MATERIAL SAFETY DATA SHEET

BIX® STRIPPER

COMPANY NAME AND ADDRESS:

NFPA Rating: H=2, F=4, R=0, H

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BIX MFG. CO.
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(24 HOUR) EMERGENCY PHONE:
INFOTRAC: 1-800-535-5053
Effective: June 1, 2000
Supersedes: November 9, 1999

INGREDIENTS:

Regulatory Information
DOT Shipping Classification: Quarts – Consumer Commodity ORM-D; Gallons or larger – Paint Related Material, 3, UN1263, PGII
All ingredients used in BIX® STRIPPER are TSCA listed.
The following ingredients are regulated under Section 313 of Title III of SARA of 1986 and 40 CFR 372.65: Dichloromethane, Methyl alcohol, Toluene
The following ingredients are regulated as a hazardous substance per 40 CFR 302: Dichloromethane, Acetone, Methyl alcohol, Toluene
The California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65) prohibits contaminating any known source of drinking water with substances known to cause cancer and/or reproductive toxicity.

Material or Component	CAS Number	OSHA PEL	ACGIH TLV	Approx. %
Dichloromethane	75-09-2	25 ppm	50 ppm	15 - 25 %
Methyl Alcohol	67-56-1	200 ppm	200 ppm	40 - 50 %
Toluene	108-88-3	100 ppm	50 ppm	10 - 20 %
Acetone	67-64-1	750 ppm	750 ppm	10 - 20 %
2-Amino ethanol	141-43-5	3 ppm	3 ppm	0.5 – 1.5 %
Non-hazardous ingredients		None Established	None Established	0.1 - 5 %

PHYSICAL DATA:

Boiling Point	56 - 60°C	Specific Gravity @ 60°F	0.900 - 0.920
Vapor Pressure Formulation (Calculated)	> 134 mm Hg at STP	pH (100% Solution)	6.0 - 7.0
Vapor Density (Calculated)	< 2 (Air = 1)	Appearance	Clear to light amber
Odor	Aromatic ether like odor	Solubility in Water	Partly miscible

FIRE AND EXPLOSION HAZARD DATA:

Flash Point (Pensky-Martens CC)	26°F	Flammable Limits in Air	Not determined
Extinguisher Media	Water spray, dry chemical, carbon dioxide, and/or foam.		
Special Fire Fighting Procedures	Fire fighter should have eye and full face protection and wear self contained breathing apparatus.		
Unusual Fire and Explosion Hazards	Vapors are heavier than air and may travel to a source of ignition and flash back.		

PHYSICAL HAZARDS / REACTIVITY DATA:

Stability	Stable	Conditions to Avoid	High temperatures
Incompatibility	Strong acids and/or oxidizers	Hazardous Polymerization	Will not occur
Hazardous Decomposition	Combustion produces unidentified organics, oxides of carbon, carbon dioxide, carbon monoxide, ammonia, nitrogen oxides, toxic and hazardous phosgene gas, and toxic and corrosive fumes of chlorides.		
Other	Do not add nitrites due to possible formation of nitrosoamines (potential carcinogen).		

SPECIAL PRECAUTIONS FOR SAFE HANDLING AND USE:

Handling and Storage	Store in cool ventilated area away from ignition sources. Keep containers tightly closed.
Other Precautions	Avoid acids and oxidizers. No smoking or eating in handling areas.
Material Release or Spill	Shut off ignition sources. Stop leak if you can do it without risk. Use water spray to reduce vapors. For small liquid spills, take up with sand, earth, or other absorbent material. For larger spills, dike far ahead of spill for later disposal. No smoking, flames, or flares in hazard area! Keep unnecessary people away. Avoid contamination of water sources.
Disposal of Material	Consult your local federal, state, county, or city regulations on proper methods of disposal.

HEALTH HAZARD DATA:

Route of Entry Inhalation: Yes Skin: Yes Ingestion: Yes

Acute Health Effects

Dichloromethane:

INHALATION: Irritant / Narcotic / Chemical asphyxiant / Carcinogen. 2300 ppm Immediately Dangerous to Life or Health. Human exposure to 100 ppm has resulted in upper respiratory tract irritation; concentrations as low as 200 ppm have produced temporary neurobehavioral effects; 500-1000 ppm for 1-2 hours has caused lightheadedness and elevated carboxyhemoglobin level; 2300 ppm for 30 minutes has caused nausea and narcosis; 5000 ppm has caused headache, fatigue, neurasthenic disorders, and digestive disturbances. Other symptoms may include dizziness, tingling, numbness of the extremities, a sensation of heat, a sensation of fullness in the head, drunkenness, stupor, dullness, and mental confusion. Massive exposure may cause pharyngeal erosion, pulmonary edema, staggering, hemolysis with gross hematuria, rapid unconsciousness, and death. Recovery is generally complete if exposure is terminated before anesthetic death. Exposure to high levels may also cause cardiac arrhythmias.

SKIN: Irritant. May cause effects ranging from mild irritation to severe pain, paresthesias, and possibly burns, depending on the intensity of contact.

EYE CONTACT: Irritant. Vapor concentrations above 2000 ppm may cause irritation. Direct contact may cause pain and extreme irritation, but it is not likely to cause serious injury.

INGESTION: Narcotic / Chemical asphyxiant. May cause rapid, then slowed respiration, glottal and pharyngeal edema, intravascular hemolysis with gross hematuria, gastrointestinal ulceration and hemorrhage, and carboxyhemoglobinemia. These symptoms may progress rapidly to unconsciousness and lack of response to painful stimuli. Pharyngeal erosions may disturb the swallowing mechanism resulting in aspiration pneumonia. In addition, symptoms of central nervous system depression may occur followed by convulsions and paresthesia of the extremities. Large doses may cause liver and kidney damage. The estimated lethal dose for an adult is 25 grams.

Toluene:

INHALATION: Irritant / Narcotic / Neurotoxin. 500 ppm Immediately Dangerous to Life or Health. Odor detection may be insufficient for warning due to olfactory fatigue. Exposure to 100 ppm may cause irritation. 200-600 ppm for up to 8 hours caused fatigue, weakness, confusion, headache, nausea, impaired coordination and reaction time, paresthesias of the skin, euphoria, dizziness, and dilated pupils. 800 ppm caused rapid irritation, nasal mucous secretion, metallic taste, drowsiness, and impaired balance. After effects including nervousness, muscular fatigue, and insomnia lasted for several days. Death may be due to respiratory failure or ventricular fibrillation.

SKIN CONTACT: Irritant. Contact with this liquid may cause irritation. Skin absorption does occur, but it is generally too slow to produce signs of acute systemic toxicity.

EYE CONTACT: Irritant. Liquid may cause irritation and corneal burns if not promptly removed. Concentrations around 300-800 ppm may cause noticeable irritation and lacrimation. Corneal lesions and very fine vacuoles have been reported in workers exposed to a solvent containing toluene. The lesions subsided following several days of non-exposure.

INGESTION: Narcotic. May cause a burning sensation in the epigastrium and abdominal spasms. Systemic effects may occur as described in acute inhalation. Aspiration of the liquid into the lungs may cause coughing, gagging, distress, acute hemorrhagic pneumonitis, and rapidly developing edema. The approximate lethal dose in humans is 15-30 ml.

Methyl alcohol:

INHALATION: Narcotic / Neurotoxin. 6000 ppm Immediately Dangerous to Life or Health. May cause irritation of the mucous membranes, coughing, oppression in the chest, tracheitis, bronchitis, tinnitus, unsteady gait, twitching, colic, constipation, nystagmus, and blepharospasm. Symptoms from occupational exposure include paresthesias, numbness, and shooting pains in the hands and forearms. Metabolic acidosis, and effects on the eyes and central nervous system may occur as detailed in acute ingestion.

SKIN CONTACT: Irritant / Narcotic / Neurotoxin. Contact with liquid may cause irritation. Skin absorption may occur and cause metabolic acidosis and effects on the eyes and central nervous system as detailed in acute ingestion.

EYE CONTACT: Irritant. Vapors may cause irritation. High concentrations have been reported to cause violent inflammation of the conjuctiva and epithelial defects on the cornea. Mild irritation may occur with dilute solutions; the undiluted liquid has produced moderate corneal opacity and conjunctival redness in rabbits. Application of a drop of methanol in rabbit eyes caused a mild reversible reaction, graded 3 on a scale of 1-10 after 24 hours.

INGESTION: Narcotic / Neurotoxin. May cause mild and transient inebriation and subsequent drowsiness followed by an asymptomatic period lasting 8-48 hours. Following the delay, coughing, dyspnea, headache, dullness, weakness, vertigo or dizziness, nausea, vomiting, occasional diarrhea, anorexia, violent pain in the back, abdomen, and extremities, restlessness, apathy or delirium, and rarely, excitement and mania may occur. Rapid, shallow respiration due to metabolic acidosis, cold and clammy skin, hypotension, cyanosis, opisthotonos, convulsions, mild tachycardia, cardiac depression, peripheral neuritis, cerebral and pulmonary edema, unconsciousness, and coma are possible. Effects on the eye may include optic neuritis, blurred or dimmed vision, dilated, unresponsive pupils, ptosis, eye pain, concentric constriction of visual fields, diplopia, change in color perception, photophobia, and optic nerve atrophy. Partial blindness or possibly delayed transient or permanent blindness may also occur. Bilaterals sensorineural deafness has been reported in a single case. Liver, kidney, heart, stomach, intestinal and pancreatic damage may also occur. Death may be due to respiratory failure of rarely from circulatory collapse. As little as 15 ml has caused blindness; the usual fatal dose if 60-240 ml. Prolonged asthenia and irreversible effects on the nervous system including difficulty in speech, motor dysfunction with rigidity, spasticity, and and hypokinesis have been reported.

Acetone:

INHALATION: Irritant / Narcotic. 2500 ppm Immediately Dangerous to Life or Health. Vapor concentrations around 1000 ppm may cause slight transient irritation of the upper respiratory tract. Exposure to 12000 ppm has caused throat irritation and central nervous system depression with weakness of the legs, headache, dizziness, drowsiness, nausea, and a general feeling of malaise. Other possible effects from exposure to high concentrations include dryness of the mouth and throat, incoordination of motion and speech, restlessness, anorexia, abdominal pain, vomiting, sometimes followed by hematemesis, hypothermia, dyspnea, slow, irregular respiration, slow, weak pulse, progressive collapse with stupor, and in severe cases, coma. Blood glucose levels may be affected and fatal ketosis is possible.

SKIN CONTACT: Irritant. Cellular damage to the outer layers of the epitheluim with mild edema and hyperemia has been demonstrated in humans, but was readily reversible. Small amounts may be absorbed through intact skin.

EYE CONTACT: Irritant. In humans, vapors produce only slight irritation when the concentration is at or below 1000 ppm. However, high vapor concentrations have caused corneal epithelial and conjunctival injury in animals. Liquid splashed in human eyes causes and immediate stinging sensation and, if washed promptly, damage only to the corneal epithelium characterized by microscopic gray dots and a foreign body sensation, which heals completely in 1-2 days.

HEALTH HAZARD DATA (cont.):

INGESTION: Narcotic. May cause a fruity odor of the breath and mucous membrane and gastroenteric irritation. In acute cases, a latent period may be followed by restlessness, diarrhea, nausea, and vomiting proceeding to hematemesis and progressive collapse with stupor. Hepatorenal lesions have been reported. The blood glucose level may be affected and ketosis may be fatal. 10-20 milliliters have been tolerated without ill effects. Large amounts have produced lethargy, pharyngeal, and soft palate erosions, and erythema. 200 milliliters have caused stupor within a half hour, flushed cheeks, shallow respiration, and coma which lasted for 12 hours. Renal glucosuria persisted for 5 months.

Chronic Health Effects

Dichloromethane:

INHALATION: More than 100 workers exposed to levels below 500 ppm have developed health problems including significant upper respiratory irritation, exacerbation of coronary artery disease, and a high incidence of neurotoxicity; increased complaints of chest pains were reported at concentrations of 10 to 35 ppm. Repeated human exposure to 50-3600 ppm has caused signs of toxic encephalopathy with acoustical and optical delusions and hallucinations. A case of serious cerebral deterioration was observed in an individual exposed for several years to dichloromethane. In a mortality study of two groups of workers, one exposed to acetone and the other to dichloromethane and acetone, a statistically significant difference in deaths from diseases of the circulatory system and from ischemic heart disease were reported from the dichloromethane and acetone group. In another mortality study of workers exposed to dichloromethane, a significant increase in hypertensive disease ad a "suggestive excess" of pancreatic cancer were reported. Liver disease has been reported in workers. In one study, an increase in serum bilirubin was observed in exposed workers, but no other sign of liver injury or hemolysis was reported. Adverse liver effects were observed in several animal species chemically exposed. Testicular atrophy was reported in mice exposed to 4000 ppm over 2 years. Repeated inhalation by rodents prior to and/or during gestation caused fetal skeletal abnormalities and behavioral effects in newborn offspring.

CHRONIC: Prolonged or repeated contact may cause a dry, scaly, and fissured dermatitis due to defatting action of liquid on skin..

EYE CONTACT: Repeated or prolonged exposure to irritants may cause conjunctivitis.

INGESTION: Repeated ingestion by rats and mice resulted in histomorphological changes in the liver.

Toluene:

INHALATION: Prolonged or repeated exposure may cause mucous membrane irritation, vomiting, insomnia, nosebleeds, chest pains, euphoria, headache, vertigo, nausea, anorexia, momentary loss of memory, loss of coordination and impairment of reaction time, tinnitus, impaired speech, vision, and/or hearing, alcohol intolerance, and petechiae and abnormal bleeding. Bone marrow hypoplasia and leukopenia have been reported occasionally, but may be due to benzene contamination. Examination of workers exposed to 100-1100 ppm revealed hepatomegaly, mild macrocytosis, moderate erythropenia, and absolute lymphocytosis but no leukopenia. Other workers exposed to toluene fumes developed leukopenia and especially neutropenia. Within 6 months, they showed decreased prothrombin level and increased coagulation time. Periodontal effects were also noted. Volunteers exposed to 200 ppm for 6 hours/day for 2 days showed a significant increase in heart rate. Cardiac sensitization may occur and may result in cardiac arrest due to ventricular fibrillation. Repeated inhalation to the point of euphoria has caused irreversible encephalopathy with cerebellar ataxia, rhythmic limb movements, disequilibrium, bizarre behavior, emotional ability, optic atrophy, and diffuse cerebral atrophy. Other neuropsychiatric effects may include dizziness, syncope, paresthesias, peripheral neuropathy, hallucinations, lethargy, and coma. Intentional sniffing can produce renal tubular defects with metabolic acidosis, electrolyte abnormalities, and potassium loss. Severe muscle weakness leading to limb paralysis and cardiac arrhythmias may result from the hypokalemia; however, sensory function and tendon reflexes are not impaired. Gastrointestinal effects may include abdominal pain, nausea, vomiting, and hematemesis. Chromosome changes were observed in some workers up to two years after cessation of exposure to toluene. Women occupationally exposed to toluene and other varnish solvents have reported menstrual disorders, underweight offspring who did not nurse well, and fetal asphyxia. One case study indicated toluene apparently crossed the placenta and created cerebellar damage in an unborn infant. Dysmenorrhea has been reported in women occupationally exposed to toluene levels of 60-100 ppm. Reproductive effects have also been reported in animals.

SKIN CONTACT: Prolonged or repeated contact with the liquid may cause defatting of the skin with a dry fissured dermatitis. Repeated application to rabbit skin produced slight to moderate irritation and slight necrosis. Topical application of 10 g/kg produced and increase in plasmic and lymphoid reticular cells in bone marrow of rats, while 1 g/kg had no effect.

EYE CONTACT: Repeated or prolonged contact with irritants may cause conjunctivitis.

INGESTION: No effects were reported in rats fed up to 590 mg/kg/day for 193 days. Administration to animals during gestation produced significant embryolethality and an increase in cleft palate in offspring.

Methyl alcohol:

INHALATION: Repeated or prolonged exposure may cause effects as in acute ingestion. Repeated exposure to 200-375 ppm caused recurrent headaches in workers. Exposure for 4 years to 1200-8000 ppm resulted in marked diminution of vision and enlargement of the liver in a workman. Reproductive effects have been reported in animals.

SKIN CONTACT: Repeated or prolonged contact with the liquid may cause defatting of the skin resulting in erythema, scaling, and eczematoid dermatitis. Chronic absorption may result in metabolic acidosis and effects as detailed in acute ingestion.

EYE CONTACT: Repeated or prolonged contact may cause conjunctivits.

INGESTION: Repeated ingestion may cause visual impairment and blindness and other systemic effects as detailed in acute ingestion. Reproductive effects have been reported in animals.

Acetone:

INHALATION: Workers exposed to 500 ppm / 6 hours / 6 days experienced mucous membrane irritation, an unpleasant smell, heavy eyes, overnight headache, and general weakness accompanied by hematologic changes. Recovery occurred in several days. Workers exposed to 1000 ppm for 3 hours / day for 7-15 years reported chronic inflammation of the respiratory tract, stomach, and duodenum, dizziness, loss of strength, and asthenia. Drowsiness, vertigo, sensation of heat, and coughing have also been reported from chronic exposure to low concentrations. Reproductive effects have been reported in animals.

SKIN CONTACT: Repeated or prolonged exposure may cause dermatitis with drying, cracking, and erythema due to the defatting action accompanied by persistent paresthesia of the fingers. The amount absorbed through the skin increases directly with the frequency and extent of the exposure. Two or three guinea pigs exposed by skin contact for 3 weeks developed cataracts by the end of three months.

EYE CONTACT: Prolonged or repeated exposure to the vapors may cause irritation or conjunctivitis.

HEALTH HAZARD DATA (cont.):

INGESTION: Rats administered 25000 ppm in their drinking water for 14 days showed depressed growth, fluid intake, and feed consumption. Rats given 100,000 ppm showed mild debilitation, depressed weight gain, emaciated appearance, and bone marrow hyperplasia. Male rats in 13 week studies developed depressed sperm motility and caudal and epididymal weights, an increased incidence of abnormal sperm and nephrophathy. Rats developed anemia and splenic pigmentation (hemosiderosis) at levels of 20000 and 50000 ppm. In both the 14 day and 13 week studies, mice developed centrilobular hepatocellular hypertrophy.

Chemical Ingredients Listed as a Carcinogen or Potential Carcinogen
National Toxicology Program: Dichloromethane
IARC Monographs: Dichloromethane
OSHA Regulated: None

Signs and Symptoms of Exposure
Irritating to eyes, possibly severe. May cause eye damage. Skin irritation may occur. Additional effects may include tingling sensation. Vapor exposure may cause irritation, possibly severe. Additional effects may include nausea, blood in the urine, irregular heartbeat, headache, drunkenness, numbness, suffocation, lung congestion, blood disorders, lack of sense of smell, metallic taste, headache, drowsiness, tingling sensation, dilated pupils, liver and kidney damage, nerve damage, ringing in the ears, digestive disorders, twitching, visual disturbances, low body temperature, yellowing of the skin and eyes, stomach pain, bloody vomit, difficulty breathing, and coma. Ingestion may cause blood in the urine, drunkenness, tingling sensation, suffocation, blood disorders, convulsions, lung congestion, nausea, vomiting, possibly with blood, diarrhea, difficulty breathing, low blood pressure, irregular heartbeat, headache, drowsiness, disorientation, hearing loss, intolerance of the eyes to light, blindness, bluish skin color, nerve damage, convulsions, redness of the skin, and coma.

Emergency and First Aid Procedures for Overexposure

Inhalation	Remove person to fresh air. If necessary, restore and support breathing. If breathing is difficult, give oxygen. Get immediate medical attention.
Eyes	Immediately flush with water for 15 minutes while lifting eyelids and rolling eyes. Get immediate medical attention.
Skin	Wash promptly with soap and water. May dry out skin. Get medical attention if irritation occurs. Remove contaminated clothing. Launder clothing before reuse.
Ingestion	Get immediate medical attention. If conscious and medical help is not readily available, give 1 to 2 glasses of water and keep at rest. Never attempt to give anything by mouth to an unconscious person. Induce vomiting only at the advice of a physician.

Methanol Poisoning Give ethanol, 50% (100 proof), 1.5 ml/kg orally initially, diluted to not more than 5% solution, followed by 0.5-1.0 ml/kg every 2 hours orally or intravenously for 4 days in order to reduce metabolism of methanol and to allow time for its excretion. Blood ethanol level should be in the range of 1-1.5 mg/ml. Antidote should be administered by qualified medical personnel.

SPECIAL PROTECTION AND CONTROL MEASURES:

Respiratory Protection	Under normal ventilated use conditions, personal respiratory protection is typically not required. If misting or vapors occur, use NIOSH approved pressure demand or other positive pressure SCBA or airline respirator.
Ventilation	Provide general or local exhaust ventilation for areas of use.
Protective Gloves	Use chemical resistant gloves.
Eye Protection	Chemical goggles, safety glasses or face shield should be worn when handling this material. Contact lenses should not be worn when handling this material.
Other Protective Equipment	Eye fountain and/or safety shower should be readily available. Long sleeves, aprons or other personal clothing protection is suggested to avoid skin exposure.
Work Hygiene Practices	Avoid contact with this material. Do not eat, drink or smoke when handling this material.

Note: Personal protection information given is based upon the general information as to normal uses and conditions. Where special or unusual uses or conditions exist, it is suggested that the expert assistance of an industrial hygienist or other qualified professional be sought.

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