



## MATERIAL SAFETY DATA SHEET

### 1. PRODUCT AND COMPANY IDENTIFICATION:

**PRODUCT CODE** N0028  
**PRODUCT NAME** NAT. BUTYL FORMATE  
**SUPPLIER** Shanghai M & U International Trade Co., Ltd.  
Rm 1717, No 598 North NuJiang Road  
200333 Shanghai, China  
+86-21-32515501 32515502  
sales@mu-intel.com

**FOR EMERGENCIES CALL CHEMTREC: 800-424-9300 (24-HOURS)**

### 2. HAZARD IDENTIFICATION:

SEE BELOW

### 3. COMPOSITION AND INFORMATION ON INGREDIENTS:

Molecular Formula: C5 H10 O2  
Molecular Weight: 102.13  
CAS#: 592-84-7  
FEMA#: 2196

### 4. FIRST-AID GUIDE:

**Eyes:** IMMEDIATELY FLUSH EYES WITH LARGE QUANTITIES OF COLD CLEAN WATER FOR AT LEAST 15 MINUTES. CALL A PHYSICIAN IMMEDIATELY.

**Skin:** WASH WITH SOAP AND WATER. FLUSH WITH LARGE QUANTITIES OF WATER. IF IRRITATION PERSISTS CALL A PHYSICIAN.

**Inhalation:** REMOVE TO FRESH AIR AND CALL A PHYSICIAN IF NECESSARY.

**Ingestion:** ADMINISTER WATER OR MILK TO DILUTE. CONTACT A PHYSICIAN OR LOCAL POISON CONTROL CENTER IMMEDIATELY. **DO NOT** INDUCE VOMITING.

### 5. FIRE-FIGHTING GUIDE:

**Flash Point (°F): 57**                      **Method Used: CC**

**L.F.L: N/A**                                      **U.F.L: N/A**

**Extinguishing Media:** Carbon Dioxide; Dry Chemical; Universal Type Foam

**Special Fire Fighting Procedures:** Evacuate unprotected and untrained personnel. Trained firefighting personnel should be equipped with self-contained breathing apparatus and full protective gear.

**Unusual Fire, Explosion and Stability Hazards:** SEALED CONTAINERS MAY BUILD UP PRESSURE AT HIGH TEMPERATURES. IF POSSIBLE, KEEP CONTAINERS COOL WITH WATER SPRAY. CARBON DIOXIDE AND CARBON MONOXIDE PRODUCED UPON COMBUSTION.

## 6. ACCIDENTAL RELEASE GUIDE:

REMOVE ANY SOURCES OF FLAME OR SPARKS. IF IN A CONFINED AREA NIOSH APPROVED RESPIRATORY PROTECTION MAY BE REQUIRED. ABSORB SPILLS ON VERMICULITE OR OTHER SUITABLE ABSORBENT MATERIAL AND REMOVE TO AN APPROVED DISPOSAL CONTAINER. DISPOSE OF IN ACCORDANCE WITH LOCAL, STATE, AND FEDERAL REGULATIONS.

## 7. HANDLING AND STORAGE:

IT IS RECOMMENDED THAT THIS MATERIAL BE STORED IN TIGHT FULL CONTAINERS IN A COOL, DRY PLACE AWAY FROM LIGHT.

## 8. EXPOSURE AND PERSONAL PROTECTION:

**Eyes:** IN GENERAL, THE USE OF SAFETY GLASSES IS RECOMMENDED. IF THE MATERIAL IS TO BE HANDLED IN A MANNER WHERE SPLASHING MAY OCCUR, THE USE OF SPLASH GOGGLES OR FACE SHIELD IS RECOMMEND.

**Respiratory:** IN WELL VENTILATED AREAS RESPIRATORY PROTECTION IS NOT NORMALLY REQUIRED. IN CONFINED, POORLY VENTILATED AREAS THE USE OF NIOSH-APPROVED RESPIRATORY PROTECTION MAYBE REQUIRED OR IF MATERIAL IS RATED TOXIC BY INHALATION.

**Equipment and Apparel:** THE USE OF CHEMICAL RESISTANT GLOVES IS RECOMMENDED. ACCEPTABLE INDUSTRIAL HYGIENE PRACTICES SHOULD BE MAINTAINED. LIMIT EXPOSURE TO PRODUCT WHENEVER POSSIBLE. WASH AFTER ANY CONTACT. THOROUGHLY WASH ANY CONTAMINATED CLOTHING OR SHOES.

**Ventilation:** VENTILATION MEETING ACGIH STANDARDS SHOULD BE EMPLOYED

## 9. PHYSICAL AND CHEMICAL PROPERTIES:

Physical State: LIQUID

Color: COLORLESS TO PALE YELLOW

Solubility in Water: INSOLUBLE

Boiling Point (°C): 105

Vapor Pressure (mmHg@20°C): 28.90

Odor: FRUITY

Vapor Density (Air = 1): N/A

Melting Point (°C): N/A

Specific Gravity @ 25C (H2O=1.0): N/A

Refractive Index @ 20C: 1.385

## 10. STABILITY AND REACTIVITY:

This material presents no significant hazard. Hazardous Polymerization will not occur and it will not react violently with water.

Contact with highly reactive chemical oxidants should be avoided. If burned this product will

produce carbon monoxide and/or carbon dioxide.

## 11. TOXICOLOGICAL INFORMATION:

### **Carcinogenicity:**

NTP: NO OSHA: NO IARC MONOGRAPH: NO

### **Acute Toxicity Data:**

ORAL LD50: 2656 MG/KG RABBIT

DERMAL LD50: NOT ESTABLISHED

INHALATION LC50: NOT ESTABLISHED

### **Health Hazards (Acute and Chronic):**

**Skin Contact:** MAY CAUSE IRRITATION

**Inhalation:** NOT ESTABLISHED

**Eye Contact:** MAY CAUSE IRRITATION

**Ingestion:** NOT ESTABLISHED

### **Other Effects:**

The health hazard information is based on laboratory animal test data for the individual components of this product in their pure form as provided under 29 CFR 1910.1200 (d)(5)(ii). The user should consider the relevancy of this information in a manner consistent with its particular purpose.

## 12. DISPOSAL RECOMMENDATIONS:

REMOVE ANY SOURCES OF FLAME OR SPARKS. IF IN A CONFINED AREA NIOSH APPROVED RESPIRATORY PROTECTION MAY BE REQUIRED. ABSORB SPILLS ON VERMICULITE OR OTHER SUITABLE ABSORBENT MATERIAL AND REMOVE TO AN APPROVED DISPOSAL CONTAINER. DISPOSE OF IN ACCORDANCE WITH LOCAL, STATE, AND FEDERAL REGULATIONS.

## 13. TRANSPORTATION INFORMATION:

<b>DOT</b>	<b>N-BUTYL FORMATE</b>	<b>3, UN1128, PG II</b>
<b>IMDG</b>	<b>N-BUTYL FORMATE</b>	<b>3, UN1128, PG II</b>
<b>IATA</b>	<b>N-BUTYL FORMATE</b>	<b>3, UN1128, PG II</b>

## 14. REGULATORY INFORMATION:

US FEDERAL

HMIS III: PHYSICAL HAZARD: 1

HEALTH: 2 FLAMMABILITY: 3 REACTIVITY: 0 PERSONAL PROTECTION: X

TSCA

CAS# 592-84-7 IS LISTED ON THE TSCA INVENTORY.

HEALTH & SAFETY REPORTING LIST

NONE OF THE CHEMICALS ARE ON THE HEALTH & SAFETY REPORTING LIST.

CHEMICAL TEST RULES

NONE OF THE CHEMICALS IN THIS PRODUCT ARE UNDER A CHEMICAL TEST RULE.

SECTION 12B

NONE OF THE CHEMICALS ARE LISTED UNDER TSCA SECTION 12B.

TSCA SIGNIFICANT NEW USE RULE

NONE OF THE CHEMICALS IN THIS MATERIAL HAVE A SNUR UNDER TSCA.

CERCLA HAZARDOUS SUBSTANCES AND CORRESPONDING RQS

NONE OF THE CHEMICALS IN THIS MATERIAL HAVE AN RQ.

SARA SECTION 302 EXTREMELY HAZARDOUS SUBSTANCES

NONE OF THE CHEMICALS IN THIS PRODUCT HAVE A TPQ.

SARA CODES

CAS # 592-84-7: ACUTE, FLAMMABLE.

SECTION 313 NO CHEMICALS ARE REPORTABLE UNDER SECTION 313.

CLEAN AIR ACT:

THIS MATERIAL DOES NOT CONTAIN ANY HAZARDOUS AIR POLLUTANTS.

THIS MATERIAL DOES NOT CONTAIN ANY CLASS 1 OZONE DEPLETORS.

THIS MATERIAL DOES NOT CONTAIN ANY CLASS 2 OZONE DEPLETORS.

CLEAN WATER ACT:

NONE OF THE CHEMICALS IN THIS PRODUCT ARE LISTED AS HAZARDOUS SUBSTANCES UNDER THE CWA.

NONE OF THE CHEMICALS IN THIS PRODUCT ARE LISTED AS PRIORITY POLLUTANTS UNDER THE CWA.

NONE OF THE CHEMICALS IN THIS PRODUCT ARE LISTED AS TOXIC POLLUTANTS UNDER THE CWA.

OSHA:

NONE OF THE CHEMICALS IN THIS PRODUCT ARE CONSIDERED HIGHLY HAZARDOUS BY OSHA.

STATE

CAS# 592-84-7 CAN BE FOUND ON THE FOLLOWING STATE RIGHT TO KNOW LISTS: NEW JERSEY, PENNSYLVANIA, MASSACHUSETTS.

CALIFORNIA NO SIGNIFICANT RISK LEVEL: NONE OF THE CHEMICALS IN THIS PRODUCT ARE LISTED.

EUROPEAN/INTERNATIONAL REGULATIONS

EUROPEAN LABELING IN ACCORDANCE WITH EC DIRECTIVES

HAZARD SYMBOLS:

F

RISK PHRASES:

R 11 HIGHLY FLAMMABLE.

SAFETY PHRASES:

S 16 KEEP AWAY FROM SOURCES OF IGNITION - NO SMOKING.

S 33 TAKE PRECAUTIONARY MEASURES AGAINST STATIC DISCHARGES.

S 37 WEAR SUITABLE GLOVES.

S 45 IN CASE OF ACCIDENT OR IF YOU FEEL UNWELL, SEEK MEDICAL ADVICE IMMEDIATELY (SHOW THE LABEL WHERE POSSIBLE).

S 9 KEEP CONTAINER IN A WELL-VENTILATED PLACE.

S 28A AFTER CONTACT WITH SKIN, WASH IMMEDIATELY WITH PLENTY OF WATER.

WGK (WATER DANGER/PROTECTION)

CAS# 592-84-7: 1

CANADA - DSL/NDSL

CAS# 592-84-7 IS LISTED ON CANADA'S DSL LIST.

CANADA - WHMIS

THIS PRODUCT DOES NOT HAVE A WHMIS CLASSIFICATION.

CANADIAN INGREDIENT DISCLOSURE LIST

EXPOSURE LIMITS

**15. OTHER INFORMATION:**

The information in this MSDS was obtained from current and reliable sources. However, the data is provided without any warranty, expressed or implied, regarding its correctness or accuracy. Since the conditions for use, handling, storage and disposal of this product are beyond M&U's control, it is the responsibility of the user both to determine safe conditions for use of this product and to assume liability for loss, damage, or expense arising out of the products improper use. No warranty expressed or implied regarding the product described herein will be created by or inferred from any statement or omission in the MSDS. Various federal, state, or provincial agencies may have specific regulations concerning the transportation, handling, storage, use, or disposal of this product which may not be reflected in the MSDS. The user should review these regulations to ensure full compliance.

Material Safety Data Sheet prepared by: **M & U International LLC**