MATERIAL SAFETY DATA SHEET

SECTION 1 - IDENTIFICATION OF PRODUCT AND COMPANY

Phibro Animal Health
65 Challenger Road
Ridgefield Park, NJ 07660

Emergency telephone: 1-800-345-4735
Hours of operation 24 Hours

Product Information: 1-888-475-7355
Hours of operation M-F 9 a.m. - 5 p.m. Eastern Time

Trade names	**MECADOX®**
Product Name	Carbadox Medicated Premix-10
Therapeutic use	Antibacterial/Growth promoter
Description	Uniform yellow meal with a cereal odor

SECTION 2 - COMPOSITION

Ingredient	CAS Number	Amount
Carbadox	6804-07-5	<5%
Inert Material		Proprietary

SECTION 3 - HAZARDS IDENTIFICATION

Signal word	**CAUTION!**
Statements of hazard	**MAY CAUSE LIVER EFFECTS (BASED ON ANIMAL STUDIES).**
Eye effects	None known
Skin effects	None known
Inhalation effects	None known
Ingestion effects	See 'Known clinical effects and 'Other potential health effects', below.
Known clinical effects	Ingestion of this material may cause effects similar to those generally seen in clinical use of antibiotics including gastrointestinal irritation, vomiting, transient diarrhea, nausea, and abdominal pain.
Other potential health effects	Individuals sensitive to this material or other materials in its chemical class may develop allergic reactions.

SECTION 4 - FIRST AID MEASURES

Skin	Wash skin with soap and water. Remove contaminated clothing and shoes. Wash clothing and thoroughly clean shoes before reuse. If irritation occurs or persists, get medical attention.
Eyes	Immediately flush eyes with water for at least 15 minutes. If irritation occurs or persists, get medical attention.
Inhalation	Remove to fresh air. If not breathing, give artificial respiration. Get medical attention immediately.
Ingestion	If swallowed, get medical attention. Do not induce vomiting unless directed by medical personnel. Never give anything by mouth to an unconscious person.

SECTION 5 - FIRE FIGHTING MEASURES

Fire fighting instructions	Wear approved positive pressure, self-contained breathing apparatus and full protective turn out gear. Evacuate area and fight fire from a safe distance.
Extinguishing media	Use carbon dioxide, dry chemical, or water spray.
Flash point	Not applicable
Hazardous combustion products	Emits toxic fumes of carbon monoxide, carbon dioxide and oxides of nitrogen

SECTION 6 - ACCIDENTAL RELEASE MEASURES

General	Review Sections 3, 8 and 12 before proceeding with clean up.
Small spill	Sweep material into appropriate recovery container. Clean spill area thoroughly. Avoid creating airborne dust.
Large spill	Sweep material into appropriate recovery container. Close container and move it to a secure holding area. Avoid creating airborne dust.

SECTION 7 - HANDLING AND STORAGE

General handling	Minimize dust generation and accumulation. Use with adequate ventilation. Avoid contact with eyes, skin and clothing. Avoid breathing dust.
Storage conditions	Store out of direct sunlight in a well ventilated area at room temperature. Keep container tightly closed when not in use.

SECTION 8 - EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure limits

Compound	Issuer	Type	OEL
Light mineral oil	ACGIH	STEL (15 min)	10 mg/m³ (mist)
	ACGIH	TWA-8 HR	5 mg/m³ (mist)
	OSHA	TWA-8 HR	5 mg/m³ (mist)

Exposure information See exposure limits for component (s) listed above. OEL Data for Carbadox has not been established.

Ventilation General room ventilation is adequate unless the process generates dust or fumes.

Respiratory protection In dusty conditions use an approved dust mask or more protection as needed. If the applicable Occupational Exposure Limit (OEL) is exceeded, wear an appropriate respirator with a protection factor sufficient to control exposures to below the OEL.

Eye protection Wear safety glasses with sideshields if airborne dust is present.

Skin protection If dust is created wear long sleeves and pants to protect skin.

Hand protection Rubber gloves

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

Physical form Uniform meal

Color Yellow

Odor Cereal odor

Molecular weight Mixture

Molecular formula Mixture

pH Not applicable

Boiling point Not applicable

Melting point No data available

Density No data available

Vapor pressure Not applicable

Water solubility No data available

Solvent solubility No data available

SECTION 10 - STABILITY AND REACTIVITY

Reactivity Stable

Conditions to avoid Heat, sparks, flame, and electrostatic discharge

Incompatibilities Oxidizers

Hazardous decomposition products See Section 5 - under Hazardous combustion products.

Hazardous polymerization Will not occur

SECTION 11 - TOXICOLOGY INFORMATION

Toxicology summary The information included in this section describes the potential hazards of the active ingredient.

Acute toxicity

Compound	Type	Route	Species	Dosage
Carbadox	LD_{50}	Oral	Mouse	2810 mg/kg
	LD_{50}	Oral	Rat	850 mg/kg

Eye No data available

Skin No data available

Inhalation No data available

Ingestion See table above

Mutagenicity Evidence of carbadox mutagenicity was observed in the following in vitro assays with or without metabolic activation: the Ames test in S. typhimurium TA98 and TA100, the DNA repair test in B. subtilis (rec assay) and S. typhimurium (uvr assay) and in the sister chromatid exchange assay in Chinese hamster V79 cells. It was also positive in the following in vivo assays: the micronucleus test in rats, the mouse chromosomal aberration test, and in the mouse transplacental micronucleus test.

Subchronic effects Short-term toxicity studies of carbadox were performed in rats and dogs. Oral doses of carbadox at 25 and 50 mg/kg/day for three weeks, produced vomiting in dogs. Clinical chemistry changes indicative of liver toxicity were seen at the 50 mg/kg/day dose level. There were no gross or histopathologic changes attributed to carbadox. In rats, oral doses of carbadox at 50 or 100 mg/kg/day for one month produced pronounced inhibition of body weight gain and food consumption; no gross or histopathologic changes were seen.

Chronic toxicity See Chronic effects/Carcinogenicity below.

SECTION 11 - TOXICOLOGY INFORMATION ...continued

Chronic effects/ carcinogenicity

Long-term oral toxicity studies of carbadox were conducted in rats and monkeys. In rats, carbadox was given in the diet at dose levels of 5, 10, 25, 50 or 100 mg/kg/day for 2 years. At the 50 and 100 mg/kg/day carbadox, all animals died within the first three months of the study. The pathologic alterations found in these animals were similar at both dose levels and indicated damage to the lung (pulmonary edema and hemorrhage), adrenal gland (adrenocortical degeneration or hemorrhage), spleen (deposition of splenic hemosiderin), failure of accessory sex organs secretory function (males) and severe suppression of body and organ weights (seminal vesicle, prostate gland and testicular fat body). Drug-related liver toxicity was seen in 92% of the animals at dose level of 25 mg/kg/day (hepatic parenchymatous degeneration, necrosis and nodular hyperplasia with areas of anaplasia; additionally, 21% exhibited hepatic carcinoma with metastatic invasion of the pulmonary parenchyma, kidney or abdominal lymphoid tissue). At the 10 mg/kg/day, drug-related liver toxicity (hepatic nodular hyperplasia) was observed. No drug-related changes occurred at the 5 mg/kg/day dose level. In a two-year toxicity study in monkeys, carbadox was given orally at dose levels of 5, 10, or 20 mg/kg/day. Monkeys showed no clinical evidence of liver toxicity at doses up to 20 mg/kg/day after 18 months.

Carcinogen status

None of the components of this formulation is listed as a carcinogen by IARC, NTP or OSHA.

Reproductive effects

Rats from the second long-term toxicity study were used in a three-generation study to investigate the effects of carbadox on fertility and reproduction. No adverse effects were seen in the mature litters of the second generation.

Teratogenicity

No data available

Target organs

Liver

SECTION 12 - ECOLOGICAL INFORMATION

Environmental overview

The environmental characteristics of this mixture have not been fully evaluated. Releases to the environment should be avoided.

SECTION 13 - DISPOSAL INFORMATION

Disposal procedure

Incineration is the recommended method of disposal for this material. Observe all local and national regulations when disposing of this mixture.

SECTION 14 - TRANSPORTATION INFORMATION

General shipping instructions	Not regulated for transport under USDOT, IATA, or IMDG regulations.

SECTION 15 - REGULATORY INFORMATION

TSCA status	Not listed
SARA section 302	No
SARA section 313	No
California Proposition 65	Not listed

SECTION 16 - OTHER

Disclaimer	**Phibro Animal Health believes that the information contained in this Material Safety Data Sheet is accurate. While Phibro provides this information in good faith, it does not expressly or impliedly warrant its accuracy.**