



**MATERIAL SAFETY DATA SHEET**  
REQUIRED UNDER SAFETY AND HEALTH REGULATION FOR SHIP REPAIRING

DATE UPDAED: JULY 11, 2011

**SECTION 1. ----- CHEMICAL IDENTIFICATION-----**

CODE#: BC2330

NAME: BUTYRIC ACID

SYNONYM: BUTANIC ACID, BUTANOIC ACID, BUTTERSÆURE (GERMAN), N-BUTYRIC ACID, ETHYLACETIC ACID, KYSELINA MASELNA (CZECH), 1-PROPANECARBOXYLIC ACID, PROPYLFORMIC ACID

**SECTION 2. ----- COMPOSITION/INFORMATION ON INGREDIENTS -----**

NAME	CAS#	%
BUTYRIC ACID	107-92-6	99

**SECTION 3. ----- HAZARDS IDENTIFICATION -----**

EMERGENCY OVERVIEW

CORROSIVE.

CAUSES BURNS.

READILY ABSORBED THROUGH SKIN. STENCH. TARGET ORGAN(S): BLOOD.

COMBUSTIBLE.

HMIS RATING

HEALTH: 3\*

FLAMMABILITY: 2

REACTIVITY: 0

NFPA RATING

HEALTH: 3

FLAMMABILITY: 2

REACTIVITY: 0

\*ADDITIONAL CHRONIC HAZARDS PRESENT.

FOR ADDITIONAL INFORMATION ON TOXICITY, PLEASE REFER TO SECTION 11.

**SECTION 4. ----- FIRST-AID MEASURES-----**

ORAL EXPOSURE

IF SWALLOWED, WASH OUT MOUTH WITH WATER PROVIDED PERSON IS CONSCIOUS. CALL A PHYSICIAN. DO NOT INDUCE VOMITING.

INHALATION EXPOSURE

IF INHALED, REMOVE TO FRESH AIR. IF NOT BREATHING GIVE ARTIFICIAL RESPIRATION. IF BREATHING IS DIFFICULT, GIVE OXYGEN.

DERMAL EXPOSURE

IN CASE OF SKIN CONTACT, FLUSH WITH COPIOUS AMOUNTS OF WATER FOR AT LEAST 15 MINUTES. REMOVE CONTAMINATED CLOTHING AND SHOES.

CALL A PHYSICIAN.

EYE EXPOSURE

IN CASE OF CONTACT WITH EYES, FLUSH WITH COPIOUS AMOUNTS OF WATER FOR AT LEAST 15 MINUTES. ASSURE ADEQUATE FLUSHING BY SEPARATING THE EYELIDS WITH FINGERS. CALL A PHYSICIAN.

**SECTION 5. ----- FIRE FIGHTING MEASURES -----**

FLASH POINT

161.6 °F 72 °C METHOD: CLOSED CUP

EXPLOSION LIMITS

LOWER: 2 % UPPER: 10 %

AUTOIGNITION TEMP

440 °C

FLAMMABILITY

N/A

EXTINGUISHING MEDIA

SUITABLE: CARBON DIOXIDE, DRY CHEMICAL POWDER, OR APPROPRIATE FOAM.

FIREFIGHTING

PROTECTIVE EQUIPMENT: WEAR SELF-CONTAINED BREATHING APPARATUS AND PROTECTIVE CLOTHING TO PREVENT CONTACT WITH SKIN AND EYES.

SPECIFIC HAZARD(S): COMBUSTIBLE LIQUID. EMITS TOXIC FUMES UNDER FIRE CONDITIONS.

**SECTION 6. ----- ACCIDENTAL RELEASE MEASURES-----**

PROCEDURE TO BE FOLLOWED IN CASE OF LEAK OR SPILL

EVACUATE AREA.

PROCEDURE(S) OF PERSONAL PRECAUTION(S)

WEAR SELF-CONTAINED BREATHING APPARATUS, RUBBER BOOTS, AND HEAVY RUBBER GLOVES.

METHODS FOR CLEANING UP

COVER WITH DRY LIME OR SODA ASH, PICK UP, KEEP IN A CLOSED CONTAINER, AND HOLD FOR WASTE DISPOSAL. VENTILATE AREA AND WASH SPILL SITE AFTER MATERIAL PICKUP IS COMPLETE.

**SECTION 7. ----- HANDLING AND STORAGE-----**

HANDLING

USER EXPOSURE: DO NOT BREATHE VAPOR. DO NOT GET IN EYES, ON SKIN, ON CLOTHING. AVOID PROLONGED OR REPEATED EXPOSURE.

STORAGE

SUITABLE: KEEP TIGHTLY CLOSED. KEEP AWAY FROM HEAT AND OPEN FLAME. STORE IN A COOL DRY PLACE.

**SECTION 8. ----- EXPOSURE CONTROLS/PERSONAL PROTECTION-----**

ENGINEERING CONTROLS

SAFETY SHOWER AND EYE BATH. USE ONLY IN A CHEMICAL FUME HOOD.

PERSONAL PROTECTIVE EQUIPMENT

RESPIRATORY: USE RESPIRATORS AND COMPONENTS TESTED AND APPROVED UNDER APPROPRIATE GOVERNMENT STANDARDS SUCH AS NIOSH (US) OR CEN (EU). WHERE RISK ASSESSMENT SHOWS AIR-PURIFYING RESPIRATORS ARE APPROPRIATE USE A FULL-FACE RESPIRATOR WITH MULTI-PURPOSE COMBINATION (US) OR TYPE ABEK (EN 14387) RESPIRATOR CARTRIDGES AS A BACKUP TO ENGINEERING CONTROLS. IF THE RESPIRATOR IS THE SOLE MEANS OF PROTECTION, USE A FULL-FACE SUPPLIED AIR RESPIRATOR.

HAND: COMPATIBLE CHEMICAL-RESISTANT GLOVES.

EYE: CHEMICAL SAFETY GOGGLES.

OTHER: FACESHIELD (8-INCH MINIMUM).

GENERAL HYGIENE MEASURES

WASH CONTAMINATED CLOTHING BEFORE REUSE. DISCARD CONTAMINATED SHOES. WASH THOROUGHLY AFTER HANDLING.

**SECTION 9. ----- PHYSICAL AND CHEMICAL PROPERTIES -----**

APPEARANCE PHYSICAL STATE: CLEAR LIQUID

COLOR: COLORLESS

ODOR: STENCH.

PROPERTY VALUE AT TEMPERATURE OR PRESSURE

MOLECULAR WEIGHT 88.11 AMU

PH 3 20 °C CONCENTRATION: 10

G/L  
BP/BP RANGE 164 °C 760 MMHG  
MP/MP RANGE - 7.9 °C  
FREEZING POINT N/A  
VAPOR PRESSURE 0.43 MMHG 20 °C  
VAPOR DENSITY 3.04 G/L  
SATURATED VAPOR CONC. N/A  
SG/DENSITY 0.958 G/CM3  
BULK DENSITY N/A  
ODOR THRESHOLD N/A  
VOLATILE% N/A  
VOC CONTENT N/A  
WATER CONTENT N/A  
SOLVENT CONTENT N/A  
EVAPORATION RATE N/A  
VISCOSITY 0.002 PAS 20 °C  
SURFACE TENSION 26.74 MN/M 20 °C  
PARTITION COEFFICIENT LOG KOW: 0.79  
DECOMPOSITION TEMP. N/A  
FLASH POINT 161.6 °F 72 °C METHOD: CLOSED CUP  
EXPLOSION LIMITS LOWER: 2 %  
UPPER: 10 %  
FLAMMABILITY N/A  
AUTOIGNITION TEMP 440 °C  
REFRACTIVE INDEX 1.399  
OPTICAL ROTATION N/A  
MISCELLANEOUS DATA N/A  
SOLUBILITY SOLUBILITY IN WATER:50 MG/ML H2O  
OTHER SOLVENTS: ALCOHOL, ETHER

**SECTION 10. -----STABILITY AND REACTIVITY -----**

STABILITY

STABLE: STABLE.

MATERIALS TO AVOID: STRONG OXIDIZING AGENTS.

HAZARDOUS DECOMPOSITION PRODUCTS

HAZARDOUS DECOMPOSITION PRODUCTS: CARBON MONOXIDE, CARBON DIOXIDE.

HAZARDOUS POLYMERIZATION

HAZARDOUS POLYMERIZATION: WILL NOT OCCUR

**SECTION 11. ----- TOXICOLOGICAL INFORMATION -----**

ROUTE OF EXPOSURE

SKIN CONTACT: CAUSES BURNS.

SKIN ABSORPTION: MAY BE HARMFUL IF ABSORBED THROUGH THE SKIN.

EYE CONTACT: CAUSES BURNS.

INHALATION: MAY BE HARMFUL IF INHALED. MATERIAL IS EXTREMELY DESTRUCTIVE TO THE TISSUE OF THE MUCOUS MEMBRANES AND UPPER RESPIRATORY TRACT.

INGESTION: MAY BE HARMFUL IF SWALLOWED.

TARGET ORGAN(S) OR SYSTEM(S)

BLOOD.

SIGNS AND SYMPTOMS OF EXPOSURE

CAN CAUSE CNS DEPRESSION. MATERIAL IS EXTREMELY DESTRUCTIVE TO TISSUE OF THE MUCOUS MEMBRANES AND UPPER RESPIRATORY TRACT, EYES, AND SKIN. INHALATION MAY RESULT IN SPASM, INFLAMMATION AND EDEMA OF THE LARYNX AND BRONCHI, CHEMICAL PNEUMONITIS, AND PULMONARY EDEMA. SYMPTOMS OF EXPOSURE MAY INCLUDE BURNING SENSATION, COUGHING, WHEEZING, LARYNGITIS, SHORTNESS OF BREATH, HEADACHE, NAUSEA, AND VOMITING.

TOXICITY DATA

ORAL

RAT

8,790 MG/KG  
LD50  
ORAL  
RAT  
2,940 MG/KG  
LD50  
1.4 H  
INHALATION  
RABBIT  
400 MG/M3  
SKIN  
RABBIT  
6,083 MG/KG  
LD50  
ORAL  
RAT  
2000 MG/KG  
LD50  
INTRAPERITONEAL  
MOUSE  
3180 MG/KG  
LD50  
SUBCUTANEOUS  
MOUSE  
3180 MG/KG  
LD50  
INTRAVENOUS  
MOUSE  
800 MG/KG  
LD50  
REMARKS: BEHAVIORAL: CONVULSIONS OR EFFECT ON SEIZURE THRESHOLD.  
SKIN  
RABBIT  
530 UL/KG  
LD50  
IRRITATION DATA  
SKIN  
RABBIT  
REMARKS: CORROSIVE.  
EYES  
RABBIT  
REMARKS: MODERATE IRRITATION EFFECT  
SKIN  
RABBIT  
500 MG  
REMARKS: OPEN IRRITATION TEST  
SKIN  
RABBIT  
20 MG  
24H  
REMARKS: MODERATE IRRITATION EFFECT  
CHRONIC EXPOSURE - MUTAGEN  
SPECIES: HUMAN  
DOSE: 3 MMOL/L  
CELL TYPE: HELA CELL  
MUTATION TEST: DNA DAMAGE  
SPECIES: HUMAN  
DOSE: 4 MMOL/L

CELL TYPE: LYMPHOCYTE  
MUTATION TEST: DNA INHIBITION  
SPECIES: CHICKEN  
DOSE: 2 MMOL/L  
CELL TYPE: FIBROBLAST  
MUTATION TEST: DNA DAMAGE

**SECTION 12. ----- ECOLOGICAL INFORMATION -----**

**ACUTE ECOTOXICITY TESTS**

TEST TYPE: EC50 ALGAE

TIME: 72 H

VALUE: 47 MG/L

TEST TYPE: EC50 DAPHNIA

SPECIES: DAPHNIA MAGNA

TIME: 24 H

VALUE: 61.7 MG/L

TEST TYPE: LC50 FISH

SPECIES: LEUCISCUS IDUS

TIME: 48 H

VALUE: 250.0 - 480.0 MG/L

TEST TYPE: LC50 FISH

SPECIES: CYPRINUS CARPIO

TIME: 48 H

VALUE: 65 MG/L

ADDITIONAL RESULTS/DATA FROM RELEVANT SCIENTIFIC EXPERIMENTS

AVOID CONTAMINATION OF THE ENVIRONMENT

**SECTION 13. ----- DISPOSAL CONSIDERATIONS -----**

APPROPRIATE METHOD OF DISPOSAL OF SUBSTANCE OR PREPARATION

CONTACT A LICENSED PROFESSIONAL WASTE DISPOSAL SERVICE TO DISPOSE OF THIS MATERIAL.

THIS COMBUSTIBLE MATERIAL MAY BE BURNED IN A CHEMICAL INCINERATOR EQUIPPED WITH AN AFTERBURNER AND SCRUBBER. OBSERVE ALL FEDERAL, STATE, AND LOCAL ENVIRONMENTAL REGULATIONS.

**SECTION 14. ----- TRANSPORT INFORMATION -----**

DOT

PROPER SHIPPING NAME: BUTYRIC ACID

UN#: 2820

CLASS: 8

PACKING GROUP: PACKING GROUP III

HAZARD LABEL: CORROSIVE

PIH: NOT PIH

IATA

PROPER SHIPPING NAME: BUTYRIC ACID

IATA UN NUMBER: 2820

HAZARD CLASS: 8

PACKING GROUP: III

**SECTION 15. ----- REGULATORY INFORMATION -----**

EU DIRECTIVES CLASSIFICATION

SYMBOL OF DANGER: C

INDICATION OF DANGER: CORROSIVE.

R: 34

RISK STATEMENTS: CAUSES BURNS.

S: 26-36-45

SAFETY STATEMENTS: IN CASE OF CONTACT WITH EYES, RINSE

IMMEDIATELY WITH PLENTY OF WATER AND SEEK MEDICAL ADVICE. WEAR

SUITABLE PROTECTIVE CLOTHING. IN CASE OF ACCIDENT OR IF YOU FEEL

UNWELL, SEEK MEDICAL ADVICE IMMEDIATELY (SHOW THE LABEL WHERE POSSIBLE).

US CLASSIFICATION AND LABEL TEXT

INDICATION OF DANGER: CORROSIVE.

RISK STATEMENTS: CAUSES BURNS.

SAFETY STATEMENTS: IN CASE OF CONTACT WITH EYES, RINSE IMMEDIATELY WITH PLENTY OF WATER AND SEEK MEDICAL ADVICE. WEAR SUITABLE PROTECTIVE CLOTHING, GLOVES, AND EYE/FACE PROTECTION.

IN CASE OF ACCIDENT OR IF YOU FEEL UNWELL, SEEK MEDICAL ADVICE IMMEDIATELY (SHOW THE LABEL WHERE POSSIBLE).

US STATEMENTS: READILY ABSORBED THROUGH SKIN. STENCH. TARGET ORGAN(S): BLOOD. COMBUSTIBLE.

UNITED STATES REGULATORY INFORMATION

SARA LISTED: NO

TSCA INVENTORY ITEM: YES

CANADA REGULATORY INFORMATION

WHMIS CLASSIFICATION: THIS PRODUCT HAS BEEN CLASSIFIED IN ACCORDANCE WITH THE HAZARD CRITERIA OF THE CPR, AND THE MSDS CONTAINS ALL THE INFORMATION REQUIRED BY THE CPR.

DSL: YES

NDSL: NO

**SECTION 16. ----- OTHER INFORMATION-----**

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