Section 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME

AMMO-CARB

STATEMENT OF HAZARDOUS NATURE

CONSIDERED A HAZARDOUS SUBSTANCE ACCORDING TO OSHA 29 CFR 1910.1200.

SUPPLIER

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

PRODUCT USE

Used according to manufacturers directions. For product 80.

SYNONYMS

Section 2 - COMPOSITION / INFORMATION ON INGREDIENTS

NAME	CAS RN	%
zeolites	1318-02-1	80-90
carbon, steam activated - not regulated	7440-44-0	10-20
water	7732-18-5	1-5

Section 3 - HAZARDS IDENTIFICATION

CANADIAN WHMIS SYMBOLS



EMERGENCY OVERVIEW

RISK

May cause fire. Cumulative effects may result following exposure*. Exposure may produce irreversible effects*. May produce discomfort of the eyes and respiratory tract*.

*(limited evidence)

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

There is some evidence to suggest that this material can cause eye irritation and damage in some persons.

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.

Entry into the blood-stream, through, for example, cuts, abrasions or lesions, may produce systemic injury with harmful effects. Examine the skin prior to the use of the material and ensure that any external damage is suitably protected.

INHALED

There is some evidence to suggest that this material, if inhaled, can irritate the throat and lungs of some persons.

Although inhalation is not thought to produce harmful effects, the material may still produce health damage, especially where pre-existing organ (e.g. liver, kidney) damage is evident. Present definitions of harmful or toxic substances are generally confined to doses producing mortality (death) rather than those producing morbidity (disease, ill-health).

There is some evidence to suggest that the material can cause respiratory irritation in some persons. The body's response to such irritation can cause further lung damage.

Persons with impaired respiratory function, airway diseases and conditions such as emphysema or chronic bronchitis, may incur further disability if excessive concentrations of particulate are inhaled.

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. Substance accumulation, in the human body, may occur and may cause some concern following repeated or long-term occupational exposure. There has been some concern that this material can cause cancer or mutations but there is not enough data to make an assessment.

continued...

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 the eyes:

- Wash out immediately with fresh running water.
- Ensure complete irrigation of the eye by keeping eyelids apart and away from
- eye and moving the eyelids by occasionally lifting the upper and lower lids.
- If pain persists or recurs 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.

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

- Solid which exhibits difficult combustion or is difficult to ignite.
- Avoid generating dust, particularly clouds of dust in a confined or

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unventilated space as dusts may form an explosive mixture with air, and any source of ignition, i.e. flame or spark, will cause fire or explosion. Dust clouds generated by the fine grinding of the solid are a particular hazard; accumulations of fine dust may burn rapidly and fiercely if ignited. - Dry dust can be charged electrostatically by turbulence, pneumatic transport, pouring, in exhaust ducts and during transport. - Build-up of electrostatic charge may be prevented by bonding and grounding. - Powder handling equipment such as dust collectors, dryers and mills may require additional protection measures such as explosion venting. Decomposition may produce toxic fumes of, carbon dioxide (CO2), other pyrolysis products typical of burning organic material. May emit poisonous fumes.

FIRE INCOMPATIBILITY

Avoid contamination with oxidizing agents i.e. nitrates, oxidizing acids, chlorine bleaches, pool chlorine etc. as ignition may result.

PERSONAL PROTECTION

Glasses: Chemical goggles. Gloves: PVC chemical resistant type. Respirator: Particulate

Section 6 - ACCIDENTAL RELEASE MEASURES

MINOR SPILLS

- Clean up all spills immediately.
- Avoid breathing dust and contact with skin and eyes.
- Wear protective clothing, gloves, safety glasses and dust respirator.
- Use dry clean up procedures and avoid generating dust.
- Sweep up, shovel 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

- Moderate hazard.
- CAUTION: Advise personnel in area.
- Alert Emergency Responders and tell them location and nature of hazard.
- Control personal contact by wearing protective clothing.

- Prevent, by any means available, spillage from entering drains or water courses.

- Recover product wherever possible.

- IF DRY: Use dry clean up procedures and avoid generating dust. Collect residues and place in sealed plastic bags or other containers for disposal. IF WET: Vacuum/shovel up and place in labelled containers for disposal.

- ALWAYS: Wash area down with large amounts of water and prevent runoff into drains.

- If contamination of drains or waterways occurs, advise emergency services.

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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.

EMERGENCY RESPONSE PLANNING GUIDELINES (ERPG)

The maximum airborne concentration below which it is believed that nearly all individuals could be exposed for up to one hour WITHOUT experiencing or developing

life-thre carb	atening health effects is: on, steam activated -	not regulated	500 mg/m³
irrevers	sible or other serious effects of an individual's ability to take r	or symptoms which	could
carb	on, steam activated -	not regulated	10 mg/m ³
other th	nan mild, transient adverse ef	fects	
carb	on, steam activated -	not regulated	6 mg/m³
The thr	eshold concentration below v	which most people.	
carb	on, steam activated -	not regulated	2 mg/m³
American	Industrial Hygiene Association	on (AIHA)	
Ingredient	ts considered according exce	ed the following cu	toffs
Very To	oxic (T+) >= 0.1%	Toxic (T)	>= 3.0%
R50	>= 0.25%	Corrosive (C)	>= 5.0%
R51	>= 2.5%		
else	>= 10%		

where percentage is percentage of ingredient found in the mixture

Section 7 - HANDLING AND STORAGE

PROCEDURE FOR HANDLING

NOTE: Wet, activated carbon removes oxygen from the air thus producing a severe hazard to workers inside carbon vessels and in enclosed or confined spaces where activated carbons might accumulate. Before entry to such areas, sampling and test procedures for low oxygen levels should be undertaken; control conditions should be established to ensure the availability of adequate oxygen supply. - Avoid all personal contact, including inhalation.

continued...

- Wear protective clothing when risk of exposure occurs.
- Use in a well-ventilated area.
- Prevent concentration in hollows and sumps.
- DO NOT enter confined spaces until atmosphere has been checked.
- DO NOT allow material to contact humans, exposed food or food utensils.
- 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.
- Launder contaminated clothing before re-use.
- 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

- Polyethylene or polypropylene container.

- Check all containers are clearly labelled and free from leaks.

STORAGE REQUIREMENTS

Observe manufacturer's storing and handling recommendations.

Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE CONTROLS Source	Material	TWA ppm	TWA mg/m³	STEL ppm	STEL mg/m³	Peak ppm	Peak mg/m³
US - Idaho - Toxic and Hazardous Substances - Mineral Dust	Silicates (less than 1% crystalline silica): Graphite	15					
US - California	(natural) Graphite,		5				
Permissible Exposure Limits for Chemical Contaminants	synthetic Respirable fraction(n)						
US - Vermont Permissible Exposure Limits Table Z-1-A Final Rule Limits for Air Contaminants	Graphite, synthetic - Respirable Fraction		5				
US - Vermont Permissible Exposure Limits Table Z-1-A Final Rule Limits for Air Contaminants	Graphite, synthetic - Total dust		10				
Canada - Yukon	Graphite		(See				
Permissible	(synthetic)		Table				
Concentrations for Airborne Contaminant			11)				

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Source	Material	TWA ppm	TWA mg/m³	STEL ppm	STEL mg/m³	Peak ppm	Peak mg/m³
Substances							
US - California	Graphite,		10				
Permissible Exposure	synthetic Total						
Limits for Chemical	dust						
Contaminants							
US - Minnesota	Graphite,		10				
Permissible Exposure	synthetic -						
Limits (PELs)	Total dust						
No data available:	zeolites as (CAS: 1318-02-	1) / (CAS: 3	7305-72-9)) / (CAS: 5	50809-51-3	B) / (CAS:	52349-29-8) /
No data available:	water as (CAS: 7732-18-5)						

No data for Ammo-Carb.

EXPOSURE STANDARDS FOR MIXTURE

"Worst Case" computer-aided prediction of spray/ mist or fume/ dust components and concentration:

"Worst Case" computer-aided prediction of spray/ mist or fume/ dust components and concentration:

Composite Exposure Standard for Mixture (TWA) :3.7221 mg/m³.

"Worst Case" computer-aided prediction of spray/ mist or fume/ dust components and concentration:

Composite Exposure Standard for Mixture (TWA) (mg/m³):

Operations which produce a spray/mist or fume/dust, introduce particulates to the breathing zone.

If the breathing zone concentration of ANY of the components listed below is exceeded, "Worst Case" considerations deem the individual to be overexposed. Component Breathing Zone ppm Breathing Zone mg/m³ Mixture Conc (%).

Component	Breathing Zone	Mixture Conc
	(mg/m ³)	(%)
carbon, steam activated -	not reg	2.9777
20.0		

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,

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- 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. CARBON. STEAM ACTIVATED - NOT REGULATED: for carbon blacks of mineral origin TLV TWA: 3.5 mg/m³ A4 NOTE: This substance has been classified by the ACGIH as A4 NOT classifiable as causing Cancer in humans. ES TWA: 3 mg/m³ Carbon blacks of vegetable origin not listed. WATER: No exposure limits set by NOHSC or ACGIH. PERSONAL PROTECTION EYE - Safety glasses with side shields. - Chemical goggles. - Contact lenses pose a special hazard; soft lenses may absorb irritants and all lenses concentrate them. DO NOT wear contact lenses. HANDS/FEET Wear chemical protective gloves, eq. PVC. Wear safety footwear or safety gumboots, eg. Rubber. OTHER - Overalls. - P.V.C. apron. - Barrier cream.

- Skin cleansing cream.
- Eye wash unit.

RESPIRATOR

Protection Factor Half-Face Respirator Full-Face Respirator Powered Air Respirator

continued...

10 x PEL	P1	-	PAPR-P1	
	Air-line*	-	-	
50 x PEL	Air-line**	P2	PAPR-P2	
100 x PEL	-	P3	-	
		Air-line*	-	
100+ x PEL	-	Air-line**	PAPR-P3	

* - 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 65ºC).

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

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Molecular Weight: Not Applicable Melting Range (C): Not Available Solubility in water (g/L): Immiscible pH (1% solution): Not Applicable Volatile Component (%vol): Not Applicable Relative Vapor Density (air=1): Not Applicable Lower Explosive Limit (%): Not Applicable Autoignition Temp (C): Not Applicable State: Divided Solid

Boiling Range (C): Not Applicable Specific Gravity (water=1): Not Available pH (as supplied): Not Applicable Vapor Pressure (kPa): Not Applicable Evaporation Rate: Not Applicable Flash Point (C): Not Applicable Upper Explosive Limit (%): Not Applicable Decomposition Temp (°C): Not Available

APPEARANCE

Black crystalline sand-like granules; insoluble in water.

Section 10 - CHEMICAL STABILITY AND REACTIVITY INFORMATION

CONDITIONS CONTRIBUTING TO INSTABILITY

- Presence of incompatible materials.
- Product is considered stable.
- Hazardous polymerization will not occur.

STORAGE INCOMPATIBILITY

Activated carbon, when exposed to air, represents a potential fire hazard due to a high surface area and adsorptive capacity. Freshly prepared material may ignite spontaneously in the presence of air especially at high humidity. Spontaneous combustion in air may occur at 90-100 deg. C. The presence of moisture in air facilitates the ignition. Drying oils and oxidising oils promote spontaneous heating and ignition; contamination with these must be avoided. Unsaturated drying oils (linseed oil etc.) may ignite following adsorption owing to an enormous increase in the surface area of oil exposed to air; the rate of oxidation may also be catalysed by metallic impurities in the carbon. A similar, but slower effect occurs on fibrous materials such as cotton waste. Spontaneous heating of activated carbon is related to the composition and method of preparation of the activated carbon. Free radicals, present in charcoal, are responsible for autoignition. Self-heating and autoignition may also result from adsorption of various vapours and gases (especially oxygen). For example, activated carbon auto- ignites in flowing air at 452-518 deg. C.; when the base, triethylene-diamine, is adsorbed on the carbon (5%) the autoignition temperature is reduced to 230-260 deg. C.. An exotherm is produced at 230-260 deg. C., at high flow rates of air, although ignition did not occur until 500 deg. C., Mixtures of sodium borohydride with activated carbons, in air, promote the oxidation of sodium borohydride, producing a self-heating reaction that may result in the ignition of charcoal and in the production of hydrogen through thermal decomposition of the borohydride. Avoid reaction with oxidizing agents.

Section 11 - TOXICOLOGICAL INFORMATION

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of Chemical Substances

ZEOLITES:

~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]

CARBON, STEAM ACTIVATED - NOT REGULATED: No data of toxicological significance identified in literature search.

WATER:

No significant acute toxicological data identified in literature search.

Section 12 - ECOLOGICAL INFORMATION

Marine Pollutant:Not Determined DO NOT discharge into sewer or waterways. 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

Risk Codes R07 Risk Phrases May cause fire.

REGULATIONS

No regulations applicable

carbon, steam activated - not regulated (CAS: 7440-44-0) is found on the following regulatory lists; Canada Domestic Substances List (DSL) US - Minnesota Hazardous Substance List US EPA High Production Volume Program Chemical List US Toxic Substances Control Act (TSCA)

water (CAS: 7732-18-5) is found on the following regulatory lists; Canada Domestic Substances List (DSL) US Toxic Substances Control Act (TSCA)

No data available for zeolites as CAS: 1318-02-1, CAS: 37305-72-9, CAS: 50809-51-3, CAS: 52349-29-8, CAS: 53025-48-2, CAS: 53060-43-8, CAS: 53569-61-2, CAS: 53789-62-1, CAS: 54693-40-2, CAS: 54824-24-7, CAS: 56747-83-2, CAS: 61710-45-0, CAS: 75216-11-4, CAS: 76774-74-8, CAS: 85117-23-3.

Section 16 - OTHER INFORMATION

LIMITED EVIDENCE

Cumulative effects may result following exposure*. May produce discomfort of the eyes and respiratory tract*. Limited evidence of a carcinogenic effect*. * (limited evidence).

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