

# MATERIAL SAFETY DATA SHEET

**AccuPower® PCR/HotStart PCR/HF PCR/TLA PCR/Pfu PCR PreMix, RT PreMix, RT-PCR  
PreMix and DualStar/GreenStar qPCR PreMix**

※ Components

1. 10X reaction buffer
2. Dye (Xylene Cyanole)
3. Stabilizer (sorbitol)
4. Tween 20
5. dNTP

● **TRIS**

SYNONYMS: TRIS HYDROXYMETHYLAMINOETHANE, TRISAMINE

MOLECULAR FORMULA:  $\text{NH}_2\text{C}(\text{CH}_2\text{OH})_3$

CAS NO: 00077-86-1

EC NO:

PHYSICAL DATA

APPEARANCE: WHITE CRYSTALS

MELTING POINT: 172C

BOILING POINT:

SPECIFIC GRAVITY:

VAPOUR PRESSURE:

FLASH POINT:

EXPLOSION LIMITS:

AUTOIGNITION TEMPERATURE:

STABILITY

STABLE.

TOXICOLOGY

POSSIBLE IRRITANT.

PERSONAL PROTECTION

SAFETY GLASSES. SUITABLE VENTILATION.

● **HYDROCHLORIC ACID**

SYNONYMS: MURIATIC ACID, CHLOROHYDRIC ACID

MOLECULAR FORMULA: H CL

CAS NO: 7647-01-0

EC NO:

PHYSICAL DATA

APPEARANCE: CLEAR COLOURLESS OR SLIGHTLY YELLOW LIQUID WITH PUNGENT ODOUR. FUMING.

MELTING POINT: -25 C

BOILING POINT: 109 C

SPECIFIC GRAVITY: 1.19

VAPOUR PRESSURE:

FLASH POINT:

EXPLOSION LIMITS:

AUTOIGNITION TEMPERATURE:

STABILITY

STABLE. AVOID HEAT, FLAMES. INCOMPATIBLE WITH MOST COMMON METALS, AMINES, METAL OXIDES, ACETIC ANHYDRIDE, PROPIOLACTONE, VINYL ACETATE, MERCURIC SULPHATE, CALCIUM PHOSPHIDE, FORMALDEHYDE, ALKALIES, CARBONATES, STRONG BASES, SULPHURIC ACID, CHLOROSULPHONIC ACID.

TOXICOLOGY

EXTREMELY CORROSIVE. INHALATION OF VAPOUR CAN CAUSE SERIOUS INJURY. INGESTION MAY BE FATAL. LIQUID CAN CAUSE SEVERE DAMAGE TO SKIN AND EYES. TLV 5 PPM.

PERSONAL PROTECTION

SAFETY GLASSES OR FACE MASK, GLOVES. EFFECTIVE VENTILATION.

THIS INFORMATION WAS LAST UPDATED ON NOVEMBER 12TH, 1997. ALTHOUGH WE HAVE TRIED TO MAKE IT AS ACCURATE AND USEFUL AS POSSIBLE, WE CAN TAKE NO RESPONSIBILITY FOR ITS USE OR MISUSE. WE WELCOME CORRECTIONS, UPDATES AND SUGGESTIONS FOR IMPROVEMENTS.

● **POTASSIUM CHLORIDE**

SYNONYMS: POTASSIUM MURIATE

MOLECULAR FORMULA: K CL

CAS NO: 7447407

EC NO:

PHYSICAL DATA

APPEARANCE: WHITE CRYSTALS OR POWDER

MELTING POINT: 776 C

BOILING POINT: SUBLIMES AT 1500 C

VAPOUR DENSITY:

VAPOUR PRESSURE:

SPECIFIC GRAVITY: 1.99 G/CM<sup>3</sup>

FLASH POINT:

EXPLOSION LIMITS:

AUTOIGNITION TEMPERATURE:

SOLUBILITY IN WATER: 34.7 G/100G AT 20 C

STABILITY

STABLE.

TOXICOLOGY

PRESENTS A LOW TOXICOLOGICAL HAZARD. ORL-RAT LD50 2.43 G/KG

PERSONAL PROTECTION

ADEQUATE VENTILATION.

● **MAGNESIUM CHLORIDE**

SYNONYMS:

MOLECULAR FORMULA:MG CL<sub>2</sub> 6H<sub>2</sub>O

CAS NO: 7791-18-6

EC NO:

PHYSICAL DATA

APPEARANCE: WHITE DELIQUESCENT CRYSTALS

MELTING POINT: 118C

BOILING POINT:

SPECIFIC GRAVITY: 1.56

VAPOUR PRESSURE:

FLASH POINT:

EXPLOSION LIMITS:

AUTOIGNITION TEMPERATURE:

STABILITY

STABLE. SUBSTANCES TO BE AVOIDED INCLUDE MOST COMMON METALS, STRONG OXISING AGENTS. PROTECT FROM MOISTURE

TOXICOLOGY

POSSIBLE IRRITANT.

PERSONAL PROTECTION

SAFETY GLASSES. SUITABLE VENTILATION.

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● **XYLENE CYANOLE**

PRODUCT IDENTIFICATION

FORMULA: C25H26N2O6S2  
 FORMULA WT: 555.63  
 CAS NO.: 02650-17-1  
 COMMON SYNONYMS: C.I. 43535

PRECAUTIONARY LABELLING

PRECAUTIONARY LABEL STATEMENTS

WARNING

HARMFUL IF SWALLOWED, INHALED, OR ABSORBED THROUGH SKIN

CAUSES IRRITATION

THERE IS INSUFFICIENT DATA IN THE PUBLISHED LITERATURE TO ASSIGN COMPLETE NUMERICAL SAF-T-DATA RATINGS AND LABORATORY PROTECTIVE EQUIPMENT FOR THIS PRODUCT. SPECIAL PRECAUTIONS MUST BE USED IN STORAGE, USE AND HANDLING.

PROTECTIVE EQUIPMENT FOR LABORATORY BENCH USE SHOULD BE CHOSEN USING PROFESSIONAL JUDGMENT BASED ON THE SIZE AND TYPE OF REACTION OR TEST TO BE CONDUCTED AND THE AVAILABLE VENTILATION, WITH OVERRIDING CONSIDERATION TO MINIMIZE CONTACT WITH THE CHEMICAL. AVOID CONTACT WITH EYES, SKIN, CLOTHING. KEEP IN TIGHTLY CLOSED CONTAINER. WASH THOROUGHLY AFTER HANDLING.

**HAZARDOUS COMPONENTS**

COMPONENT	%	CAS NO.
XYLENE CYANOLE FF	90-100	2650-17-1

PHYSICAL DATA

BOILING POINT: N/A	VAPOR PRESSURE(MM HG): N/A
MELTING POINT: N/A	VAPOR DENSITY(AIR=1): N/A
SPECIFIC GRAVITY: N/A (H2O=1)	EVAPORATION RATE: N/A (BUTYL ACETATE=1)
SOLUBILITY(H2O): MODERATE (1 TO 10 %)	% VOLATILES BY VOLUME: 0

APPEARANCE & ODOR: BLUE-GRAY CRYSTALS.

FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (CLOSED CUP) N/A  
 FLAMMABLE LIMITS: UPPER - N/A % LOWER - N/A %  
 FIRE EXTINGUISHING MEDIA  
 USE EXTINGUISHING MEDIA APPROPRIATE FOR SURROUNDING FIRE.

**SPECIAL FIRE-FIGHTING PROCEDURES**

FIREFIGHTERS SHOULD WEAR PROPER PROTECTIVE EQUIPMENT AND SELF-CONTAINED BREATHING APPARATUS WITH FULL FACEPIECE OPERATED IN POSITIVE PRESSURE MODE.

**TOXIC GASES PRODUCED**

NITROGEN OXIDES, SULFUR DIOXIDE

HEALTH HAZARD DATA

CARCINOGENICITY: NTP: NO IARC: NO Z LIST: NO OSHA REG: NO

**EFFECTS OF OVEREXPOSURE**

NO EFFECTS OF OVEREXPOSURE WERE DOCUMENTED.

**TARGET ORGANS**

NONE IDENTIFIED

**MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE**

NONE IDENTIFIED

**ROUTES OF ENTRY**

NONE INDICATED

**EMERGENCY AND FIRST AID PROCEDURES**

CALL A PHYSICIAN.

IF SWALLOWED, IF CONSCIOUS, IMMEDIATELY INDUCE VOMITING.

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

IN CASE OF CONTACT, IMMEDIATELY FLUSH EYES WITH PLENTY OF WATER FOR AT LEAST 15 MINUTES. FLUSH SKIN WITH WATER.

REACTIVITY DATA

STABILITY: STABLE HAZARDOUS POLYMERIZATION: WILL NOT OCCUR

CONDITIONS TO AVOID: MOISTURE

DECOMPOSITION PRODUCTS: OXIDES OF NITROGEN, OXIDES OF SULFUR

SPILL AND DISPOSAL PROCEDURES

STEPS TO BE TAKEN IN THE EVENT OF A SPILL OR DISCHARGE

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WEAR SELF-CONTAINED BREATHING APPARATUS AND FULL PROTECTIVE CLOTHING.

WITH CLEAN SHOVEL, CAREFULLY PLACE MATERIAL INTO CLEAN, DRY CONTAINER AND COVER;  
REMOVE FROM AREA. FLUSH SPILL AREA WITH WATER.

DISPOSAL PROCEDURE

DISPOSE IN ACCORDANCE WITH ALL APPLICABLE FEDERAL, STATE, AND LOCAL  
ENVIRONMENTAL REGULATIONS.

#### PROTECTIVE EQUIPMENT

EYE/SKIN PROTECTION: SINCE SOME OF THE HAZARDS OF THIS PRODUCT ARE  
UNKNOWN, AN INDUSTRIAL HYGIENIST SHOULD BE CONSULTED ON VENTILATION AND PERSONAL  
PROTECTIVE EQUIPMENT. COVER THE BODY AS MUCH AS POSSIBLE TO AVOID CONTACT WITH THE  
CHEMICAL. WEAR SAFETY GOGGLES, GLOVES, AND IMPERVIOUS CLOTHING.

#### STORAGE AND HANDLING PRECAUTIONS

SPECIAL PRECAUTIONS

KEEP CONTAINER TIGHTLY CLOSED. SUITABLE FOR ANY GENERAL CHEMICAL STORAGE AREA.

#### **TRANSPORTATION DATA AND ADDITIONAL INFORMATION**

DOMESTIC (D.O.T.)

PROPER SHIPPING NAME      CHEMICALS, N.O.S. (NON-REGULATED)

INTERNATIONAL (I.M.O.)

PROPER SHIPPING NAME      CHEMICALS, N.O.S. (NON-REGULATED)

- **SORBITOL**

SYNONYMS: CLUCITOL, SORBITE

MOLECULAR FORMULA: C<sub>6</sub> H<sub>14</sub> O<sub>6</sub>

CAS NO: 00050-70-4

EC NO:

#### PHYSICAL DATA

APPEARANCE: WHITE CRYSTALS

MELTING POINT: 95 C

BOILING POINT:

SPECIFIC GRAVITY:1.47

VAPOUR PRESSURE:

FLASH POINT:

EXPLOSION LIMITS:

AUTOIGNITION TEMPERATURE:

STABILITY

STABLE. AVOID STRONG OXIZIDNG AGENTS.

TOXICOLOGY

NO KNOWN HAZARDS. (ORL-RAT LD50 16G/KG)

PERSONAL PROTECTION

NONE.

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● **TWEEN20**

INGREDIENTS/IDENTITY INFORMATION

PROPRIETARY: NO

INGREDIENT: POLYSORBATE 20; (POLYOXYETHYLENESORBITAN MONOLAURATE TWEEN 20)

INGREDIENT SEQUENCE NUMBER: 01

NIOSH (RTECS) NUMBER: TR7400000

CAS NUMBER: 9005-64-5

OSHA PEL: NOT APPLICABLE

ACGIH TLV: NOT APPLICABLE

PHYSICAL/CHEMICAL CHARACTERISTICS

APPEARANCE AND ODOR: VISCOUS LIGHT YELLOW LIQUID.

SPECIFIC GRAVITY: 1.095

FIRE AND EXPLOSION HAZARD DATA

FLASH POINT: >230F,>110C

EXTINGUISHING MEDIA: WATER SPRAY. CO2, DRY CHEMICAL POWDER/APPROPRIATE FOAM.

SPECIAL FIRE FIGHTING PROC: WEAR NIOSH/MSHA APPROVED SCBA AND FULL PROTECTIVE EQUIPMENT (FP N).

UNUSUAL FIRE AND EXPL HAZRDS: EMITS TOXIC FUMES UNDER FIRE CONDITIONS.

REACTIVITY DATA

STABILITY: YES

COND TO AVOID (STABILITY): NONE SPECIFIED BY MANUFACTURER.

MATERIALS TO AVOID: STRONG OXIDIZING AGENTS.

HAZARDOUS DECOMP PRODUCTS: CO, CO2.

HAZARDOUS POLY OCCUR: NO

CONDITIONS TO AVOID (POLY): NOT RELEVANT

HEALTH HAZARD DATA

LD50-LC50 MIXTURE: NONE SPECIFIED BY MANUFACTURER.

ROUTE OF ENTRY - INHALATION: YES

ROUTE OF ENTRY - SKIN: YES

ROUTE OF ENTRY - INGESTION: YES

HEALTH HAZ ACUTE AND CHRONIC: ACUTE: MAY BE HARMFUL BY INHALATION,

INGESTION, OR SKIN ABSORP. MAY CAUSE IRRIT. CHRONIC: NONE SPECIFIED BY

MANUFACTURER. THE CHEMICAL, PHYSICAL, AND TOXICOLOGICAL PROPERTIES HAVE NOT

BEEN THOROUGHLY INVESTIGATED.

CARCINOGENICITY - NTP: NO

CARCINOGENICITY - IARC: NO

CARCINOGENICITY - OSHA: NO

EXPLANATION CARCINOGENICITY: NOT RELEVANT

SIGNS/SYMPTOMS OF OVEREXP: SEE HEALTH HAZARDS.

MED COND AGGRAVATED BY EXP: NONE SPECIFIED BY MANUFACTURER.

EMERGENCY/FIRST AID PROC: INHAL: REMOVE TO FRESH AIR. IF NOT BRTHG GIVE

ARTF RESP. IF BRTHG IS DIFFICULT, GIVE O2. INGEST: WASH OUT MOUTH WITH

WATER PROVIDED PERS IS CONSCIOUS. CALL MD. EYES: IMMED FLUSH WITH POTABLE WATER FOR

AT LEAST 15 MINUTES. SEE MD. SKIN: FLUSH WITH COPIOUS AMOUNTS OF WATER. CALL MD (FP N).

PRECAUTIONS FOR SAFE HANDLING AND USE

STEPS IF MATL RELEASED/SPILL: WEAR NIOSH/MSHA RESPIRATOR, CHEMICAL WORKERS GOGGLES, RUBBER BOOTS AND HEAVY RUBBER GLOVES. COVER WITH DRY LIME OR SODA ASH, PICK UP, KEEP IN A CLOSED CONTAINER AND HOLD FOR WASTE DISPOSAL.

NEUTRALIZING AGENT: SODA ASH OR DRY LIME.

WASTE DISPOSAL METHOD: DISSOLVE OR MIX THE MATL WITH A COMBUSTIBLE SOLV & BURN IN A CHEMICAL INCINERATOR EQUIPPED WITH AN AFTERBURNER & SCRUBBER.

OBSERVE ALL FEDERAL, STATE AND LOCAL ENVIRONMENTAL REGULATIONS.

PRECAUTIONS-HANDLING/STORING: DO NOT BREATHE VAP. DO NOT GET IN EYES/ON SKIN/ON CLTHG. AVOID PRLNG/RPTD EXPOS. WASH THORO AFTER HNDLG. KEEP TIGHTLY CLSD. STORE IN COOL, DRY PLACE.  
OTHER PRECAUTIONS: NONE SPECIFIED BY MANUFACTURER.

#### CONTROL MEASURES

RESPIRATORY PROTECTION: NIOSH/MSHA APPROVED RESPIRATOR.  
VENTILATION: MECHANICAL EXHAUST REQUIRED.  
PROTECTIVE GLOVES: CHEMICAL RESISTANT GLOVES.  
EYE PROTECTION: CHEMICAL WORKERS GOGGLES (FP N).  
OTHER PROTECTIVE EQUIPMENT: SAFETY SHOWER & EYE BATH.  
WORK HYGIENIC PRACTICES: WASH THOROUGHLY AFTER HANDLING.  
SUPPL. SAFETY & HEALTH DATA: NONE SPECIFIED BY MANUFACTURER.

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#### ● **dNTP**

#### **HAZARDOUS INGREDIENTS**

\*MATERIAL: AS SUPPLIED, THIS PRODUCT HAS NO KNOWN HAZARDOUS INGREDIENTS.

#### SECTION III. PHYSICAL DATA

\*APPEARANCE: SOLUTION OR CRYSTAL

\*SMELL: N/A

\*WATER SOLUBILITY: SOLUBLE

\*ORGANIC SOLVENT SOLUBILITY: N/A

\*EVAPORATION RATE: N/A

\*PH: N/A

\*BOILING POINT: N/A

\*DENSITY: N/A

\*VAPOR PRESSURE: N/A

\*MELTING POINT: N/A

\*VAPOR DENSITY: N/A

\*SPECIFIC GRAVITY: N/A

#### **FIRE AND EXPLOSION HAZARD DATA**

\*FIRE HAZARD: NONE

\*FLASH POINT: N/A

\*FIRE EXTINGUISHING MEDIA: USE EXTINGUISHING MEDIA APPROPRIATE FOR SURROUNDING FIRE.

\*SPECIAL FIRE EXTINGUISHING PROCEDURES: WEAR SELF-CONTAINED BREATHING APPARATUS AND

PROTECTIVE CLOTHING TO PREVENT CONTACT WITH SKIN AND EYES. FIRE OR EXCESSIVE HEAT MAY CAUSE PRODUCTION OF HAZARDOUS DECOMPOSITION PRODUCTS OF OXIDES INVOLVING CARBON, PHOSPHORUS AND NITROGEN.

**TOXICITY AND HEALTH DATA**

\*TOXICITY: NOT ESTABLISHED. THE TOXICOLOGICAL PROPERTIES OF THIS MATERIAL HAVE NOT BEEN INVESTIGATED. EXERCISE APPROPRIATE PROCEDURES TO PREVENT CONTACT WITH SKIN AND EYES, AND TO PREVENT INHALATION.

\*ACUTE HEALTH HAZARD: NONE KNOWN.

\*CHRONIC HEALTH HAZARD: NONE KNOWN.

**SECTION VI. HEALTH HAZARDS**

\*INHALATION: ROOM VENTILATION SHOULD BE ADEQUATE.

\*SKIN CONTACT: WASH EXPOSED AREA WITH WATER. IF IRRITATION OCCURS SEEK MEDICAL ADVICE.

\*EYE CONTACT: IMMEDIATELY WASH EYES WITH COPIOUS AMOUNTS OF WATER FOR AT LEAST 20 MINUTES. SEEK MEDICAL ATTENTION IMMEDIATELY.

\*INGESTION: IF CONSCIOUS, DRINK WATER OR MILK. SEEK MEDICAL ADVICE.

**REACTIVITY DATA**

\*REACTIVITY: STABLE UNDER ORDINARY CONDITIONS OF USE AND STORAGE.

\*INCOMPATIBLE: UNKNOWN.

\*DECOMPOSITION: AS WITH ANY ORGANIC MATERIAL, COMBUSTION WILL PRODUCE OXIDES OF CARBON, NITROGEN AND PHOSPHORUS.

\*HAZARDOUS POLYMERIZATION: WILL NOT OCCUR.

**SPILL AND DISPOSAL PROCEDURES**

\*SPILL: WEAR SUITABLE PROTECTIVE CLOTHING AND EYE PROTECTION. CLEAN AREA WITH WATER.

\*DISPOSAL: SHOULD BE SAFE TO SEWER YET DISPOSE IN ACCORDANCE WITH ALL APPLICABLE FEDERAL, STATE, AND LOCAL ENVIRONMENTAL REGULATIONS.

**PROTECTION INFORMATION**

\*GLOVES: WEAR PROTECTIVE GLOVES TO PREVENT SKIN CONTACT.

\*EYE PROTECTION: WEAR SPLASH-PROOF GOGGLES.

\*VENTILATION: ROOM VENTILATION IS ADEQUATE.

**HANDLING AND STORAGE INFORMATION**

\*SHIPPING#: DOT# N/A IATA# N/A

\*STORAGE: -20<sup>0</sup> C

