

**SAFETY DATA SHEET**

Revision Date 04/01/2016

**SECTION 1. CHEMICAL IDENTIFICATION**

PRODUCT NUMBER : 269128  
PRODUCT NAME : Tetrazolium blue chloride  
SYNONYMS :  
COMPANY : AFG Bioscience LLC  
1818 Skokie Boulevard  
Northbrook, IL 60062 USA  
info@afgbioscience.com

24 HOUR EMERGENCY : Within USA/Canada : +1 800-633-8253  
TELEPHONE : Outside USA/Canada : +1 801-629-0667  
TO REQUEST AN MSDS : +1 888-535-2444  
CUSTOMER SERVICE : +1 888-535-2444

**SECTION 2. HAZARDS IDENTIFICATION**

CLASSIFICATION OF THE SUBSTANCE OR MIXTURE

NOT A HAZARDOUS SUBSTANCE OR MIXTURE.

GHS LABEL ELEMENTS, INCLUDING PRECAUTIONARY STATEMENTS

NOT A HAZARDOUS SUBSTANCE OR MIXTURE.

**HAZARDS NOT OTHERWISE CLASSIFIED** NONE  
**(HNOC) OR NOT COVERED BY GHS**

**SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS**

MF :  $C_{40}H_{32}N_8O_2 \cdot 2Cl$   
MW : 727.65  
CAS-NO : 1871-22-3  
PURITY :  $\geq 98\%$  (HPLC)

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

**GENERAL ADVICE** IMMEDIATELY REMOVE ANY CLOTHING CONTAMINATED BY THE PRODUCT. MOVE OUT OF DANGEROUS AREA. CONSULT A PHYSICIAN AND SHOW THIS SAFETY DATA SHEET.

**IF INHALED** MOVE PERSON TO FRESH AIR. IF NOT BREATHING, GIVE ARTIFICIAL RESPIRATION. IF BREATHING IS DIFFICULT, GIVE OXYGEN AND CONSULT A PHYSICIAN

**IN CASE OF SKIN CONTACT** IMMEDIATELY FLUSH SKIN WITH RUNNING WATER FOR AT LEAST 15 MINUTES WHILE REMOVING CONTAMINATED CLOTHING AND SHOES. WASH CLOTHING BEFORE REUSE. CONSULT A PHYSICIAN IMMEDIATELY

**IN CASE OF EYE CONTACT** IMMEDIATELY WASH SKIN WITH COPIOUS AMOUNTS OF WATER FOR AT

|                     |                                                                                                                                                                                                                                          |
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| <b>IF SWALLOWED</b> | LEAST 15 MINUTES. ASSURE ADEQUATE FLUSHING OF THE EYES BY SEPARATING THE EYELIDS WITH FINGERS. IF IRRITATION PERSISTS, DO NOT INDUCE VOMITING . NEVER GIVE ANYTHING BY MOUTH TO AN UNCONSCIOUS PERSON. RINSE MOUTH WITH WATER. CONSULT A |
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| <b>MOST IMPORTANT SYMPTOMS AND EFFECTS, BOTH ACUTE AND DELAYED</b> | THE MOST IMPORTANT KNOWN SYMPTOMS AND EFFECTS ARE DESCRIBED IN THE LABELLING (SEE SECTION 2.2) AND/OR IN SECTION 11 |
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| <b>INDICATION OF ANY IMMEDIATE MEDICAL ATTENTION AND SPECIAL TREATMENT NEEDED</b> | NO DATA AVAILABLE |
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## SECTION 5. FIRE AND EXPLOSION DATA

### EXTINGUISHING MEDIA

|                                     |                                                                 |
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| <b>SUITABLE EXTINGUISHING MEDIA</b> | USE WATER SPRAY, DRY CHEMICAL, CARBON DIOXIDE OR CHEMICAL FOAM. |
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| <b>SPECIAL HAZARDS ARISING FROM THE SUBSTANCE OR MIXTURE</b> | HYDROGEN CHLORIDE, NITROGEN OXIDES, CARBON OXIDES |
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| <b>ADVICE FOR FIREFIGHTERS</b> | WEAR SELF CONTAINED BREATHING APPARATUS FOR FIRE FIGHTING IF NECESSARY. |
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| <b>FURTHER INFORMATION</b> | NO DATA AVAILABLE |
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## SECTION 6. ACCIDENTAL RELEASE MEASURES

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| <b>PERSONAL PRECAUTIONS, PROTECTIVE EQUIPMENT AND EMERGENCY PROCEDURES</b> | WEAR PROTECTIVE EQUIPMENT AND KEEP UNPROTECTED PERSONNEL AWAY. ENSURE ADEQUATE VENTILATION. REMOVE ALL SOURCES OF IGNITION. PREVENT FURTHER LEAK OR SPILL IF SAFE TO DO SO. |
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| <b>ENVIRONMENTAL PRECAUTIONS</b> | FOR PERSONAL PROTECTION SEE SECTION 8.<br>PREVENT FURTHER LEAKAGE OR SPILLAGE IF SAFE TO DO SO. DO NOT LET PRODUCT ENTER DRAINS. DISCHARGE INTO THE ENVIRONMENT MUST BE AVOIDED. |
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| <b>METHODS AND MATERIALS FOR CONTAINMENT AND CLEANING UP</b> | PREVENT FURTHER LEAK OR SPILL IF SAFE TO DO SO. VACUUM, SWEEP UP, OR ABSORB WITH INERT MATERIAL AND PLACE INTO A SUITABLE DISPOSAL CONTAINER. CONSULT LOCAL REGULATIONS FOR DISPOSAL |
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| <b>REFERENCE TO OTHER SECTIONS</b> | FOR DISPOSAL SEE SECTION 13. |
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## SECTION 7. HANDLING AND STORAGE

|                                      |                                                                                                                                                                                                                                                                                                                                                                                                                           |
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| <b>PRECAUTIONS FOR SAFE HANDLING</b> | AVOID CONTACT WITH SKIN, EYES, AND PERSONAL CLOTHING. WASH HANDS THOROUGHLY AFTER HANDLING. AVOID BREATHING FUMES. USE ONLY WITH ADEQUATE VENTILATION. WEAR SUITABLE PROTECTIVE CLOTHING, GLOVES, AND EYE/FACE PROTECTION. KEEP AWAY FROM SOURCES OF IGNITION. MINIMIZE DUST GENERATION AND ACCUMULATION. KEEP CONTAINER TIGHTLY CLOSED. OPEN AND HANDLE CONTAINER WITH CARE. DO NOT EAT, DRINK, OR SMOKE WHILE HANDLING. |
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| <b>CONDITIONS FOR SAFE STORAGE, INCLUDING ANY INCOMPATIBILITIES</b> | FOR PRECAUTIONS SEE SECTION 2.2.<br>STORE IN A TIGHTLY-CLOSED CONTAINER WHEN NOT IN USE. STORE IN A COOL, DRY, WELL-VENTILATED AREA AWAY FROM INCOMPATIBLE SUBSTANCES. KEEP AWAY FROM SOURCES OF IGNITION. |
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| <b>RECOMMENDED STORAGE TEMPERATURE</b> | Store at RT |
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| <b>SPECIFIC END USE(S)</b> | APART FROM THE USES MENTIONED IN SECTION 1.2 NO OTHER SPECIFIC USES ARE STIPULATED |
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## SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### CONTROL PARAMETERS

|                                                     |                                                                 |
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| <b>COMPONENTS WITH WORKPLACE CONTROL PARAMETERS</b> | CONTAINS NO SUBSTANCES WITH OCCUPATIONAL EXPOSURE LIMIT VALUES. |
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### EXPOSURE CONTROLS

|                                         |                                                                                                                                                                                                                                                                            |
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| <b>APPROPRIATE ENGINEERING CONTROLS</b> | AVOID CONTACT WITH SKIN, EYES, AND CLOTHING. WASH HANDS BEFORE BREAKS AND IMMEDIATELY AFTER HANDLING THE PRODUCT. FACILITIES STORING OR UTILIZING THIS MATERIAL SHOULD BE EQUIPPED WITH AN EYEWASH FOUNTAIN. USE ADEQUATE VENTILATION TO KEEP AIRBORNE CONCENTRATIONS LOW. |
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### PERSONAL PROTECTIVE EQUIPMENT

|                            |                                                                                                                                                                               |
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| <b>EYE/FACE PROTECTION</b> | SAFETY GLASSES WITH SIDE-SHIELDS CONFORMING TO EN166 USE EQUIPMENT FOR EYE PROTECTION TESTED AND APPROVED UNDER APPROPRIATE GOVERNMENT STANDARDS SUCH AS NIOSH (US) OR EN 166 |
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| <b>SKIN PROTECTION</b> | HANDLE WITH GLOVES. GLOVES MUST BE INSPECTED PRIOR TO USE. USE PROPER GLOVE REMOVAL TECHNIQUE (WITHOUT TOUCHING GLOVE'S OUTER SURFACE) TO AVOID SKIN CONTACT WITH THIS PRODUCT. DISPOSE OF CONTAMINATED GLOVES AFTER USE IN ACCORDANCE WITH APPLICABLE LAWS AND GOOD LABORATORY PRACTICES. WASH AND DRY HANDS. |
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| <b>BODY PROTECTION</b> | IMPERVIOUS CLOTHING, THE TYPE OF PROTECTIVE EQUIPMENT MUST BE SELECTED ACCORDING TO THE CONCENTRATION AND AMOUNT OF THE DANGEROUS SUBSTANCE AT THE SPECIFIC WORKPLACE. |
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| <b>RESPIRATORY PROTECTION</b> | WHERE RISK ASSESSMENT INDICATES AIR-PURIFYING RESPIRATORS ARE REQUIRED USE A DUST MASK TYPE N95 (US) OR TYPE P1 (EN 143) RESPIRATOR. RESPIRATORS AND COMPONENTS MUST TESTED AND APPROVED UNDER APPROPRIATE GOVERNMENT STANDARDS - NIOSH (US) |
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| <b>CONTROL OF ENVIRONMENTAL EXPOSURE</b> | PREVENT FURTHER LEAKAGE OR SPILLAGE IF SAFE TO DO SO. DO NOT LET PRODUCT ENTER DRAINS. DISCHARGE INTO THE ENVIRONMENT MUST BE AVOIDED. |
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## SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

### INFORMATION ON BASIC PHYSICAL AND CHEMICAL PROPERTIES

|                                              |                           |
|----------------------------------------------|---------------------------|
| APPEARANCE                                   | Yellow crystalline powder |
| ODOUR                                        | NO DATA AVAILABLE         |
| ODOUR THRESHOLD                              | NO DATA AVAILABLE         |
| PH                                           | NO DATA AVAILABLE         |
| MELTING POINT/FREEZING POINT                 | 253-257 °C                |
| INITIAL BOILING POINT AND BOILING RANGE      |                           |
| FLASH POINT                                  |                           |
| EVAPORATION RATE                             | NO DATA AVAILABLE         |
| FLAMMABILITY (SOLID, GAS)                    | NO DATA AVAILABLE         |
| UPPER/LOWER FLAMMABILITY OR EXPLOSIVE LIMITS | NO DATA AVAILABLE         |
| VAPOUR PRESSURE                              | NO DATA AVAILABLE         |
| VAPOUR DENSITY                               | NO DATA AVAILABLE         |

|                                            |                   |
|--------------------------------------------|-------------------|
| RELATIVE DENSITY                           |                   |
| WATER SOLUBILITY                           | NO DATA AVAILABLE |
| PARTITION COEFFICIENT: N-<br>OCTANOL/WATER | NO DATA AVAILABLE |
| AUTO-IGNITION TEMPERATURE                  | NO DATA AVAILABLE |

|                                 |                   |
|---------------------------------|-------------------|
| DECOMPOSITION<br>TEMPERATURE    | NO DATA AVAILABLE |
| VISCOSITY                       | NO DATA AVAILABLE |
| EXPLOSIVE PROPERTIES            | NO DATA AVAILABLE |
| OXIDIZING PROPERTIES            | NO DATA AVAILABLE |
| <b>OTHER SAFETY INFORMATION</b> | NO DATA AVAILABLE |

## SECTION 10. STABILITY AND REACTIVITY

|                                               |                                                                                            |
|-----------------------------------------------|--------------------------------------------------------------------------------------------|
| <b>REACTIVITY</b>                             | NO DATA AVAILABLE                                                                          |
| <b>CHEMICAL STABILITY</b>                     | STABLE UNDER RECOMMENDED STORAGE CONDITIONS.                                               |
| <b>POSSIBILITY OF HAZARDOUS<br/>REACTIONS</b> | NO DATA AVAILABLE                                                                          |
| <b>CONDITIONS TO AVOID</b>                    | HEAT, FLAMES AND SPARKS                                                                    |
| <b>INCOMPATIBLE MATERIALS</b>                 | STRONG OXIDIZING AGENTS                                                                    |
| <b>HAZARDOUS DECOMPOSITION<br/>PRODUCTS</b>   | CARBON MONOXIDE, NITROGEN OXIDES, HYDROGEN CHLORIDE<br>IN THE EVENT OF FIRE: SEE SECTION 5 |

## SECTION 11. TOXICOLOGICAL INFORMATION

### INFORMATION ON TOXICOLOGICAL EFFECTS

|                                              |                   |
|----------------------------------------------|-------------------|
| <b>ACUTE TOXICITY</b>                        | NO DATA AVAILABLE |
| <b>SKIN CORROSION/IRRITATION</b>             | NO DATA AVAILABLE |
| <b>SERIOUS EYE DAMAGE/EYE<br/>IRRITATION</b> | NO DATA AVAILABLE |
| <b>RESPIRATORY OR SKIN<br/>SENSITISATION</b> | NO DATA AVAILABLE |
| <b>GERM CELL MUTAGENICITY</b>                | NO DATA AVAILABLE |
| <b>CARCINOGENICITY</b>                       |                   |

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|-------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|
| IARC: | NO COMPONENT OF THIS PRODUCT PRESENT AT LEVELS GREATER THAN OR<br>EQUAL TO 0.1% IS IDENTIFIED AS PROBABLE, POSSIBLE OR CONFIRMED<br>HUMAN CARCINOGEN BY IARC. |
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| ACGIH: | NO COMPONENT OF THIS PRODUCT PRESENT AT LEVELS GREATER THAN OR<br>EQUAL TO 0.1% IS IDENTIFIED AS A CARCINOGEN OR POTENTIAL<br>CARCINOGEN BY ACGIH. |
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|      |                                                                                                                                               |
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| NTP: | NO COMPONENT OF THIS PRODUCT PRESENT AT LEVELS GREATER THAN OR<br>EQUAL TO 0.1% IS IDENTIFIED AS A KNOWN OR ANTICIPATED CARCINOGEN<br>BY NTP. |
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| OSHA: | NO COMPONENT OF THIS PRODUCT PRESENT AT LEVELS GREATER THAN OR<br>EQUAL TO 0.1% IS IDENTIFIED AS A CARCINOGEN OR POTENTIAL<br>CARCINOGEN BY OSHA. |
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|------------------------------|-------------------|
| <b>REPRODUCTIVE TOXICITY</b> | NO DATA AVAILABLE |
|------------------------------|-------------------|

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|-------------------------------------------------------------|-------------------|
| <b>SPECIFIC TARGET ORGAN<br/>TOXICITY - SINGLE EXPOSURE</b> | NO DATA AVAILABLE |
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|-------------------------------------------------------------------|-------------------|
| <b>SPECIFIC TARGET ORGAN<br/>TOXICITY - REPEATED<br/>EXPOSURE</b> | NO DATA AVAILABLE |
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**ASPIRATION HAZARD** NO DATA AVAILABLE

**ADDITIONAL INFORMATION** RTECS: NOT AVAILABLE  
TO THE BEST OF OUR KNOWLEDGE, THE CHEMICAL, PHYSICAL AND  
TOXICOLOGICAL PROPERTIES OF THIS SUBSTANCE HAVE NOT BEEN  
THOROUGHLY INVESTIGATED.

## **SECTION 12. ECOLOGICAL INFORMATION**

**TOXICITY** NO DATA AVAILABLE

**PERSISTENCE AND  
DEGRADABILITY** NO DATA AVAILABLE

**BIOACCUMULATIVE** NO DATA AVAILABLE

**MOBILITY IN SOIL** NO DATA AVAILABLE

**RESULTS OF PBT AND VPVB  
ASSESSMENT** PBT/VPVB ASSESSMENT NOT AVAILABLE AS CHEMICAL SAFETY  
ASSESSMENT NOT REQUIRED/NOT CONDUCTED

**OTHER ADVERSE EFFECTS** NO DATA AVAILABLE

## **SECTION 13. DISPOSAL CONSIDERATIONS**

### **WASTE TREATMENT METHODS**

**PRODUCT** OFFER SURPLUS AND NON-RECYCLABLE CHEMICAL TO A LICENSED  
DISPOSAL COMPANY. CONTACT A LICENSED PROFESSIONAL WASTE  
DISPOSAL SERVICE TO DISPOSE OF THIS MATERIAL.  
**CONTAMINATED PACKAGING** DISPOSE OF AS UNUSED PRODUCT.

## **SECTION 14. TRANSPORT INFORMATION**

**DOT (US)**  
NOT DANGEROUS GOODS

**IMDG**  
NOT DANGEROUS GOODS

**IATA**  
NOT DANGEROUS GOODS

## **SECTION 15. REGULATORY INFORMATION**

**SARA 302 COMPONENTS** SARA 302: NO CHEMICALS IN THIS MATERIAL ARE SUBJECT TO THE  
REPORTING REQUIREMENTS OF SARA TITLE III, SECTION 302.

**SARA 313 COMPONENTS** SARA 313: THIS MATERIAL DOES NOT CONTAIN ANY CHEMICAL COMPONENTS  
WITH KNOWN CAS NUMBERS THAT EXCEED THE THRESHOLD (DE MINIMIS)  
REPORTING LEVELS ESTABLISHED BY SARA TITLE III, SECTION 313.

**MASSACHUSETTS RIGHT TO  
KNOW COMPONENTS** NO COMPONENTS ARE SUBJECT TO THE MASSACHUSETTS RIGHT TO KNOW  
ACT.

### **PENNSYLVANIA RIGHT TO KNOW COMPONENTS**

|                           | CAS-NO.   | REVISION DATE |
|---------------------------|-----------|---------------|
| Tetrazolium blue chloride | 1871-22-3 |               |

### **NEW JERSEY RIGHT TO KNOW COMPONENTS**

|                           | CAS-NO.   | REVISION DATE |
|---------------------------|-----------|---------------|
| Tetrazolium blue chloride | 1871-22-3 |               |

**CALIFORNIA PROP. 65  
COMPONENTS** THIS PRODUCT DOES NOT CONTAIN ANY CHEMICALS KNOWN TO STATE OF  
CALIFORNIA TO CAUSE CANCER, BIRTH DEFECTS, OR ANY OTHER  
REPRODUCTIVE HARM.

## **SECTION 16. OTHER INFORMATION**

MSDS LEGEND

|       |                                                          |
|-------|----------------------------------------------------------|
| MW:   | MOLECULAR WEIGHT                                         |
| MF:   | MOLECULAR FORMULA                                        |
| VOC:  | VOLATILE ORGANIC COMPOUNDS                               |
| ACGIH | AMERICAN CONFERENCE OF GOVERNMENTAL INDUSTRIAL HYGINISTS |
| CAS:  | CHEMICAL ABSTRACTS SERIVE REGISTRY NUMBER                |
| OSHA: | OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION            |
| PEL:  | PERMISSIBLE EXPOSURE LIMIT (OSHA)                        |
| TLV:  | THRESHOLD LIMIT VALUE (ACGIH)                            |