Arch Chemicals, Inc.

MATERIAL SAFETY DATA

FOR ANY EMERGENCY, CALL 24 HOURS/7 DAYS:	**1-800-654-6911**
FOR ALL TRANSPORTATION ACCIDENTS, CALL CHEMTREC®:	1-800-424-9300
FOR ALL MSDS QUESTIONS & REQUESTS, CALL MSDS CONTROL:	1-800-511-MSDS

PRODUCT NAME: PULSAR® PLUS ACID CLEANER 50

SECTION 1 PRODUCT AND COMPANY IDENTIFICATION

REVISION DATE: 02-22-2006 SUPERCEDES: 08-16-2001
MSDS NO: 01601-9002

MANUFACTURER: **Arch Chemicals, Inc. 501 Merritt 7 PO Box 5204 Norwalk, CT 06856-5204**

SYNONYMS: None
CHEMICAL FAMILY: Organic acid
FORMULA: $C_3H_6O_3$
USE DESCRIPTION: Calcium carbonate descaling
OSHA HAZARD CLASSIFICATION: Corrosive, skin and eye hazard, lung toxin

SECTION 2 COMPONENT DATA

PRODUCT COMPOSITION
CAS or CHEMICAL NAME:
Lactic acid CAS NUMBER:
50-21-5
PERCENTAGE RANGE: 45-55%
HAZARDOUS PER 29 CFR
1910.1200: Yes EXPOSURE
STANDARDS: None Established

CAS or CHEMICAL NAME: Water
CAS NUMBER: 7732-18-5
PERCENTAGE RANGE: 45-55%
HAZARDOUS PER 29 CFR
1910.1200: No EXPOSURE
STANDARDS: None Established

SECTION 3 PRECAUTIONS FOR SAFE HANDLING AND STORAGE

DO NOT TAKE INTERNALLY. AVOID CONTACT WITH SKIN, EYES AND CLOTHING. UPON CONTACT WITH SKIN OR EYES, WASH OFF WITH WATER. AVOID BREATHING MIST OR VAPOR.

STORAGE CONDITIONS:
STORE IN A COOL, DRY, WELL VENTILATED PLACE.
DO NOT STORE AT TEMPERATURES ABOVE: 65.6 Deg.C (150 Deg.F)

PRODUCT STABILITY AND COMPATIBILITY
SHELF LIFE LIMITATIONS: 5 years
INCOMPATIBLE MATERIALS FOR STORAGE OR TRANSPORT: Oxidizers, bases and reducing agents

SECTION 4 PHYSICAL DATA

APPEARANCE: Colorless liquid
POUR POINT: -32.8 Deg.F (-36 Deg.C)
BOILING POINT: No Data
DECOMPOSITION TEMPERATURE: No Data
SPECIFIC GRAVITY: 1.12 @ 77 Deg.F (25 Deg.C)
BULK DENSITY: 9.33 lbs/gal
pH @ 25 DEG.C: 1-2
VAPOR PRESSURE @ 25 DEG.C: No Data
SOLUBILITY IN WATER: Miscible
VOLATILES, PERCENT BY VOLUME: 45-55%
EVAPORATION RATE: Approximately 1 (water = 1)
VAPOR DENSITY: No Data
MOLECULAR WEIGHT: 90.08 (active ingredient)
ODOR: None
COEFFICIENT OF OIL/WATER DISTRIBUTION: No Data

SECTION 5 PERSONAL PROTECTIVE EQUIPMENT REQUIREMENTS

PERSONAL PROTECTION FOR ROUTINE USE OF PRODUCT:

RESPIRATORY PROTECTION:
If concentrations are irritating, wear a respirator.

VENTILATION:
None normally needed if used in open air surroundings.

SKIN AND EYE PROTECTIVE EQUIPMENT:
Use chemical goggles and impermeable gloves and apron.

OTHER:
Have emergency shower/eye wash available.

EQUIPMENT SPECIFICATIONS (WHEN APPLICABLE):
RESPIRATOR TYPE: NIOSH approved organic vapor plus dust/mist prefilter respirator
PROTECTIVE CLOTHING TYPE (This includes: gloves, boots, apron, protective suit) : Impervious

SECTION 6 FIRE AND EXPLOSION HAZARD INFORMATION

FLAMMABILITY DATA:

EXPLOSIVE:	No
FLAMMABLE:	No
COMBUSTIBLE:	No
PYROPHORIC:	No
FLASH POINT:	Not Applicable

AUTOIGNITION TEMPERATURE: Not Applicable
FLAMMABLE LIMITS AT NORMAL ATMOSPHERIC TEMPERATURE AND PRESSURE (PERCENT VOLUME IN AIR) : LEL - Not Applicable UEL - Not Applicable

NFPA RATINGS:
Not Established

HMIS RATINGS:

Health:	3
Flammability:	0
Reactivity:	0

EXTINGUISHING MEDIA:
Not Applicable-Choose extinguishing media suitable for surrounding materials.

FIRE FIGHTING TECHNIQUES AND COMMENTS:
Use water to cool containers exposed to fire. See Section XI for

protective equipment for fire fighting.

SECTION 7 REACTIVITY INFORMATION

CONDITIONS UNDER WHICH THIS PRODUCT MAY BE UNSTABLE:
TEMPERATURES ABOVE: Stable at normal temperatures.
MECHANICAL SHOCK OR IMPACT: No
ELECTRICAL (STATIC) DISCHARGE: No
HAZARDOUS POLYMERIZATION: Will not occur
INCOMPATIBLE MATERIALS: Bases, oxidizing materials, reducing agents
HAZARDOUS DECOMPOSITION PRODUCTS: Carbon dioxide, carbon monoxide
SUMMARY OF REACTIVITY:

EXPLOSIVE:	No
OXIDIZER:	No
PYROPHORIC:	No
ORGANIC PEROXIDE:	No
WATER REACTIVE:	No

SECTION 8 FIRST AID

EYES: Immediately flush with large amounts of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Call a physician at once.

SKIN: Immediately flush with water for 15 minutes. Wash the contaminated skin with soap and water. If irritation develops, call a physician. If clothing comes in contact with the product, the clothing should be laundered before re-use.

INGESTION: Immediately drink large quantities of water. DO NOT induce vomiting. Call a physician at once. DO NOT give anything by mouth if the person is unconscious or if having convulsions.

INHALATION: If person experiences nausea, headache or dizziness, person should stop work immediately and move to fresh air until these symptoms disappear. If breathing is difficult, administer oxygen, keep the person warm and at rest. Call a physician. In the event that an individual inhales enough product to lose consciousness, person should be moved to fresh air at once and a physician should be called immediately. If breathing has stopped, artificial respiration should be given immediately. In all cases, ensure adequate ventilation and provide respiratory protection before the person returns to work.

SECTION 9 TOXICOLOGY AND HEALTH INFORMATION

ROUTES OF ABSORPTION
Dermal contact, eye contact, inhalation, ingestion

WARNING STATEMENTS AND WARNING PROPERTIES
DO NOT TAKE INTERNALLY. MAY BE HARMFUL IF SWALLOWED. HARMFUL IF INHALED OR EXPOSED TO SKIN OR EYES. CORROSIVE TO ALL TISSUES CONTACTED.

HUMAN THRESHOLD RESPONSE DATA
ODOR THRESHOLD: No Data
IRRITATION THRESHOLD: No Data
IMMEDIATELY DANGEROUS TO LIFE OR HEALTH: No IDLH level has been established for this product.

SIGNS, SYMPTOMS, AND EFFECTS OF EXPOSURE

INHALATION

ACUTE:

Inhalation of this material may be irritating to the nose, mouth, throat, and respiratory tract. It may also cause burns to the respiratory tract which can result in symptoms which may include coughing, wheezing, choking, shortness of breath, chest pain, and impairment of lung function. Inhalation of high concentrations may result in permanent lung damage.

CHRONIC:

Chronic inhalation may cause impairment of lung function and permanent lung damage.

SKIN

ACUTE:

Dermal exposure may cause severe irritation and/or burns characterized by redness, swelling, and scab formation. Prolonged skin exposure may cause permanent damage.

CHRONIC:

Repeated dermal exposure may cause tissue destruction due to the corrosive nature of the product.

EYE

Severe irritation and/or burns may occur following exposure. Direct contact may cause impairment of vision and corneal damage.

INGESTION

ACUTE:

Irritation and/or burns may occur to the entire gastrointestinal tract, including the stomach and intestines, characterized by nausea, vomiting, diarrhea, abdominal pain, bleeding, and/or tissue ulceration. Ingestion may cause severe damage to the gastrointestinal tract with the potential to cause perforation.

CHRONIC:

There are no known or reported effects from chronic exposure. Chronic ingestion of significant amounts of this product is unlikely because of its acute corrosive action.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE

Asthma and other respiratory diseases

INTERACTIONS WITH OTHER CHEMICALS WHICH ENHANCE TOXICITY

None known or reported

ANIMAL TOXICOLOGY

ACUTE TOXICITY:

Inhalation LC 50: No Data

Dermal LD 50: > 2 g/kg (rabbit)

Oral LD 50: Believed to be > 5 g/kg (rat) Irritation: Causes burns to eyes and skin.

ACUTE TARGET ORGAN TOXICITY:

This product is corrosive to all tissues contacted and upon inhalation, may cause irritation to mucous membranes and respiratory tract.

CHRONIC TARGET ORGAN TOXICITY:

There are no known or reported effects from repeated exposure except those secondary to burns.

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY:

There are no known or reported effects on reproductive function or fetal development from dermal or inhalation exposure.

CARCINOGENICITY:
This product is not known or reported to be carcinogenic by any reference source including IARC, OSHA, NTP, or EPA.

MUTAGENICITY:
Lactic acid was determined to be non-mutagenic in the salmonella/microsome mutagenesis assay (Ames assay), both with and without metabolic activation.

AQUATIC TOXICITY:
Lactic acid can be directly lethal to fully developed fish only when the pH level is reduced to 5.0 or lower.
Aquatic toxicity rating: 1 (TLM 96: 1,000 - 100 ppm)
Threshold concentration for immobilization of Daphnia magna in lake Erie water (32 hr.): 243 mg/l at 25 degrees Celsius.
Toxic limit (26-72 hr.) to Daphnia Magna (in soft water): 170 mg/l.
Lethal concentration (6-43 hrs.) to goldfish (Carassius auratus) at 18-23 degrees Celsius (in hard water) : 654 mg/l.
Trout: 100 mg/l is lethal in 18 hours.

SECTION 10 TRANSPORTATION INFORMATION

THIS MATERIAL IS REGULATED AS A DOT HAZARDOUS MATERIAL.

DOT DESCRIPTION FROM THE HAZARDOUS MATERIALS TABLE 49 CFR 172.101:
LAND (U.S. DOT): CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S. (LACTIC ACID), 8, UN3265, PG III

WATER (IMO): SAME AS ABOVE

AIR (IATA/ICAO) : SAME AS ABOVE

HAZARD LABEL/PLACARD: CLASS 8 CORROSIVE
REPORTABLE QUANTITY: NOT APPLICABLE (Per 49 CFR 172.101, Appendix)
EMERGENCY GUIDE NO: 153

SECTION 11 SPILL AND LEAKAGE PROCEDURES

FOR ALL TRANSPORTATION ACCIDENTS, CALL CHEMTREC AT 800-424-9300.

REPORTABLE QUANTITY: Not Applicable (Per 40 CFR 302.4)

SPILL MITIGATION PROCEDURES:
Hazardous concentrations in air may be found in local spill area. Stop source of spill as soon as possible and notify appropriate personnel.

AIR RELEASE: Vapors may be suppressed by the use of water fog. Contain all liquid for treatment or neutralization.

WATER RELEASE: This material is lighter than and miscible in water. Notify all downstream users of possible contamination. Divert water flow around spill if possible and safe to do so. Remove with a vacuum system or pumping device for treatment and/or disposal.

LAND SPILL: Create a dike or trench to contain materials. Begin to neutralize materials using lime, cement powder or a weak caustic solution. Spill materials may be absorbed using sand, clay or any absorbant material. Do not place spill materials back in their original containers. Containerize and label all spill materials properly. Decontaminate all

clothing and the spill area using detergent and flush with large amounts of water. Material may be removed using a vacuum system or network of pumps.

SPILL RESIDUES:
This material may be neutralized for disposal; you are requested to contact Arch at 800-654-6911 before beginning any such operation.

PERSONAL PROTECTION FOR EMERGENCY SPILL AND FIRE-FIGHTING SITUATIONS:
Additional respiratory protection is necessary when a spill or involving this product occurs. You are recommended to use a NIOSH/ MSHA approved positive pressure supplied-air respirator.

Additional protective clothing must be worn to prevent personal contact with this material. Those items include but are not limited to: boots, gloves, hard hat and impervious clothing, i.e., chemically impermeable suit.

Protection concerns must also address the potential of the physical characteristic of this product as Corrosive.

SECTION 12 WASTE DISPOSAL

If this product becomes a waste, it meets the criteria of a hazardous waste as defined under 40 CFR 261 and would have the following EPA hazardous waste number: D002.

If this product becomes a waste, it will be a hazardous waste which is subject to the Land Disposal Restrictions under 40 CFR 268 and must be managed accordingly.

As a hazardous liquid waste, it must be disposed of in accordance with local, state and federal regulations in a permitted hazardous waste treatment, storage and disposal facility by treatment (pH adjustment).

CARE MUST BE TAKEN TO PREVENT ENVIRONMENTAL CONTAMINAT ION FROM THE USE OF THIS MATERIAL. THE USER OF THIS MATERIAL HAS THE RESPONSIBILITY TO DISPOSE OF UNUSED MATERIAL, RESIDUES AND CONTAINERS IN COMPLIANCE WITH ALL RELEVANT LOCAL, STATE AND FEDERAL LAWS AND REGULATIONS REGARDING TREATMENT, STORAGE AND DISPOSAL FOR HAZARDOUS AND NONHAZARDOUS WASTES.

SECTION 13 ADDITIONAL REGULATORY STATUS INFORMATION

TOXIC SUBSTANCES CONTROL ACT:
This substance is listed on the Toxic Substances Control Act inventory.

SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT TITLE III:
HAZARD CATEGORIES, PER 40 CFR 370.2:
HEALTH:
Immediate (Acute)
PHYSICAL:
None

EMERGENCY PLANNING AND COMMUNITY RIGHT TO KNOW, PER 40 CFR 355, APP.A:
EXTREMELY HAZARDOUS SUBSTANCE - THRESHOLD PLANNING QUANTITY:
None Established
SUPPLIER NOTIFICATION REQUIREMENTS, PER 40 CFR 372.45:
None Established

SECTION 14 ADDITIONAL INFORMATION

MSDS REVISION STATUS: Section 10 revised

SECTION 15 MAJOR REFERENCES

1. TOXNET Database, U. S. National Library of Medicine, Bethesda, MD.
2. Chemical Hazard Response Information System (CHRIS), Vol. II, U.S. Coast Guard, Washington, DC, 1984.

Additional references are available upon request.

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