BEGIN MSDS OHS00114

SECTION 1 CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

MDL INFORMATION SYSTEMS, INC.
1281 Murfreesboro Road, Suite 300
Nashville, TN 37217-2423
1-615-366-2000

EMERGENCY TELEPHONE NUMBER:
1-800-424-9300 (NORTH AMERICA)
1-703-527-3887 (INTERNATIONAL)

SUBSTANCE: ACETAMINOPHEN

TRADE NAMES/SYNONYMS:
ACETAMIDE, N-(4-HYDROXYPHENYL)-; N-(4-HYDROXYPHENYL) ACETAMIDE; ACETANILIDE, 4''-HYDROXY-; 4''-HYDROXYACETANILIDE; 4-HYDROXYACETANILIDE; PANADOL; PARACETAMOL; TEMPRA; TYLENOL; PARA-ACETAMIDOPHENOL; 4-ACETAMIDOPHENOL; 4-ACETAMINOPHENOL; PARA-(ACETYLAMINO)PHENOL; PARA-HYDROXYACETANILIDE; C8H9NO2; OHS00114; RTECS AE4200000

CHEMICAL FAMILY: amines, aromatic, hydroxyls, aromatic

CREATION DATE: Dec 03 1986
REVISION DATE: Mar 22 2001

SECTION 2 COMPOSITION, INFORMATION ON INGREDIENTS

COMPONENT: ACETAMINOPHEN
CAS NUMBER: 103-90-2
EC NUMBER (EINECS): 203-157-5
PERCENTAGE: 100.0

SECTION 3 HAZARDS IDENTIFICATION

NFPA RATINGS (SCALE 0-4): HEALTH=1 FIRE=1 REACTIVITY=0

EMERGENCY OVERVIEW:
COLOR: colorless or white
PHYSICAL FORM: crystals, powder
ODOR: odorless
MAJOR HEALTH HAZARDS: liver damage
PHYSICAL HAZARDS: Dust/air mixtures may ignite or explode.

POTENTIAL HEALTH EFFECTS:
INHALATION:
SHORT TERM EXPOSURE: no information is available
LONG TERM EXPOSURE: no information is available
SKIN CONTACT:
SHORT TERM EXPOSURE: irritation
LONG TERM EXPOSURE: same as effects reported in short term exposure
EYE CONTACT:
SHORT TERM EXPOSURE: irritation
LONG TERM EXPOSURE: no information is available
INGESTION:
SHORT TERM EXPOSURE: digestive disorders, headache, dizziness, liver damage
LONG TERM EXPOSURE: blood disorders, kidney damage, liver damage, reproductive effects

CARCINOGEN STATUS:
OSHA: No
NTP: No
IARC: No

SECTION 4 FIRST AID MEASURES

INHALATION: If adverse effects occur, remove to uncontaminated area. Give artificial respiration if not breathing. Get immediate medical attention.

SKIN CONTACT: Wash skin with soap and water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention, if needed. Thoroughly clean and dry contaminated clothing and shoes before reuse.

EYE CONTACT: Flush eyes with plenty of water for at least 15 minutes. Then get immediate medical attention.

INGESTION: Contact local poison control center or physician immediately. Never make an unconscious person vomit or drink fluids. When vomiting occurs, keep head lower than hips to help prevent aspiration. If person is unconscious, turn head to side. Get medical attention.

ANTIDOTE: n-acetylcysteine, oral.

NOTE TO PHYSICIAN: For ingestion, consider catharsis. Avoid apomorphine.

SECTION 5 FIRE FIGHTING MEASURES

FIRE AND EXPLOSION HAZARDS: Slight fire hazard. Dust/air mixtures may ignite or explode.

EXTINGUISHING MEDIA: regular dry chemical, carbon dioxide, water, regular foam

Large fires: Use regular foam or flood with fine water spray.

FIRE FIGHTING: Move container from fire area if it can be done without risk. Do not scatter spilled material with high-pressure water streams. Dike for later disposal. Use extinguishing agents appropriate for surrounding fire. Avoid inhalation of material or combustion by-products. Stay upwind and keep out of low areas.

SECTION 6 ACCIDENTAL RELEASE MEASURES

OCCUPATIONAL RELEASE:
Collect spilled material in appropriate container for disposal. Keep out of water supplies and sewers. Keep unnecessary people away, isolate hazard area and deny entry.

SECTION 7 HANDLING AND STORAGE

STORAGE: Store and handle in accordance with all current regulations and standards. Store in a tightly closed container. Avoid contact with air or light. Keep separated from incompatible substances.

SECTION 8 EXPOSURE CONTROLS, PERSONAL PROTECTION

EXPOSURE LIMITS:
ACETAMINOPHEN:
PARACETAMOL:
10 mg/m3 UK OES TWA (total inhalable dust)

VENTILATION: Provide local exhaust ventilation system. Ventilation equipment should be explosion-resistant if explosive concentrations of material are present. Ensure compliance with applicable exposure limits.

EYE PROTECTION: Wear splash resistant safety goggles. Provide an emergency eye wash fountain and quick drench shower in the immediate work area.

CLOTHING: Wear appropriate chemical resistant clothing.

GLOVES: Wear appropriate chemical resistant gloves.

RESPIRATOR: Under conditions of frequent use or heavy exposure, respiratory protection may be needed. Respiratory protection is ranked in order from minimum to maximum. Consider warning properties before use.
Any dust, mist, and fume respirator.
Any air-purifying respirator with a high-efficiency particulate filter.
Any powered, air-purifying respirator with a dust, mist, and fume filter.
Any powered, air-purifying respirator with a high-efficiency particulate filter.
For Unknown Concentrations or Immediately Dangerous to Life or Health -
Any supplied-air respirator with full facepiece and operated in a pressure-demand or other positive-pressure mode in combination with a separate escape supply.
Any self-contained breathing apparatus with a full facepiece.

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE: solid
COLOR: colorless or white
PHYSICAL FORM: crystals, powder
ODOR: odorless
TASTE: bitter taste
MOLECULAR WEIGHT: 151.17
MOLECULAR FORMULA: C8-H9-N-O2
BOILING POINT: Not applicable
MELTING POINT: 304 F (151 C)
VAPOR PRESSURE: negligible
VAPOR DENSITY (air=1): 5.2
SPECIFIC GRAVITY (water=1): 1.293 @ 21 C
WATER SOLUBILITY: slightly soluble
PH: 5.5-6.5
VOLATILITY: Not applicable
ODOR THRESHOLD: Not available
EVAPORATION RATE: Not applicable
COEFFICIENT OF WATER/OIL DISTRIBUTION: Not available
SOLVENT SOLUBILITY:
Soluble: acetone, ethanol, dimethylformamide, 1,2-dichloroethane, ethyl acetate, methanol, sodium hydroxide solution
Slightly Soluble: ether
Very Slightly Soluble: benzene, pentane, petroleum ether

SECTION 10 STABILITY AND REACTIVITY

REACTIVITY: Stable at normal temperatures and pressure.

CONDITIONS TO AVOID: Avoid heat, flames, sparks and other sources of ignition.
Avoid contact with incompatible materials.

INCOMPATIBILITIES: acids, bases, oxidizing materials

ACETAMINOPHEN:
ACIDS (STRONG): Hydrolyzed by heat to p-aminophenol and acetic acid.
BASES (STRONG): Hydrolyzed by heat to p-aminophenol and acetic acid.
OXIDIZERS (STRONG): Fire and explosion hazard.

HAZARDOUS DECOMPOSITION:
Thermal decomposition products: oxides of carbon, nitrogen

POLYMERIZATION: Will not polymerize.

SECTION 11 TOXICOLOGICAL INFORMATION

ACETAMINOPHEN:
TOXICITY DATA:
>7940 mg/kg skin-rabbit LD50 (Van Waters and Rogers); 325 mg/kg oral-woman TDLo; 591 mg/kg/2 day(s) intermittent oral-child TDLo; 4962 ug/kg oral-woman TDLo; 714 mg/kg oral-man LDLo; 1440 mg/kg/6 day(s) oral-infant TDLo; 143 mg/kg oral-human LDLo; 360 mg/kg/2 day(s) oral-child LDLo; 801 mg/kg oral-child TDLo; 714 mg/kg oral-man TDLo; 357 mg/kg oral-human LDLo; 260 mg/kg oral-woman LDLo; 490 mg/kg oral-woman TDLo; 143 mg/kg/24 hour(s) intermittent oral-man LDLo; 650 mg/kg oral-woman LDLo; 50 mg/kg oral-child LDLo; 400 mg/kg oral-woman LDLo; 140 mg/kg/7 day(s) intermittent oral-child LDLo; 13 mg/kg oral-woman TDLo; 9286 ug/kg oral-man TDLo; 1944 mg/kg oral-rat LD50; 1205 mg/kg intraperitoneal-rat LD50; 338 mg/kg oral-mouse LD50; 367 mg/kg intraperitoneal-mouse LD50; 310 mg/kg subcutaneous-mouse LD50; 2 gm/kg oral-dog LDLo; 826 mg/kg intravenous-dog LDLo; 1 gm/kg intravenous-pig LDLo; 2620 mg/kg oral-guinea pig LD50; 50 mg/kg subcutaneous-frog LDLo; 512 mg/kg oral-mammal LDLo; 891 mg/kg unreported-mammal LD50; 105 gm/kg/35 day(s) continuous oral-rat TDLo; 68 gm/kg/13 week(s) continuous oral-rat TDLo; 6080 mg/kg/19 day(s) intermittent oral-rat TDLo; 1600 mg/kg/2 day(s) intermittent intraperitoneal-rat TDLo; 136 gm/kg/13 week(s) continuous oral-mouse TDLo; 336 gm/kg/40 week(s) continuous oral-mouse TDLo
CARCINOGEN STATUS: IARC: Human Inadequate Evidence, Animal Limited Evidence, Group 3
Oral administration to mice produced a significant increase in the incidence of multiple liver carcinomas and adenomas at a markedly toxic dose. In two other studies, no increase in the incidence of any tumor was observed at a well-tolerated dose (approximately half the dose used in the preceding study). Administration to rats did not increase the tumor incidence. In a further study, the incidence of neoplastic liver nodules was increased in animals given high doses; the combined incidence of bladder papillomas and carcinomas was significantly greater in high-dose males and low-dose female rats. A positive association between use of acetominophen and cancer of the ureter (but not other sites in the urinary tract) was observed in a case-control study. Three other studies showed no association between usage and cancer of the urinary tract. An increased incidence of mononuclear cell leukemia has been reported in rats (NTP TR-394).
ACUTE TOXICITY LEVEL:
Moderately Toxic: ingestion
TARGET ORGANS: liver
MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: history of alcoholism, liver disorders, respiratory disorders
TUMORIGENIC DATA:
164 gm/kg oral-rat TDLo/78 week(s) continuous; 135 gm/kg oral-mouse TDLo/77 week(s) continuous; 270 gm/kg oral-mouse TD/77 week(s) continuous; 329 gm/kg oral-rat TD/78 week(s) continuous
MUTAGENIC DATA:
mutation in microorganisms - Salmonella typhimurium 100 ug/disc (+S9); micronucleus test - human oral 42857 ug/kg 8 hour(s)-intermittent; DNA inhibition - human lymphocyte 300 umol/L; other mutation test systems - human lymphocyte 200 mg/L; cytogenetic analysis - human lymphocyte 200 mg/L; cytogenetic analysis - human oral 42860 ug/kg; sister chromatid exchange - human oral 42860 ug/kg; sister chromatid exchange - human lymphocyte 1 mmol/L; micronucleus test - rat kidney 10 mmol/L; unscheduled DNA synthesis - rat liver 10 mmol/L; unscheduled DNA synthesis - rat oral 500 mg/kg; micronucleus test - mouse intraperitoneal 100 mg/kg; unscheduled DNA synthesis - mouse liver 7500 umol/L; morphological transformation - mouse embryo 1 gm/L; DNA damage - mouse intraperitoneal 600 mg/kg; DNA damage - mouse liver 1 mmol/L; unscheduled DNA synthesis - mouse oral 84 gm/kg 40 week(s)-continuous; cytogenetic analysis - mouse oral 50 mg/kg; cytogenetic analysis - mouse intraperitoneal 200 mg/kg; sister chromatid exchange - mouse intraperitoneal 50 mg/kg; sex chromosone loss and non disjunction - mouse oral 25 mg/kg; micronucleus test - hamster lung 50 mg/L; DNA damage - hamster lung 3 mmol/L; DNA inhibition - hamster lung 160 umol/L; other mutation test systems - hamster lung 3 mmol/L; cytogenetic analysis - hamster ovary 70 mg/L 24 hour(s); cytogenetic analysis - hamster fibroblast 60 mg/L; cytogenetic analysis - hamster lung 10 mg/L; sister chromatid

exchange - hamster ovary 200 mg/L; sister chromatid exchange - hamster lung 1 mmol/L

REPRODUCTIVE EFFECTS DATA:
650 mg/kg oral-woman TDLo 29 week(s) pregnant female continuous; 417 mg/kg oral-woman TDLo 20 week(s) pregnant female continuous; 1300 mg/kg oral-woman TDLo 31-32 week(s) pregnant female continuous; 500 mg/kg oral-rat TDLo 3 day(s) pregnant female continuous; 1500 mg/kg oral-rat TDLo 8-19 day(s) pregnant female continuous; 12500 mg/kg oral-rat TDLo 14 day(s) pre pregnancy/1-11 day(s) pregnant female continuous; 1 gm/kg oral-rat TDLo 3 day(s) pregnant female continuous; 35 gm/kg oral-rat TDLo 70 day(s) male; 25 mg/kg oral-mouse TDLo 1 day(s) male; 600 mg/kg oral-mouse TDLo 1 day(s) male; 2500 mg/kg oral-mouse TDLo 6-15 day(s) pregnant female continuous; 2500 mg/kg oral-mouse TDLo 6-15 day(s) pregnant female continuous; 1430 mg/kg oral-mouse TDLo 2 day(s) pregnant female continuous; 15730 mg/kg oral-mouse TDLo 8 day(s) pre pregnancy/1-3 day(s) pregnant female continuous; 2 gm/kg oral-rabbit TDLo 1 day(s) pre pregnancy continuous

ADDITIONAL DATA: May cross the placenta. May be excreted in breast milk. Interactions with drugs may occur.

HEALTH EFFECTS:

INHALATION:

ACUTE EXPOSURE:

ACETAMINOPHEN: No data available.

CHRONIC EXPOSURE:

ACETAMINOPHEN: No data available.

SKIN CONTACT:

ACUTE EXPOSURE:

ACETAMINOPHEN: Irritation is unlikely on brief exposure; however, longer contact may result in irritation.

CHRONIC EXPOSURE:

ACETAMINOPHEN: Prolonged or repeated contact may cause irritation.

EYE CONTACT:

ACUTE EXPOSURE:

ACETAMINOPHEN: Dusts may be irritating.

CHRONIC EXPOSURE:

ACETAMINOPHEN: No data available.

INGESTION:

ACUTE EXPOSURE:

ACETAMINOPHEN: Ingestion of large doses may cause gastrointestinal irritation with anorexia, nausea, vomiting, abdominal pain, diarrhea, sweating, lethargy, malaise and pallor during the first 12-24 hours following exposure. From 24-48 hours, symptoms may decrease in severity and an enlarged and tender liver, reduced urinary output, and renal damage may occur. Blood chemistries and liver function tests may be abnormal. Between 72-96 hours, liver damage may become evident. Symptoms may include hepatocentrilobular necrosis, cholestasis, jaundice, hepatosplenomegaly, coagulation and bleeding disorders, renal failure, hypoglycemia, myocardiopathy and hepatic encephalopathy with autonomic nervous system dysfunction producing severe hypotension, and respiratory failure. In severe poisoning, slurred speech, tremulousness, nystagmus, asterixis may precede the encephalopathy. Hepatorenal failure may result in pulmonary edema. Other reported effects may include fever, chills, cyanosis, cardiac arrhythmias, vascular collapse, pulmonary necrosis, pancreatitis, convulsions, and central nervous system stimulation followed by depression. Blood effects and allergic reactions, including skin rashes and rarely, anaphylaxis have been reported. Liver damage and death have been reported with as little as 6 grams. A maternal overdose has been associated with delivery at 29 weeks' gestation. The poisoned infant apparently recovered, however unexpected death occurred at age 106 days. Necrosis of bronchiolar epithelium, lymphoid necrosis in splenic follicles and peyers patches and testicular changes have been observed in male rats administered 600 mg/kg. Reproductive effects have been reported in animals.

CHRONIC EXPOSURE:
ACETAMINOPHEN: Long term daily use has been associated with kidney disease. Ingestion of 3-5 grams daily has been associate with chronic active hepatitis. An association between congenital hip dislocation and maternal acetaminophen use has been reported. Continuous high daily dosage resulted in severe anemia in a mother and fatal kidney disease in the neonate. Other reproductive effects have been reported in humans and animals. Administration to animals has produced a significant increase in the incidence of liver carcinomas and adenomas, and a significant increase in the combined incidence of bladder carcinomas and papillomas. An increased severity of nephropathy and increased incidences of renal tubule hyperplasia and parathyroid hyperplasia in male rats, and increased severity of nephropathy in female rats and increased incidences of thyroid follicular cell hyperplasia in mice were reported in a two year feed study. Continuous exposure to 1% in the diet of mice led to cumulative effects on reproduction, to retarded growth and abnormal sperm, and to reduced birthweight in the offspring.

SECTION 12 ECOLOGICAL INFORMATION

ECOTOXICITY DATA:
FISH TOXICITY: 814000 ug/L 96 hour(s) LC50 (Mortality) Fathead minnow (Pimephales promelas)
INVERTEBRATE TOXICITY: 9200 ug/L 48 hour(s) EC50 (Immobilization) Water flea (Daphnia magna)

ENVIRONMENTAL SUMMARY:
Harmful to aquatic life.

SECTION 13 DISPOSAL CONSIDERATIONS

Dispose in accordance with all applicable regulations.

SECTION 14 TRANSPORT INFORMATION

U.S. DEPARTMENT OF TRANSPORTATION: No classification assigned.

CANADIAN TRANSPORTATION OF DANGEROUS GOODS: No classification assigned.

LAND TRANSPORT ADR/RID: No classification assigned.

AIR TRANSPORT IATA/ICAO: No classification assigned.

MARITIME TRANSPORT IMDG: No classification assigned.

SECTION 15 REGULATORY INFORMATION

U.S. REGULATIONS:
CERCLA SECTIONS 102a/103 HAZARDOUS SUBSTANCES (40 CFR 302.4): Not regulated.

SARA TITLE III SECTION 302 EXTREMELY HAZARDOUS SUBSTANCES (40 CFR 355.30): Not regulated.

SARA TITLE III SECTION 304 EXTREMELY HAZARDOUS SUBSTANCES (40 CFR 355.40): Not regulated.

SARA TITLE III SARA SECTIONS 311/312 HAZARDOUS CATEGORIES (40 CFR 370.21):
ACUTE: Yes
CHRONIC: Yes
FIRE: No

REACTIVE: No
SUDDEN RELEASE: No

SARA TITLE III SECTION 313 (40 CFR 372.65): Not regulated.

OSHA PROCESS SAFETY (29CFR1910.119): Not regulated.

STATE REGULATIONS:
California Proposition 65: Not regulated.

CANADIAN REGULATIONS:
WHMIS CLASSIFICATION: Not determined.

EUROPEAN REGULATIONS:
EC CLASSIFICATION (CALCULATED):
Xn Harmful
Carcinogen Category 3

DANGER/HAZARD SYMBOL:
Xn Harmful

EC RISK AND SAFETY PHRASES:

R 22	Harmful if swallowed.
R 40	Possible risks of irreversible effects.
R 64	May cause harm to breastfed babies.
S 2	Keep out of reach of children.
S 13	Keep away from food, drink and animal feeding stuffs.
S 24	Avoid contact with skin.
S 36	Wear suitable protective clothing.
S 46	If swallowed, seek medical advice immediately and show this container or label.

GERMAN REGULATIONS:
WATER HAZARD CLASS (WGK):
STATE OF CLASSIFICATION: VwVwS
CLASSIFICATION UNDER HAZARD TO WATER: 1

NATIONAL INVENTORY STATUS:
U.S. INVENTORY (TSCA): Listed on inventory.

TSCA 12(b) EXPORT NOTIFICATION: Not listed.

SECTION 16 OTHER INFORMATION

MSDS SUMMARY OF CHANGES

SECTION 3	HAZARDS IDENTIFICATION
SECTION 7	HANDLING AND STORAGE
SECTION 11	TOXICOLOGICAL INFORMATION
SECTION 14	TRANSPORT INFORMATION
SECTION 15	REGULATORY INFORMATION