MATERIAL SAFETY DATA SHEET

25/100 bp Mixed DNA Ladder
100 bp DNA Ladder
100 bp plus DNA Ladder
1kb DNA Ladder
Lambda DNA
DNA/HindIII Marker
DNA/EcoR I Marker
DNA/EcoR I+HindIII Marker

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

Section 1 – Safety Data for Tris
Synonyms: Tris hydroxymethylaminoethane, trisamine
Molecular Formula: $NH_2C(CH_2OH)_3$
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

Section 2 – Safety Data for Hydrochloric Acid
Synonyms: Muriatic Acid, Chlorohydric Acid
Molecular formula: HCl

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. Estion 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 of misuse. We welcome corrections, updates and suggestions for improvements.

Section 3 – Safety Data for Potassium Chloride
Synonyms: Potassium Muriate
Molecular formula: KCl
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/CM3
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

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Section 4 – Safety Data for Magnesium Chloride
Synonyms:
Molecular formula: $MgCl_2$ $6H_2O$
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 protect from moisture

Toxicology
Possible irritant

Personal Protection
Safety glasses, suitable ventilation.

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Section 5 – Safety Data for Xylene Cyanole
Product Identification
Formula: $C_{25}H_{26}N_2O_6S_2$
Formula WT: 555.63
CAS NO.: 02650-17-1
Common synonyms: C.I. 43535
Precautionary labeling
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, and clothing. Keep in tightly closed container. Wash thoroughly after handling.

Hazardous Components
Component %
CAS NO. 90-100 2650-17-1

Xylene Cyanole FF

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 (H_2O): 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
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)

Section 6 – Safety Data for Sorbitol
Synonyms: Clucitol, sorbite
Molecular formula: $C_6 H_{14} O_6$
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 temparature:

Stability
Stable, avoid strong oxidizing agents.

Toxicology
No known hazards. (ORL-RAT LD50 16G/KG)
Personal Protection
None.
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Section 7 – Safety Data for Tween 20
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, CO_2, 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, CO_2
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 O_2. 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.

Section 8 – Safety Data for dNTP
Hazardous IngredientS
*Material: As supplied, this product has no known hazardous ingredients.

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.

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: -20^0 C