Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE CONTROLS

No data for Ammo-Cat.

INGREDIENT DATA
ZEOLITES:
Dusts not otherwise classified, as inspirable dust;
ES TWA: 10 mg/m³.
Particulate (insoluble or poorly soluble *) Not Otherwise Specified (P.N.O.C)

TLV TWA: 10 mg/m³ Inhalable particulate
TLV TWA: 3 mg/m³ Respirable particulate
OEL-Sweden, United Kingdom: 10 mg/m³ total dust, 5 mg/m³ respirable dust

These "dusts" have little adverse effect on the lungs and do not produce toxic effects or organic disease. Although there is no dust which does not evoke some cellular response at sufficiently high concentrations, the cellular response caused by P.N.O.C.s has the following characteristics:
- the architecture of the air spaces remain intact,
- scar tissue (collagen) is not synthesised to any degree,
- tissue reaction is potentially reversible.
Extensive concentrations of P.N.O.C.s may:
- seriously reduce visibility,
- cause unpleasant deposits in the eyes, ears and nasal passages,
- contribute to skin or mucous membrane injury by chemical or mechanical action, per se, or by the rigorous skin cleansing procedures necessary for their removal. [ACGIH]

This limit does not apply:
- to brief exposures to higher concentrations
- nor does it apply to those substances that may cause physiological impairment at lower concentrations but for which a TLV has as yet to be determined.

This exposure standard applies to particles which
- are insoluble or poorly soluble* in water or, preferably, in aqueous lung fluid (if data is available) and
- have a low toxicity (i.e., are not cytotoxic, genotoxic, or otherwise chemically reactive with lung tissue, and do not emit ionizing radiation, cause immune sensitization, or cause toxic effects other than by inflammation or by a mechanism of lung overload)
* Notice of intended change.

PERSONAL PROTECTION

EYE
- Safety glasses with side shields

continued...
- Chemical goggles.
- Contact lenses pose a special hazard; soft lenses may absorb irritants and all lenses concentrate them.

HANDS/FEET
Wear general protective gloves, e.g., light weight rubber gloves.

OTHER
No special equipment needed when handling small quantities.
OTHERWISE:
- Overalls.
- Barrier cream.
- Eyewash unit.

RESPIRATOR

<table>
<thead>
<tr>
<th>Protection Factor</th>
<th>Half-Face Respirator</th>
<th>Full-Face Respirator</th>
<th>Powered Air Respirator</th>
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</thead>
<tbody>
<tr>
<td>10 x PEL</td>
<td>P1</td>
<td>-</td>
<td>PAPR-P1</td>
</tr>
<tr>
<td></td>
<td>Air-line*</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>50 x PEL</td>
<td>Air-line**</td>
<td>P2</td>
<td>PAPR-P2</td>
</tr>
<tr>
<td>100 x PEL</td>
<td>-</td>
<td>P3</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Air-line*</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>100+ x PEL</td>
<td>-</td>
<td>Air-line**</td>
<td>PAPR-P3</td>
</tr>
</tbody>
</table>

* - Negative pressure demand ** - Continuous flow

Explanation of Respirator Codes:
Class 1 low to medium absorption capacity filters.
Class 2 medium absorption capacity filters.
Class 3 high absorption capacity filters.
PAPR Powered Air Purifying Respirator (positive pressure) cartridge.
Type A for use against certain organic gases and vapors.
Type AX for use against low boiling point organic compounds (less than 65°C).
Type B for use against certain inorganic gases and other acid gases and vapors.
Type E for use against sulfur dioxide and other acid gases and vapors.
Type K for use against ammonia and organic ammonia derivatives
Class P1 intended for use against mechanically generated particulates of sizes most commonly encountered in industry, e.g. asbestos, silica.
Class P2 intended for use against both mechanically and thermally generated particulates, e.g. metal fume.
Class P3 intended for use against all particulates containing highly toxic materials, e.g. beryllium.

The local concentration of material, quantity and conditions of use determine the type of personal protective equipment required.

Use appropriate NIOSH-certified respirator based on informed professional judgement. In conditions where no reasonable estimate of exposure can be made, assume the exposure is in a concentration IDLH and use NIOSH-certified full face pressure demand SCBA with a minimum service life of 30 minutes, or a combination full facepiece pressure demand SAR with auxiliary self-contained air supply. Respirators provided only for escape from IDLH atmospheres shall be NIOSH-certified for escape from the atmosphere in which they will be used.
ENGINEERING CONTROLS
- Local exhaust ventilation is required where solids are handled as powders or crystals; even when particulates are relatively large, a certain proportion will be powdered by mutual friction.
- If in spite of local exhaust an adverse concentration of the substance in air could occur, respiratory protection should be considered. Such protection might consist of:
  (a): particle dust respirators, if necessary, combined with an absorption cartridge;
  (b): filter respirators with absorption cartridge or canister of the right type;
  (c): fresh-air hoods or masks

Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL PROPERTIES
Does not mix with water.
Sinks in water.

Molecular Weight: Not Applicable
Boiling Range (°C): Not Applicable
Melting Range (°C): Not Available
Specific Gravity (water=1): 1.5-1.7
Solubility in water (g/L): Immiscible
pH (as supplied): Not Applicable
Volatile Component (%vol): Not Applicable
Vapor Pressure (kPa): Not Applicable
Relative Vapor Density (air=1): Not Applicable
Evaporation Rate: Not Applicable
Lower Explosive Limit (%): Not Applicable
Flash Point (°C): Not Applicable
Upper Explosive Limit (%): Not Applicable
Autoignition Temp (°C): Not Applicable
Decomposition Temp (°C): Not Available
State: Divided Solid

APPEARANCE
Crystalline sand-like appearance with an earth like odor; insoluble in water.

Section 10 - CHEMICAL STABILITY AND REACTIVITY INFORMATION

CONDITIONS CONTRIBUTING TO INSTABILITY
Product is considered stable and hazardous polymerization will not occur.

STORAGE INCOMPATIBILITY
Avoid contamination of water, foodstuffs, feed or seed.
None known.

Section 11 - TOXICOLOGICAL INFORMATION

Ammo-Cat
Not available. Refer to individual constituents.
unless otherwise specified data extracted from RTECS - Register of Toxic Effects of Chemical Substances

ZEOLITES:
Section 11 - TOXICOLOGICAL INFORMATION

~TOXICITY FIGURE
Oral--rat--LD50-->5110~mg/kg
Dermal--rabbit--LD50-->2000~mg/kg
Inhalation--~LC50-->18.3~mg/l/1hr

~OTHER
for sodium aluminosilicate, zeolite A:
Skin (rabbit): non-irritating
Eye (rabbit): slight

[Grace]

Section 12 - ECOLOGICAL INFORMATION

Refer to data for ingredients, which follows:

ZEOLITES:
for sodium aluminosilicate, zeolite A
Fish toxicity (Brachidario rerio) 96H LC50: 1800 mg/l
Aquatic toxicity (Dapnia magna) 24H EC50: 2808 mg/l
Algal toxicity (Scenedesmus subspecies) 96H NOEC: 10 mg/l
Bacterial toxicity (Pseudomonas putida): 330 mg/l, initial inhibition of
cell multiplication
[Grace]

Section 13 - DISPOSAL CONSIDERATIONS

Disposal Instructions
All waste must be handled in accordance with local, state and federal
regulations.
- Recycle wherever possible.
- Consult manufacturer for recycling options or consult Waste Management
Authority for disposal if no suitable treatment or disposal facility can be
identified.
- Dispose of by: Burial in a licensed land-fill or Incineration in a licensed
apparatus (after admixture with suitable combustible material)
- Decontaminate empty containers. Observe all label safeguards until containers
are cleaned and destroyed.

Section 14 - TRANSPORTATION INFORMATION

NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS: UN, IATA, IMDG

Section 15 - REGULATORY INFORMATION

RISK
None under normal operating conditions.

REGULATIONS
No regulations applicable

continued...
Section 15 - REGULATORY INFORMATION


Section 16 - OTHER INFORMATION

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