

---

# EPOCH C8902 AQUEOUS DISPERSION

CABOT MICROELECTRONICS

Revised: 4/27/2011

---

Primary CAS: 7631-86-9

## Hazard Ratings

NFPA	Health -	Flammability -	Reactivity -	Other -
HMIS	Health - 1*	Flammability - 0	Reactivity - 0	PPE -

**MSDS**

**Material Safety Data Sheet**

EPOCH C8902

CABOT MICROELECTRONICS

MATERIAL SAFETY DATA SHEET

EPOCH C8902

AQUEOUS DISPERSION

HMIS INDEX:

0 - MINIMAL  
1 - SLIGHT  
2 - MODERATE  
3 - SERIOUS  
4 - SEVERE

HMIS RATING:

HEALTH 1\*  
FLAMMABILITY 0  
PHYSICAL HAZARD 0

DATE PREPARED: FEBRUARY 11, 2010

DATE REVISED: APRIL 27, 2011

PREPARED BY: MICHAEL TREMBLEY/PRODUCT STEWARDSHIP MGR.

#### **SECTION 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION**

PRODUCT NAME: EPOCH C8902 AQUEOUS DISPERSION

RECOMMENDED USE OF THE CHEMICAL AND RESTRICTIONS ON USE:  
USED AS POLISHING SLURRY IN THE SEMICONDUCTOR INDUSTRY AND OTHER  
APPLICATIONS.

INFORMATION ON THE MANUFACTURER/SUPPLIER:

CABOT MICROELECTRONICS CORPORATION(CMC)- UNITED STATES  
870 N. COMMONS DR. AURORA, IL 60504  
UNITED STATES

TELEPHONE NO.:

(MSDS REQUESTS): 630.585.9471  
(TECHNICAL INFORMATION): 630.375.5576  
FACSIMILE NO.: 630.585.9976

EMERGENCY TELEPHONE NO.:

CHEMTREC (U.S.): 800.424.9300  
CHEMTREC (INTL): 703.527.3887  
CMC (U.S.): 630.585.9471

CABOT MICROELECTRONICS CORPORATION- JAPAN

1287-19 OAZA-KITAKOYAMA  
GEINO-CHO-TSU-MIE, 514-2213  
JAPAN

TELEPHONE NO.: 81.59.266.0120

FACSIMILE NO.: 81.59.266.0121

EMERGENCY TELEPHONE NO.:

CHEMTREC (INTL): 703.527.3887

CABOT MICROELECTRONICS CORPORATION- SINGAPORE  
BLK 205, #01-53/54  
WOODLANDS AVENUE 9, SINGAPORE 738957

TELEPHONE NO.: 65.6511.0550

FACSIMILE NO.: 65.6511.0540

EMERGENCY TELEPHONE NO.:  
CHEMTREC (INTL): 703.527.3887

CABOT MICROELECTRONICS CORPORATION- TAIWAN  
3F-1, NO. 22, CHU PEI  
HSIN CHU HSIEN TAIWAN 302, R.O.C

TELEPHONE NO.: 886.3.5526666

FACSIMILE NO.: 886.3.5526677

EMERGENCY TELEPHONE NO.:  
CHEMTREC (INTL): 703.527.3887

CABOT MICROELECTRONICS CORPORATION- KOREA  
SUNGOK BLDG. 5F, 4-1  
SUNAE-DONG, BUNDANG-GU, SEONGNAM-SI, GYEONGGI-DO

INFORMATION SERVICE OR EMERGENCY TELEPHONE NO.: 031.719.7491

(FACSIMILE NO.): 031.719.7494

## **SECTION 2. HAZARDS IDENTIFICATION**

EMERGENCY OVERVIEW: CLEAR.

CAUTION:  
MAY CAUSE SKIN AND EYE IRRITATION. DO NOT BREATHE DUST FROM DRIED PRODUCT.

POTENTIAL ENVIRONMENTAL EFFECTS: NONE KNOWN.

ROUTES OF EXPOSURE: EYE, SKIN.

EYE: MAY CAUSE IRRITATION TO EYE.

SKIN: MAY CAUSE IRRITATION TO SKIN.

INGESTION: MAY BE HARMFUL IF SWALLOWED.

INHALATION:  
DUE TO THIS MATERIAL'S LIQUID DISPERSION STATE, IT IS NOT EXPECTED TO BE  
A SIGNIFICANT INHALATION HAZARD. DRIED PRODUCT MAY CAUSE IRRITATION TO THE  
RESPIRATORY TRACT.

CHRONIC EFFECTS:  
3-AMINO-1,2,4 TRIAZOLE IS LISTED AS A SUSPECT CARCINOGEN BY IARC, NTP,  
Z LIST OR OSHA.

TERATOLOGY: NONE KNOWN.

REPRODUCTION INFO.:  
3-AMINO-1,2,4 TRIAZOLE IS LISTED AS A SUSPECT REPRODUCTIVE HAZARD- ENDOCRINE  
DISRUPTOR.

TARGET ORGANS: NONE KNOWN.

MEDICAL CONDITIONS AGGRAVATED: NONE KNOWN.

### SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

COMPONENT	CAS NO.	EINECS#	% BY WEIGHT
SILICA, AMORPHOUS	7631-86-9	231-545-4	<3%
3-AMINO-1,2,4 TRIAZOLE	61-82-5	200-521-5	0.1%
PROPRIETARY INGREDIENTS	PROPRIETARY	PROPRIETARY	<18%
DE-IONIZED WATER	7732-18-5	231-791-2	>79%

### SECTION 4. FIRST-AID MEASURES

IF THE SUBSTANCE CONTACTS EYES:  
IMMEDIATELY FLUSH LIGHTLY WITH PLENTY OF WATER FOR AT LEAST 15 MINUTES.  
IF SYMPTOMS DEVELOP SEEK MEDICAL ATTENTION.

IF THE SUBSTANCE CONTACTS SKIN:  
FLUSH AFFECTED AREA WITH WATER.  
REMOVE CONTAMINATED CLOTHING.  
IF SYMPTOMS DEVELOP SEEK MEDICAL ATTENTION.

IF THE SUBSTANCE IS INHALED:  
REMOVE TO FRESH AIR.  
IF BREATHING IS DIFFICULT, GIVE OXYGEN.  
IF NOT BREATHING, GIVE ARTIFICIAL RESPIRATION.  
IF SYMPTOMS DEVELOP, SEEK MEDICAL ATTENTION.

IF THE SUBSTANCE IS INGESTED:  
DO NOT INDUCE VOMITING.  
IF CONSCIOUS AND ALERT, RINSE MOUTH WITH WATER.  
IF SYMPTOMS DEVELOP SEEK MEDICAL ATTENTION.

MOST IMPORTANT SYMPTOMS/EFFECTS (ACUTE AND DELAYED): NOT AVAILABLE.

FIRST AID AND NOTE TO PHYSICIANS: TREAT SYMPTOMATICALLY IF PRESENT.

### SECTION 5. EXPLOSION AND FIRE-FIGHTING MEASURES

SUITABLE EXTINGUISHING MEDIA:  
USE EXTINGUISHING MEDIA FOR SURROUNDING FIRE.

UNSUITABLE MEDIA: NOT APPLICABLE

SPECIFIC HAZARDS ARISING FROM THE CHEMICAL: NOT APPLICABLE

SPECIFIC PROTECTIVE EQUIPMENT AND PRECAUTIONS FOR FIRE FIGHTERS:  
STANDARD PERSONAL PROTECTIVE EQUIPMENT FOR STRUCTURAL FIRE FIGHTING

### SECTION 6. ACCIDENTAL RELEASE MEASURES

PERSONAL PRECAUTIONS, PROTECTIVE EQUIPMENT AND EMERGENCY PROCEDURES:  
SAFETY GLASSES OR GOGGLES, IMPERVIOUS GLOVES AND PROTECTIVE CLOTHING  
RECOMMENDED WHEN HANDLING.

IF SPILLED MATERIAL DRIES, CREATING AIRBORNE DUST CONCENTRATIONS THAT EXCEED THE APPLICABLE EXPOSURE LIMIT, THEN AN APPROVED RESPIRATOR FOR DUST/FUMES IS RECOMMENDED.

ENVIRONMENT PRECAUTIONS: DO NOT ALLOW MATERIAL TO SURFACE WATERS.

METHODS AND MATERIALS FOR CONTAINMENT AND CLEAN-UP:  
ABSORB WITH INERT MATERIAL (E.G., DRY SAND OR EARTH), THEN PLACE IN CHEMICAL WASTE CONTAINER.

WEAR APPROPRIATE PPE. SEE SECTION 8.

## **SECTION 7. HANDLING AND STORAGE**

PRECAUTIONS FOR SAFE HANDLING:  
AVOID SKIN AND EYE CONTACT.  
AVOID GENERATING AEROSOLS OR MISTS.  
DO NOT BREATHE AEROSOLS, MISTS OR DUST FROM DRIED PRODUCT.

CONDITIONS FOR SAFE STORAGE, INCLUDING INCOMPATIBILITIES:  
KEEP FROM FREEZING.

HYGIENIC PRACTICES:  
AVOID CONTACT WITH SKIN.  
WASH EXPOSED SKIN FREQUENTLY.  
GOOD PRACTICES SHOULD BE FOLLOWED IN REGARD TO WORK CLOTHING.

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

EXPOSURE LIMITS, BIOLOGICAL LIMIT VALUES ETC.:

TLV (U.S.): 10 MG/M3 TOTAL DUST FOR PARTICLES NOT OTHERWISE CLASSIFIED

PEL (U.S.): 10 MG/M3 FOR NUISANCE DUST. 15 MG/M3 FOR TOTAL DUST.

MAK (GERM.): 4 MG/M3 INHALABLE DUST.

OES (U.K.): 6 MG/M3 TOTAL INHALABLE, 2.4 MG/M3 RESPIRABLE DUST.

AUSTRALIA (TLV):  
10 MG/M3 TOTAL DUST CONTAINING NO ASBESTOS AND <1% CRYSTALLINE SILICA.

KOREA: 10 MG/M3 (TOTAL DUST)

APPROPRIATE ENGINEERING CONTROLS:  
IF OPERATIONS GENERATE DUST, FUMES OR MIST, USE VENTILATION TO KEEP EXPOSURE TO AIRBORNE CONTAMINANTS BELOW EXPOSURE LIMITS.

PERSONAL PROTECTIVE EQUIPMENT:

RESPIRATORY PROTECTION:  
NONE NORMALLY NEEDED UNLESS MISTS OR DUST ARE GENERATED.

AN APPROVED AIR-PURIFYING RESPIRATOR (APR) FOR DUSTS/MISTS MAY BE APPROPRIATE TO CONTROL EXPOSURE. PROTECTION PROVIDED BY AIR-PURIFYING RESPIRATORS IS LIMITED. US A POSITIVE-PRESSURE, AIR SUPPLIED RESPIRATOR IF THERE IS ANY POTENTIAL FOR UNCONTROLLED RELEASE, EXPOSURE LEVELS ARE NOT KNOWN, OR ANY CIRCUMSTANCES WHERE AIR-PURIFYING RESPIRATORS MAY NOT PROVIDE ADEQUATE PROTECTION. USE OF RESPIRATORS MUST INCLUDE A COMPLETE RESPIRATORY PROTECTION PROGRAM IN ACCORDANCE WITH NATIONAL STANDARDS AND CURRENT BEST PRACTICES.

THE FOLLOWING AGENCIES/ORGANIZATIONS APPROVE RESPIRATORS AND/OR CRITERIA FOR RESPIRATOR PROGRAMS

U.S.:

NIOSH APPROVED UNDER 42 CFR 84 REQUIRED.

OSHA (29 CFR 1910.134)

ANSI Z88.2-1992

EU:

CR592 GUIDELINES FOR THE SELECTION AND USE OF RESPIRATORY PROTECTION.

GERMANY: DIN/EN 143 RESPIRATORY PROTECTIVE DEVICES FOR DUSTY MATERIALS.

UK:

BS 4275 RECOMMENDATIONS FOR THE SELECTION, USE AND MAINTENANCE OF RESPIRATORY PROTECTIVE EQUIPMENT.

HSE GUIDANCE NOTE HS(G)53 RESPIRATORY PROTECTIVE EQUIPMENT.

EYE PROTECTION:

SAFETY GLASSES WITH SIDE SHIELDS OR GOGGLES RECOMMENDED TO PREVENT EYE CONTACT.

HAND PROTECTION: IMPERVIOUS GLOVES.

BODY PROTECTION: WEAR APPROPRIATE CLOTHING TO MINIMIZE SKIN CONTACT.

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

APPEARANCE: COLORLESS

\*ODOR: WEAK PUNGENT ODOR.

ODOR THRESHOLD: NOT APPLICABLE.

pH: 4.2.

MELTING POINT/FREEZING POINT: 0 DEG. C / 32 DEG. F.

INITIAL BOILING POINT AND BOILING RANGE: 100 DEG. C / 212 DEG. F.

FLASH POINT: NOT APPLICABLE.

EVAPORATION RATE: SAME AS WATER.

FLAMMABILITY (SOLID, GAS): NOT APPLICABLE.

UPPER/LOWER FLAMMABILITY OR EXPLOSIVE LIMITS: NOT APPLICABLE.

VAPOR PRESSURE: SAME AS WATER.

SOLUBILITY (WATER): DISPERSIBLE.

VAPOR DENSITY: SAME AS WATER.

SPECIFIC DENSITY (GRAVITY): 1.059 @ 25 DEG. C.

PARTITION COEFFICIENT- N-OCTANOL/WATER: NOT APPLICABLE.

AUTO-IGNITION TEMPERATURE: NOT APPLICABLE.

DECOMPOSITION TEMPERATURE: NOT AVAILABLE.

VISCOSITY: NOT DETERMINED.

#### **SECTION 10. STABILITY AND REACTIVITY**

CHEMICAL STABILITY: STABLE.

POSSIBILITY OF HAZARDOUS REACTIONS: HAZARDOUS POLYMERIZATION WILL NOT OCCUR.

CONDITIONS TO AVOID: FREEZING CONDITIONS.

INCOMPATIBLE MATERIALS: NONE.

HAZARDOUS DECOMPOSITION PRODUCTS: NITROGEN OXIDES, CO, CO2 GASES.

#### **SECTION 11. TOXICOLOGICAL INFORMATION**

INFORMATION ON THE LIKELY ROUTES OF EXPOSURE:

ACUTE INHALATION TOXICITY:

DUE TO THIS MATERIAL'S LIQUID DISPERSION STATE, IT IS NOT EXPECTED TO BE A SIGNIFICANT INHALATION HAZARD. DRIED PRODUCT MAY CAUSE IRRITATION TO THE RESPIRATORY TRACT.

ACUTE ORAL TOXICITY: MAY BE HARMFUL IF SWALLOWED.

SKIN: SKIN IRRITATION.

EYE: EYE IRRITATION.

SYMPTOMS RELATED TO THE PHYSICAL, CHEMICAL AND TOXICOLOGICAL CHARACTERISTICS: NOT AVAILABLE

DELAYED AND IMMEDIATE EFFECTS AND CHRONIC EFFECTS FROM SHORT AND LONG TERM EXPOSURE:

IMMEDIATE EFFECTS:

ACUTE TOXICITY: NOT AVAILABLE.

SKIN CORROSION/IRRITATION: SKIN IRRITATION.

SERIOUS EYE DAMAGE/IRRITATION: EYE IRRITATION.

RESPIRATORY SENSITIZATION: NOT AVAILABLE.

SKIN SENSITIZATION: NOT AVAILABLE.

CARCINOGENICITY:

3-AMINO-1,2,4 TRIAZOLE IS LISTED AS A SUSPECT CARCINOGEN BY IARC, NTP, Z LIST OR OSHA.

GERM CELL MUTAGENICITY: NOT AVAILABLE.

REPRODUCTIVE TOXICITY:

3-AMINO-1,2,4 TRIAZOLE IS LISTED AS A SUSPECT REPRODUCTIVE HAZARD- ENDOCRINE DISRUPTOR.

STOST (SINGLE EXPOSURE): NOT AVAILABLE.

STOST (REPEATED EXPOSURE): NOT AVAILABLE.

AQUATIC TOXICITY: NOT AVAILABLE.

**CHRONIC EFFECTS:**

CHRONIC INGESTION EFFECT: NONE EXPECTED.

CHRONIC EYE EFFECT: NONE EXPECTED.

CHRONIC SKIN EFFECT: NONE EXPECTED.

CHRONIC INHALATION EFFECT: NONE KNOWN.

NUMERICAL MEASURES OF TOXICITY: NOT AVAILABLE.

SYNERGISTIC MATERIALS: NONE EXPECTED.

**SECTION 12. ECOLOGICAL INFORMATION**

TOXICITY ON AQUATIC AND TERRESTRIAL ORGANISMS: NOT AVAILABLE.

**PERSISTENCE AND DEGRADABILITY:**

THE OXIDE COMPONENT OF THIS MATERIAL WILL PERSIST.

BIOACCUMULATION: THIS MATERIAL IS NOT EXPECTED TO BIO-ACCUMULATE.

MOBILITY IN SOIL: OXIDE COMPONENT NOT MOBILE IN SOIL.

OTHER ADVERSE EFFECTS: WGK WATER HAZARD CLASS - NWG

**SECTION 13. DISPOSAL CONSIDERATIONS**

**DISPOSAL METHODS:**

DISPOSE OF IN ACCORDANCE WITH ALL APPLICABLE NATIONAL, STATE AND LOCAL REGULATIONS. SAME CONSIDERATIONS SHOULD BE GIVEN TO THE DISPOSAL OF EMPTY CONTAINERS.

PRECAUTIONS FOR DISPOSAL: NOT AVAILABLE

**U.S.:**

AS SOLD, NOT DEFINED AS HAZARDOUS WASTE UNDER U.S. RCRA (RESOURCE CONSERVATION AND RECOVERY ACT) REGULATIONS.

**SECTION 14. TRANSPORT INFORMATION**

UN NUMBER: NOT APPLICABLE

UN PROPER SHIPPING NAME: NON-HAZARDOUS/NON-REGULATED.

TRANSPORT HAZARD CLASS: NOT APPLICABLE.

PACKING GROUP: NOT APPLICABLE.

MARINE POLLUTANT: NOT APPLICABLE.

INFORMATION ON ANY SPECIAL PRECAUTIONS: NOT APPLICABLE.

**SECTION 15. REGULATORY INFORMATION**

**NATIONAL REGISTRIES:**

ALL COMPONENTS ARE IN COMPLIANCE WITH THE INVENTORIES BELOW

AUSTRALIA: AICS AUSTRALIAN INVENTORY LIST



CANADA:

CEPA, CANADIAN ENVIRONMENTAL PROTECTION ACT, 6TH AMENDMENT, DOMESTIC SUBSTANCE LIST.

CHINA: INVENTORY OF EXISTING CHEMICAL SUBSTANCES IN CHINA.

EUROPE:

EINECS, EUROPEAN INVENTORY OF EXISTING COMMERCIAL CHEMICAL SUBSTANCES.

UNITED STATES: TSCA, TOXIC SUBSTANCE CONTROL ACT.

JAPAN:

METI, MINISTRY OF ECONOMY, TRADE AND INDUSTRY LIST OF EXISTING AND NEW CHEMICAL SUBSTANCES (ENCS).

KOREA: ECL, EXISTING CHEMICAL LIST.

U.S. REGULATIONS:

U.S. CLEAN AIR ACT, 1990:

NO COMPONENTS ARE LISTED AS HAZARDOUS AIR POLLUTANTS. NO COMPONENTS CONTAIN OR ARE MANUFACTURED WITH CLASS I OR CLASS II OZONE DEPLETING CHEMICALS.

U.S. CLEAN WATER ACT (40 CFR 116): NO COMPONENTS ARE LISTED.

U.S. SARA TITLE III:

SECTION 302:

DOES NOT CONTAIN ANY CONSTITUENTS THAT ARE IDENTIFIED AS EXTREMELY HAZARDOUS.

SECTION 311/312:

UNDER SARA 311 AND 312, THE EPA HAS ESTABLISHED THRESHOLD QUANTITIES FOR THE REPORTING OF HAZARDOUS CHEMICALS. THE CURRENT THRESHOLDS ARE: 500 POUNDS OR THE THRESHOLD PLANNING QUANTITY (TPQ), WHICHEVER IS LOWER, FOR EXTREMELY HAZARDOUS SUBSTANCES AND 10,000 POUNDS FOR ALL OTHER HAZARDOUS CHEMICALS.

SECTION 311/312 - MSDS REQUIREMENTS: NOT REGULATED.

SECTION 313:

CONTAINS 3-AMINO-1,2,4 TRIAZOLE UNDER SECTION 313 AS TOXIC CHEMICALS IN EXCESS OF THE DE MINIMIS CONCENTRATIONS NECESSARY TO BE SUBJECT TO THIS RULE.

CERCLA: CONTAINS 3-AMINO-1,2,4 TRIAZOLE. REPORTABLE QUANTITY IS 10 LBS.

CALIFORNIA PROP 65:

THIS PRODUCT CONTAINS A CHEMICAL KNOWN TO THE STATE OF CALIFORNIA TO CAUSE CANCER: 3-AMINO-1,2,4 TRIAZOLE (AMITROLE).

EUROPEAN REGULATIONS:

PRODUCT IS NOT A DANGEROUS SUBSTANCE REGARDING EU DIRECTIVE 67/548/EEC AND ITS VARIOUS AMENDMENTS AND ADAPTATIONS.

CLASSIFICATION:

SKIN CORROSION/IRRITATION CATEGORY 2; EYE DAMAGE/IRRITATION CATEGORY 2B

CARCINOGENICITY CATEGORY 2

TOXIC TO REPRODUCTION CATEGORY 2

ACUTE HEALTH HAZARDS OF LOWER SEVERITY

HEALTH HAZARDS INCLUDING CARCINOGENICITY AND SPECIFIC TARGET

ORGAN SYSTEMIC TOXICITY

SIGNAL WORD: WARNING

HAZARD STATEMENT:

CAUSES SKIN IRRITATION.

CAUSES EYE IRRITATION.

SUSPECTED OF DAMAGING FERTILITY OR THE UNBORN CHILD.

PRECAUTIONARY STATEMENTS:

WEAR PROTECTIVE GLOVES/CLOTHING AND EYE/FACE PROTECTION.

WASH HANDS THOROUGHLY AFTER HANDLING.

IF ON SKIN:

WASH WITH PLENTY OF SOAP AND WATER.

TAKE OFF CONTAMINATED CLOTHING AND WASH BEFORE RE-USE.

IF SKIN IRRITATION OCCURS, SEEK MEDICAL ADVICE/ATTENTION.

SEEK EMERGENCY TREATMENT IN REFERENCE TO SUPPLEMENTAL FIRST AID INSTRUCTIONS.

IF IN EYES:

RINSE CAUTIOUSLY WITH WATER FOR SEVERAL MINUTES. REMOVE CONTACT LENSES, IF PRESENT AND EASY TO DO. CONTINUE RINSING.

IF EYE IRRITATION PERSISTS, GET MEDICAL ADVICE/ATTENTION.

OBTAIN SPECIAL INSTRUCTIONS BEFORE USE.

DO NOT HANDLE UNTIL ALL SAFETY PRECAUTIONS HAVE BEEN READ AND UNDERSTOOD.

USE PERSONAL PROTECTIVE EQUIPMENT AS REQUIRED.

IF EXPOSED OR CONCERNED, GET MEDICAL ADVICE/ATTENTION.

STORE LOCKED UP.

DISPOSE OF CONTENTS/CONTAINER IN ACCORDANCE WITH LOCAL/REGIONAL/NATIONAL/INTERNATIONAL REGULATIONS.

IF EYE IRRITATION PERSISTS, GET MEDICAL ADVICE/ATTENTION.

## **SECTION 16. OTHER INFORMATION**

SOURCES OF REFERENCE MATERIALS:

MSDS HAS BEEN PREPARED IN ACCORDANCE WITH THE FOLLOWING:  
GLOBALLY HARMONIZED SYSTEM (GHS) OF CLASSIFICATION AND LABELING OF CHEMICALS.

AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI) Z400.1-2003.

EC DIRECTIVE 91/155/EEC AND 93/113/EEC.

ABBREVIATIONS:

CAS: CHEMICAL ABSTRACT SERVICE.

CERCLA:

COMPREHENSIVE ENVIRONMENTAL RESPONSE, COMPENSATION AND LIABILITY ACT.

HMIS: HAZARDOUS MATERIALS IDENTIFICATION SYSTEM.

NIOSH: NATIONAL INSTITUTE OF OCCUPATIONAL SAFETY & HEALTH.

PEL: PERMISSIBLE EXPOSURE LIMIT.

PPE: PERSONAL PROTECTIVE EQUIPMENT.

SARA: SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT.

TLV: THRESHOLD LIMIT VALUE

UN: UNITED NATIONS.

REVISION INDICATOR:

REVISED SECTIONS OF THE MSDS WILL BE INDICATED BY AN ASTERISK (\*) IN FRONT OF THE SECTION AFFECTED.

THE INFORMATION SET FORTH IS BASED ON INFORMATION WHICH CABOT MICROELECTRONICS CORPORATION BELIEVES TO BE ACCURATE.

NO WARRANTY, EXPRESS OR IMPLIED, IS INTENDED. THE INFORMATION IS PROVIDED SOLELY FOR YOUR INFORMATION AND CONSIDERATION.

CABOT MICROELECTRONICS CORPORATION ASSUMES NO LEGAL RESPONSIBILITY FOR USE OR RELIANCE THEREON.

DATE OF PREPARATION: FEBRUARY 11, 2010

NUMBER OF REVISION TIMES AND DATE OF LATEST REVISION: 2, APRIL 27, 2011

FORM- 0208

(C) 2011, CABOT MICROELECTRONICS CORPORATION.