



Material Data Safety Sheet

AutoGen, Inc.
84 October Hill Rd.
Holliston, MA 01746
(508) 429-5965

Date revised: 07-25-08
Emergency Telephone Number: (800) 424-9300
Agent: CHEMTREC

Section 1 – Product and Company Information

Product Name: AGP965 DNA Blood - Blood Lysis Solution
Product Number: WB-R1

Company: AutoGen, Inc.
Address: 84 October Hill Rd.
Holliston, MA 01746
Phone: (508) 429-5965
Fax: (508) 429-9765

Section 2 – Composition/Information on Ingredients

<u>Chemical name</u>	<u>CAS #</u>
Guanidine thiocyanate	593-84-0
Sodium Lauroyl Sarcosine	137-16-6
Sodium Citrate	6132-04-3
Sodium Acetate	6131-90-4
Water	7732-18-5

Section 3 - Hazards Identification

Emergency Overview:

CAUTION! HARMFUL IF INHALED, ABSORBED THROUGH SKIN OR SWALLOWED.
CAUSES RESPIRATORY TRACT, EYE AND SKIN IRRITATION.
Do not ingest. Avoid contact with eyes, skin and clothing. Keep container closed. Wash thoroughly after handling.

Handling care generally in keeping with safe laboratory practices is recommended.

Routes of Entry:

Dermal contact. Eye contact. Inhalation. Ingestion.

Potential Acute Health Effects:

Eyes	Acute effects of this product resulting from eye contact.
Skin	Acute effects of this product resulting from skin contact.



Inhalation Acute effects of this product resulting from inhalation.

Ingestion Acute effects of this product resulting from ingestion.

Potential Chronic Health Effects:

Carcinogenic Effects This material is not known to cause cancer in animals or humans.

Medical Conditions Aggravated by Overexposure:

Repeated or prolonged exposure may aggravate medical condition.

Additional information See Toxicological Information (section 11)

Hazard Description:

Harmful if swallowed or inhaled. Causes irritation to skin, eyes and respiratory tract.

NFPA Rating (0-4)

Fire hazard	0
Health	1
Reactivity	0

Section 4- First Aid Measures

General Information

Immediately remove any clothing contaminated by the substance .Wash affected area with copious amounts of water for at least 15 minutes with soap and water. Speed in removing material from skin is extremely important. Use safety shower.

Eye Contact:

Rinse opened eye for at least 15 minutes under running water. Then consult at a physician.

Skin Contact:

Immediately wash with water and soap and rinse thoroughly. Cover the irritated skin with an emollient. Remove contaminated clothing and shoes. Call physician immediately.

Inhalation:

Supply fresh air. If not breathing, give artificial respiration. If breathing is difficult give oxygen. Call physician immediately.

Swallowing

If conscious, drink water and induce vomiting immediately as directed by medical personal. Never give an unconscious person anything to ingest.

Section 5- Fire Fighting Measures

Flammability of the Product

Non-flammable.

Auto-Ignition Temperature

Not applicable.



Flash Points

Not applicable.

Flammable Limits

Not applicable.

Products of Combustion

Not available.

Fire Hazards in Presence of Various Substances

Not applicable.

Explosion Hazards in Presence of Various Substances

Risks of explosion of the product in presence of static discharge: No.

Risks of explosion of the product in presence of mechanical impact: No.

Fire Fighting Media and Instructions

Not applicable.

Protective Clothing (Fire)

Not applicable.

Special Remarks on Fire Hazards

Not available.

Special Remarks on Explosion Hazards

May emit toxic fumes under fire conditions.

Section 6 – Accidental Release Measures

Person-Related Safety Precautions:

Ensure adequate ventilation.

Measures for Environmental Protection:

Do not allow to enter sewers/surface or ground water.

Measures for Cleaning/Collecting:

Adsorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).

Ensure adequate ventilation.

Section 7 – Handling and Storage

Handling:

Do not ingest. Avoid contact with eyes, skin and clothing. Avoid breathing vapors or spray mists.



Storage:

Keep container tightly closed. Keep container in a cool, well-ventilated area.

Section 8 – Exposure controls/Personal Protection

Engineering Controls

Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective occupational exposure limits.

Personal Protection

Eyes: Safety glasses.

Body: Lab coat.

Respiratory: Vapor respirator. Be sure to use an approved/certified respirator or equivalent.

Hands: Gloves.

Feet: Not applicable.

Personal Protection in Case of a Large Spill

Splash goggles. Full suit. Vapor respirator. Boots. Gloves. A self-contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits

Tris (hydroxymethyl) aminomethane: Not available.

EDTA di-Sodium Dihydrate: Not available.

Hexadecyltrimethylammonium Bromide: Not available.

Water: Not available.

Section 9 – Physical and Chemical Properties

Odor: Not available.

Color: Colorless.

Appearance:

Physical State and Appearance: Liquid.

Molecular Weight: Not applicable.

Molecular Formula: Not applicable.

pH: pH 8.0

Boiling/Condensation Point: The lowest known value is 99.9°C (211.8°F) (Water).

Melting/Freezing Point: May start to solidify at -0.1°C (31.8°F) based on data for: Water.

Specific Gravity: Not available.

Vapor Pressure: Not available.

Vapor Density: Not available.

Odor Threshold: Not available.

Evaporation Rate: 0.36 (Water) compared to (n-BUTYL ACETATE=1)

LogKow: Not available.

Solubility: Soluble in water.

Section 10 – Stability and Reactivity

Stability/Reactivity

The product is stable.



Conditions of Instability

Not available.

Incompatibility with Various Substances

Not available.

Section 11 – Toxicological Information

CAS NO. Designation Materials:

593-84-0 Guanidine thiocyanate

Acute toxicity: mouse LD50, 300 mg/kg

Caustic effect on skin, mucous membranes and eye.

Section 12 – Ecological Information

Environmental Precautions:

No known significant effects or critical hazards.

Products of Degradation:

These products are carbon oxides (CO, CO₂) and water, nitrogen oxides (NO, NO₂, etc), sulfur oxides (SO₂, SO₃ etc)

Toxicity of the Products of Biodegradation:

The products of degradation are less toxic than the product itself.

Section 13 – Disposal Considerations

Whatever cannot be saved for recovery or recycling should be managed in an appropriate and approved waste disposal facility. Processing, use or contamination of this product may change the waste management options. State and local disposal regulations may differ from federal disposal regulations. Dispose of container and unused contents in accordance with federal, state and local requirements.

Section 14 – Transport Information

Not regulated.

Section 15 – Regulatory Information

United States

HCS Classification

Irritating material; Guanidine Thiocyanate; Sodium Lauroyl Sarcosine; Sodium Citrate; Sodium Acetate

U.S. Federal Regulations

TSCA 8(b) inventory; Guanidine Thiocyanate; Sodium Lauroyl Sarcosine; Sodium Citrate; Sodium Acetate; Water

SARA 302/304/311/312 extremely hazardous substances: No products were found.

SARA 302/304 emergency planning and notification: No products were found.

SARA 302/304/311/312 hazardous chemicals: Guanidine Thiocyanate; Sodium Lauroyl Sarcosine; Sodium Citrate; Sodium Acetate



SARA 311/312 MSDS distribution – chemical inventory – hazard identification:

Guanidine Thiocyanate: Immediate (acute) health hazard,
Delayed (chronic) health hazard

Sodium Lauroyl Sarcosine: Immediate (acute) health hazard

Sodium Citrate: Immediate (acute) health hazard

Sodium Acetate: Immediate (acute) health hazard,
Delayed (chronic) health hazard

Clean Water Act (CWA) 307: No products were found.

Clean Water Act (CWA) 311: No products were found.

Clean Air Act (CAA) 112 accidental release prevention: No products were found.

Clean Air Act (CAA) 112 regulated flammable substances: No products were found.

Clean Air Act (CAA) 112 regulated toxic substances: No products were found.

Canada

WHMIS (Canada): Class D-2B: Material causing other toxic effects (Toxic).

Guanidine Thiocyanate; Sodium Lauroyl Sarcosine

CEPA DSL/CEPA NDSL: CEPA DSL: Guanidine Thiocyanate; Sodium Lauroyl Sarcosine

This product has been classified in accordance with the hazard criteria of the Controlled Product

Regulations and the MSDS contain all required information.

International regulations

International lists:

Australia (NICNAS): Guanidine Thiocyanate; Sodium Lauroyl Sarcosine;
Sodium Citrate; Sodium Acetate

JAPAN (MITI): Guanidine Thiocyanate; Sodium Lauroyl Sarcosine
Sodium Citrate; Sodium Acetate

KOREA (TCCL): Guanidine Thiocyanate; Sodium Lauroyl Sarcosine
Sodium Citrate; Sodium Acetate

Philippines (RA6969): Guanidine Thiocyanate; Sodium Lauroyl Sarcosine
Sodium Citrate; Sodium Acetate

Section 16 – Other Information

This bulletin is for your guidance and is based upon information and tests believed to be reliable. AutoGen makes no guarantee of the accuracy or completeness of the data and shall not be liable for any damages thereto. The data are offered solely for your consideration, investigation, and verification. These suggestions should not be confused with state, municipal, or insurance requirements, or with national safety codes and constitute no warranty. Any use of these data and information must be determined by the user to be in accordance with applicable federal, state, and local regulations.



Material Data Safety Sheet

AutoGen, Inc.
84 October Hill Rd.
Holliston, MA 01746
(508) 429-5965

Date revised: 07-27-08
Emergency Telephone Number: (800) 424-9300
Agent: CHEMTREC

Section 1 – Product and Company Information

Product Name: AGP 965 Blood DNA – Protein Denaturing Solution
Product Number: WB-R2

Company: AutoGen, Inc.
Address: 84 October Hill Rd.
Holliston, MA 01746
Phone: (508) 429-5965
Fax: (508) 429-9765

Section 2 – Composition/Information on Ingredients

<u>Chemical name</u>	<u>CAS #</u>
Chloroform	67-66-3

Dangerous Components:

UN Number: 1888
Chemical: Chloroform
Class: 6.1, Toxic

Section 3 - Hazards Identification

Emergency overview

WARNING! HARMFUL IF INHALED OR SWALLOWED. CAUSES RESPIRATORY TRACT, EYE AND SKIN IRRITATION. CAUSES DAMAGE TO THE FOLLOWING ORGANS: KIDNEYS, LIVER, HEART, SKIN, CENTRAL NERVOUS SYSTEM, EYE, LENS OR CORNEA. SUSPECT CANCER HAZARD. MAY CAUSE CANCER.

WARNING: This product contains a chemical(s) known to the State of California to cause cancer.



Do not ingest. Avoid contact with skin and clothing. Avoid breathing vapor or mist. Keep container closed. Use only with adequate ventilation. Wash thoroughly after handling. Risk of cancer depends on duration and level of exposure.

Routes of Entry

Dermal contact. Eye contact. Inhalation. Ingestion.

Potential Acute Health Affect

Eyes: Irritating to eyes.

Skin: Irritating to skin.

Inhalation: Toxic by inhalation. Irritating to respiratory system.

Ingestion: Toxic if swallowed.

Carcinogenic effects: May cause cancer. Risk of cancer depends on duration and level of exposure.

Mutagenic effects: No known significant effects or critical hazards.

Teratogenicity / Reproductive toxicity: No known significant effects or critical hazards.

Medical conditions aggravated by over-exposure: Repeated skin exposure can produce local skin destruction or dermatitis. Repeated or prolonged exposure to the substance can produce lung damage. Repeated or prolonged contact with spray or mist may produce chronic eye irritation and severe skin irritation.

Repeated or prolonged exposure to the substance can produce target organs damage.

See toxicological information (section 11)

NFPA Rating (0-4)

Flammability 0

Health 2

Instability 0

Section 4- First Aid Measures

Eye Contact:

Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Get medical attention.

Skin contact:

Get medical attention immediately. Flush contaminated skin with plenty of water. Continue to rinse for at least 10 minutes. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing or wear gloves. Wash clothing before reuse. Clean shoes thoroughly before reuse.

Inhalation:

Get medical attention immediately. Move exposed person to fresh air. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. Keep person warm and at rest. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. If unconscious, place in recovery position and get medical attention



immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Ingestion:

Get medical attention immediately. Wash out mouth with water. Remove dentures if any. Move exposed person to fresh air. Keep person warm and at rest. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Protection of First-Aiders:

No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

Section 5- Fire Fighting Measures

Flammability of the Product

No specific hazard.

Extinguishing Media

Suitable: Use an extinguishing agent suitable for the surrounding fire.

Not suitable: None known.

Special exposure hazards: Not available.

Special protective equipment for fire-fighters: Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Special remarks on fire hazards: Emits very toxic fumes when heated to decomposition.

Section 6 – Accidental Release Measures

Personal Precautions

Immediately contact emergency personnel. Keep unnecessary personnel away. Use suitable protective equipment.

Environmental Precautions

Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Method for Cleaning Up

If emergency personnel are unavailable, contain spilled material. For small spills, add absorbent (soil may be used in the absence of other suitable materials), scoop up material and place in a sealable, liquid-proof container for disposal. For large spills, dike spilled



material or otherwise contain material to ensure runoff does not reach a waterway. Place spilled material in an appropriate container for disposal.

Section 7 – Handling and Storage

Handling:

Do not ingest. Avoid contact with eyes, skin and clothing. Keep container closed. Use only with adequate ventilation. Avoid breathing vapor or mist. Wash thoroughly after handling.

Storage:

Keep container tightly closed. Keep container in a cool, well-ventilated area.

Section 8 – Exposure controls/Personal Protection

Product Name

Chloroform

Exposure Limits

ACGIH (United States, 1996).

TWA: 49 mg/m³

OSHA (United States, 1989).

TWA: 9.78 mg/m³

OSHA PEL (United States, 8/1997).

CEIL: 240 mg/m³ Form: All forms

CEIL: 50 ppm Form: All forms

OSHA PEL 1989 (United States, 3/1989).

TWA: 9.78 mg/m³ 8 hour/hours. Form: All forms

TWA: 2 ppm 8 hour/hours. Form: All forms

ACGIH TLV (United States, 1/2006). Notes: Substance identified by other sources as a suspected or confirmed human carcinogen. 1996 Adoption Substances for which the TLV is higher than the OSHA Permissible Exposure Limit (PEL) and/or the NIOSH Recommended Exposure Limit (REL). See CFR 58(124):36338-33351, June 30, 1993, for revised OSHA PEL. Refers to Appendix A -- Carcinogens.

TWA: 49 mg/m³ 8 hour/hours. Form: All forms

TWA: 10 ppm 8 hour/hours. Form: All forms

NIOSH REL (United States, 12/2001). Notes: See Appendix A - NIOSH Potential Occupational Carcinogen

STEL: 9.78 mg/m³ 60 minute/minutes. Form: All forms

STEL: 2 ppm 60 minute/minutes. Form: All forms

Consult local authorities for acceptable exposure limits.

Engineering Measures

Use only with adequate ventilation. If user operations generate dust, fumes, vapor or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.

Personal Protection

Eyes: Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts.
Recommended: splash goggles



- Skin:** Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
Body: Recommended: Lab coat.
- Respiratory:** Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.
- Hands:** Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.

Hygiene Measures

Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Section 9 – Physical and Chemical Properties

Odor: Pleasant. Ethereal.
Color: Colorless.

Appearance:

Physical State and Appearance: Liquid. (Colorless.)
Molecular Weight: 119.37 g/mole
Molecular Formula: C-H-Cl₃
Boiling/Condensation Point: 60.5°C (140.9°F)
Melting/Freezing Point: -63°C (-81.4°F)
Critical temperature: 263.3°C (505.9°F)
Relative density: 1.49 (Water = 1)
Vapor pressure: 22.3 kPa (167 mm Hg) (at 20°C)
Vapor density: 4.1 (Air = 1)
Volatility: 100% (v/v)
Odor threshold: 205 ppm
Evaporation rate: 10.2 compared with Butyl acetate.
VOC: 100 (%)

Section 10 – Stability and Reactivity

Stability/Reactivity

The product is stable.

Incompatibility with Various Substances

Reactive or incompatible with the following materials: oxidizing materials, metals and alkalis.

Hazardous Decomposition Products

Phosgene gas. carbon oxides (CO, CO₂)



Hazardous Polymerization

Will not occur.

Conditions of Reactivity

Emits very toxic fumes when heated to decomposition.

Section 11 – Toxicological Information

RTECS Number:

Chloroform: FS9100000

Toxicity data

United States

Product/ingredient name	Test	Result	Route	Species
Chloroform	LD50	695 mg/kg	Oral	Rat
	LD50	1250 mg/kg	Oral	Rat
	LD50	36 mg/kg	Oral	Mouse
	LDLo	500 mg/kg	Oral	Rabbit
	LDLo	2514 mg/kg	Oral	man
	LC50	47702 mg/m3 (4 hour/hours)	Inhalation	Rat

Chronic Effects of Humans

CARCINOGENIC EFFECTS: Classified + (Proven.) by NIOSH. Classified A3 (Proven for animals.) by ACGIH, 2B (Possible for humans.) by IARC, 3 (Possible for humans.) by European Union. Classified 2 (Reasonably anticipated to be human carcinogens.) by NTP. Causes damage to the following organs: kidneys, liver, heart, skin, central nervous system (CNS), eye, lens or cornea.

Other Toxic Effects on Humans

Very hazardous in case of eye contact (irritant), of ingestion, of inhalation.

Hazardous in case of skin contact (irritant).

Special Effects

Carcinogenic effects: May cause cancer. Risk of cancer depends on duration and level of exposure.

Mutagenic effects: No known significant effects or critical hazards.

Teratogenicity / Reproductive Toxicity: No known significant effects or critical hazards.

Sensitization

Ingestion: No known significant effects or critical hazards.

Inhalation: Irritating to respiratory system.

Eyes: Irritating to eyes.

Skin: Irritating to skin.



Section 12 – Ecological Information

Ecotoxicity Data

United States

Product/ingredient name	Species	Period	Result
Chloroform	Scenedesmus subspicatus (EC50)	48 hour/hours	560 mg/l
	Scenedesmus subspicatus (EC50)	48 hour/hours	950 mg/l
	Lepomis macrochirus (LC50)	96 hour/hours	13.3 mg/l
	Oncorhynchus mykiss (LC50)	96 hour/hours	15.1 mg/l
	Lepomis macrochirus (LC50)	96 hour/hours	16.2 mg/l
	Oncorhynchus mykiss (LC50)	96 hour/hours	17.1 mg/l

Environmental Precautions

No known significant effects or critical hazards.

Products of Degradation

These products are carbon oxides (CO, CO₂) and water, halogenated compounds.

Toxicity of the Products of Biodegradation

The products of degradation are as toxic as the product itself.

Section 13 – Disposal Considerations

Waste Disposal

The generation of waste should be avoided or minimized wherever possible. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements.

Disposal should be in accordance with applicable regional, national and local laws and regulations. Local regulations may be more stringent than regional or national requirements.

The information presented below only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations.

Refer to Section 7: HANDLING AND STORAGE and Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION for additional handling information and protection of employees.

Section 14 – Transport Information

DOT Classification

Proper Shipping Name: Chloroform

UN number: 1888

Packing group: Packing group III

Hazard Class: 6.1



IMO/IMDG Classification

Not available

TDG Classification

Proper Shipping Name: Chloroform

UN number: 1888

Packing group: Packing group III

Hazard Class: 6.1

ICAO/IATA Classification

Proper Shipping Name: Chloroform

UN Number: 1888

Packing group: Packing group III

Hazard Class: 6.1

Section 15 – Regulatory Information

United States

HCS Classification: Toxic material

Irritating material

Carcinogen

Target organ effects

U.S. Federal Regulations:

TSCA 8(b) inventory: Listed

SARA 302/304/311/312 extremely hazardous substances: Chloroform

SARA 302/304 emergency planning and notification: Chloroform

SARA 302/304/311/312 hazardous chemicals: Chloroform

SARA 311/312 MSDS distribution - chemical inventory - hazard identification:

Chloroform: Immediate (acute) health hazard, Delayed (chronic) health hazard

Clean Water Act (CWA) 307: Chloroform

Clean Water Act (CWA) 311: Chloroform

Clean Air Act (CAA) 112 accidental release prevention: Chloroform

Clean Air Act (CAA) 112 regulated flammable substances: No products were found.

Clean Air Act (CAA) 112 regulated toxic substances: Chloroform

SARA 313

Form R - Reporting requirements:

Product name CAS number

Chloroform 67-66-3

Supplier notification:

Chloroform 67-66-3

SARA 313 notifications must not be detached from the MSDS and any copying and redistribution of the MSDS shall include copying and redistribution of the notice attached to copies of the MSDS subsequently redistributed.

State Regulations:

Pennsylvania RTK: Chloroform: (special hazard, environmental hazard, generic environmental hazard)

Massachusetts RTK: Chloroform



New Jersey: Chloroform

WARNING: This product contains a chemical(s) known to the State of California to cause cancer.

Ingredient Name

	<u>Cancer</u>	<u>Reproductive</u>	<u>No significant risk level</u>	<u>Maximum acceptable dosage level</u>
Chloroform	Yes	No	20 g/day (ingestion) 40 g/day (inhalation)	No

Canada

WHMIS (Canada): Class D-1A: Material causing immediate and serious toxic effects (Very toxic).

Class D-2A: Material causing other toxic effects (Very toxic).

CEPA DSL/CEPA NDSL: CEPA DSL: Chloroform

This product has been classified according to the hazard criteria of the CPR and the MSDS contains all the information required by the CPR.

EU regulations

Hazard symbol/symbols:

- Risk phrases:
- R40- Limited evidence of a carcinogenic effect.
 - R22- Harmful if swallowed.
 - R48/20/22- Harmful: danger of serious damage to health by prolonged exposure through inhalation and if swallowed.
 - R38- Irritating to skin.
- Safety phrases:
- S2- Keep out of the reach of children.
 - S36/37- Wear suitable protective clothing and gloves.

International regulations

- International lists:
- Australia (NICNAS): Chloroform
 - China: Chloroform
 - Germany water class: Chloroform
 - Japan (METI): Chloroform
 - Korea (TCCL): Chloroform
 - Philippines (RA6969): Chloroform

Section 16 – Other Information

Label Requirements Warning:

- HARMFUL IF INHALED OR SWALLOWED.
- CAUSES RESPIRATORY TRACT, EYE AND SKIN IRRITATION.
- CAUSES DAMAGE TO THE FOLLOWING ORGANS: KIDNEYS, LIVER, HEART, SKIN, CENTRAL NERVOUS SYSTEM, EYE, LENS OR CORNEA.
- SUSPECT CANCER HAZARD.
- MAY CAUSE CANCER.

WARNING: This product contains a chemical(s) known to the State of California to cause cancer.

National Fire Protection Association (U.S.A.):

Other Special Considerations:

Contains stabilizer. (<1% wt/wt)

This bulletin is for your guidance and is based upon information and tests believed to be reliable. AutoGen makes no guarantee of the accuracy or completeness of the data and shall not be liable for any damages thereto. The data are offered solely for your



consideration, investigation, and verification. These suggestions should not be confused with state, municipal, or insurance requirements, or with national safety codes and constitute no warranty. Any use of these data and information must be determined by the user to be in accordance with applicable federal, state, and local regulations.



Material Data Safety Sheet

AutoGen, Inc.
84 October Hill Rd.
Holliston, MA 01746
(508) 429-5965

Date revised: 07-26-08
Emergency Telephone Number: (800) 424-9300
Agent: CHEMTREC

Section 1 – Product and Company Information

Product Name: AGP965 Blood DNA - Blood Deproteinizing Solution
Product Number: WB-R3

Company: AutoGen, Inc.
Address: 84 October Hill Rd.
Holliston, MA 01746
Phone: (508) 429-5965
Fax: (508) 429-9765

Section 2 – Composition/Information on Ingredients

<u>Chemical name</u>	<u>CAS #</u>
Sodium chloride	7647-14-5
Water	7732-18-5

Section 3 - Hazards Identification

CAUTION! Handling care generally in keeping with safe laboratory practices is recommended.

Routes of Entry:

Ingestion

Potential Acute Health Effects:

Eyes May be hazardous in case of eye contact (irritant).

Skin May be hazardous in case of eye contact (irritant).

Inhalation No known acute effects of this product resulting from inhalation.

Ingestion No known acute effects of this product resulting from inhalation.

Potential Chronic Health Effects:

Carcinogenic Effects: This material is not known to cause cancer in animals or humans.

Medical Conditions Aggravated by Overexposure:

Repeated or prolonged exposure is not known to aggravate medical condition.

Additional information See Toxicological Information (section 11)



Hazard Description:

Harmful if swallowed or inhaled. Causes irritation to skin, eyes and respiratory tract.

NFPA Rating (0-4)

Fire hazard	0
Health	0
Reactivity	0

Section 4- First Aid Measures

General Information:

Immediately remove any clothing contaminated by the substance. Wash affected area with copious amounts of water for at least 15 minutes with soap. Speed in removing material from skin is extremely important. Use safety shower.

Eye Contact:

Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Cold water may be used. Get medical attention if irritation occurs.

Skin Contact:

In case of contact, immediately flush skin with plenty of water. Cover the irritated skin with an emollient. Remove contaminated clothing and shoes. Cold water may be used. Get medical attention.

Inhalation:

If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention if symptoms appear.

Ingestion:

Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention if symptoms appear.

Section 5- Fire Fighting Measures

Flammability of Product

Non-flammable.

Auto-Ignition Temperature

Not applicable.

Flash Points

Not applicable.

Flammable Limits

Not applicable.

Products of Combustion

Not available.

Fire Hazards in Presence of Various Substances



Not applicable.

Explosion Hazards in Presence of Various Substances

Risks of explosion of the product in presence of static discharge: No.

Risks of explosion of the product in presence of mechanical impact: No.

Fire Fighting Media and Instructions

Not applicable.

Protective Clothing (Fire)

Not applicable.

Special Remarks on Fire Hazards

Not available.

Special Remarks on Explosion Hazards

Not available.

Section 6 – Accidental Release Measures

Small Spill and Leak

Dilute with water and mop up, or absorb with an inert dry material and place in an appropriate waste disposal container.

Large Spill and Leak

Absorb with an inert material and put the spilled material in an appropriate waste disposal.

Spill Kit Information

No specific spill kit required for this product.

Section 7 – Handling and Storage

Handling:

Avoid contact with eyes, skin and clothing. Do not ingest.

Storage:

Keep container tightly closed. Keep container in a cool, well-ventilated area.

Section 8 – Exposure controls/Personal Protection

ENGINEERING CONTROLS

Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective occupational exposure limits.

PERSONAL PROTECTION

Eyes: Safety glasses.

Body: Lab coat.

Respiratory: Vapor respirator. Be sure to use an approved/certified respirator or equivalent.

Hands: Gloves.

Feet: Not applicable.

Personal Protection in Case of a Large Spill:

Splash goggles. Full suit. Vapor respirator. Boots. Gloves. A self-contained breathing apparatus should be used to avoid inhalation of the product. Suggested



protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits

Sodium Chloride Not available.
Water Not available.

Section 9 – Physical and Chemical Properties

Odor Not available.
Color Colorless.

Appearance:

Physical State and Appearance Liquid.
Molecular Weight Not applicable.
Molecular Formula Not applicable.
pH Not available.
Boiling/Condensation Point The lowest known value is 99.9°C (211.8°F) (Water).
Melting/Freezing Point May start to solidify at -0.1°C (31.8°F) based on data for: Water.
Specific Gravity Not available.
Vapor Pressure Not available.
Vapor Density Not available.
Odor Threshold Not available.
Evaporation Rate 0.36 (Water) compared to (n-BUTYL ACETATE=1)
LogKow Not available.
Solubility Soluble in water.

Section 10 – Stability and Reactivity

Stability/Reactivity

The product is stable.

Conditions of Instability

Not available.

Incompatibility with Various Substances

Not available.

Section 11 – Toxicological Information

RTECS Number:
Sodium Chloride VZ4725000
Water ZC0110000
Toxicity (LD50) 4000mg/kg (oral, mouse, as NaCl)
Chronic Effects on Humans Contains material which may cause damage to the following organs: skin, eyes, stomach.
Acute Effects on Humans May be hazardous in case of eye contact(irritant).
May be hazardous in case of skin contact (irritant).
Skin inflammation is characterized by itching, scaling, reddening, or, occasionally, blistering.
Synergetic Products (Toxicologically) Not available.
Irritancy Draize Test: Not available.



Sensitization	Not available.
Carcinogenic Effects: This material is	not known to cause cancer in animals or humans.
Toxicity to Reproductive System	Not available.
Teratogenic Effects	Not available.
Mutagenic Effects	Not available.

Section 12 – Ecological Information

Ecotoxicity	Not available.
BOD5 and COD	Not available.
Toxicity of the Products of Biodegradation	Not available

Section 13 – Disposal Considerations

EPA Waste Number	Not available.
Treatment	
Material does not have an EPA Waste Number and is not a listed waste; however consultation with a permitted waste disposal site (TSD) should be accomplished. Always contact a permitted waste disposal (TSD) to assure compliance with all current local, state, and Federal Regulations..	

Section 14 – Transport Information

Not regulated.

Section 15 – Regulatory Information

U.S. Federal Regulations

TSCA 8(b) inventory: Sodium Chloride; Water
SARA 302/304/311/312 extremely hazardous substances: No products were found.
SARA 302/304 emergency planning and notification: No products were found.
SARA 302/304/311/312 hazardous chemicals: Sodium Chloride
SARA 311/312 MSDS distribution - chemical inventory - hazard identification:
Sodium Chloride: Immediate (Acute) Health Hazard, Delayed (Chronic) Health Hazard
SARA 313 toxic chemical notification and release reporting: No products were found.
Clean Water Act (CWA) 307: No products were found.
Clean Water Act (CWA) 311: No products were found.
Clean air act (CAA) 112 accidental release prevention: No products were found.
Clean air act (CAA) 112 regulated flammable substances: No products were found.
Clean air act (CAA) 112 regulated toxic substances: No products were found.

WHMIS (Canada)

Not controlled under WHMIS (Canada).
CEPA DSL: Sodium Chloride; Water
This product has been classified in accordance with the hazard criteria of the Controlled Product Regulations and the MSDS contain all required information.

International Regulations

EINECS Sodium Chloride 231-598-3
Water 231-791-2
DSCL (EEC) This product is not classified according to the EU regulations.
International Lists Australia (NICNAS): Sodium Chloride; Water
Japan (MITI): Sodium Chloride; Water
Korea (TCCL): Sodium Chloride; Water



Philippines (RA6969): Sodium Chloride; Water
China: No products were found.

Section 16 – Other Information

This bulletin is for your guidance and is based upon information and tests believed to be reliable. AutoGen makes no guarantee of the accuracy or completeness of the data and shall not be liable for any damages thereto. The data are offered solely for your consideration, investigation, and verification. These suggestions should not be confused with state, municipal, or insurance requirements, or with national safety codes and constitute no warranty. Any use of these data and information must be determined by the user to be in accordance with applicable federal, state, and local regulations.



Material Data Safety Sheet

AutoGen, Inc.
84 October Hill Rd.
Holliston, MA 01746
(508) 429-5965

Date revised: 02-11-04
Emergency Telephone Number: (800) 424-9300
Agent: CHEMTREC

Section 1 – Product and Company Information

Product Name: AGP965 Whole Blood DNA – DNA Collection Solution
Product Number: WB-R4

Company: AutoGen, Inc.
Address: 84 October Hill Rd.
Holliston, MA 01746
Phone: (508) 429-5965
Fax: (508) 429-9765

Section 2 – Composition/Information on Ingredients

<u>Chemical name</u>	<u>CAS #</u>
dd H ₂ O	7732-18-5

Section 3 - Hazards Identification

Emergency Overview
Not applicable.

SAF-T-DATA(tm) Ratings (Provided here for your convenience)

Health Rating: 0 - None
Flammability Rating: 0 - None
Reactivity Rating: 1 - Slight
Contact Rating: 0 - None
Lab Protective Equip: GOGGLES; LAB COAT
Storage Color Code: Green (General Storage)

Potential Health Effects
Water is non-hazardous.

Inhalation:
Not applicable.



Ingestion:

Not applicable.

Skin Contact:

Not applicable.

Eye Contact:

Not applicable.

Chronic Exposure:

Not applicable.

Aggravation of Pre-existing Conditions:

Not applicable.

Section 4- First Aid Measures

Inhalation:

Not applicable.

Ingestion:

Not applicable.

Skin Contact:

Not applicable.

Eye Contact:

Not applicable.

Section 5- Fire Fighting Measures

Fire:

Not applicable.

Explosion:

Not applicable.

Fire Extinguishing Media:

Use extinguishing media appropriate for surrounding fire.

Special Information:

In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full face piece operated in the pressure demand or other positive pressure mode.

Section 6 – Accidental Release Measures

Non-hazardous material. Clean up of spills requires no special equipment or procedures.



Section 7 – Handling and Storage

Keep container tightly closed. Suitable for any general chemical storage area. Protect from freezing. Water is considered a non-regulated product, but may react vigorously with some specific materials. Avoid contact with all materials until investigation shows substance is compatible.

Section 8 – Exposure controls/Personal Protection

Airborne Exposure Limits:

Not applicable.

Ventilation System:

Not applicable.

Personal Respirators (NIOSH Approved):

Not applicable.

Skin Protection:

None required.

Eye Protection:

None required.

Section 9 – Physical and Chemical Properties

Appearance:

Clear, colorless liquid.

Odor:

Odorless.

Solubility:

Complete (100%)

Specific Gravity:

1.00

pH:

7.0

% Volatiles by volume @ 21C (70F):

100

Boiling Point:

100C (212F)

Melting Point:

0C (32F)

Vapor Density (Air=1):

Not applicable.

Vapor Pressure (mm Hg):

17.5 @ 20C (68F)

Evaporation Rate (BuAc=1):

No information found.



Section 10 – Stability and Reactivity

Stability:

Stable under ordinary conditions of use and storage.

Hazardous Decomposition Products:

Not applicable.

Hazardous Polymerization:

Will not occur.

Incompatibilities:

Strong reducing agents, acid chlorides, phosphorus trichloride, phosphorus pentachloride, phosphorus oxychloride.

Conditions to Avoid:

No information found.

Section 11 – Toxicological Information

For Water: LD50 Oral Rat: >90 ml/Kg. Investigated as a mutagen.

Section 12 – Ecological Information

Environmental Fate:

Not applicable.

Environmental Toxicity:

Not applicable.

Section 13 – Disposal Considerations

Whatever cannot be saved for recovery or recycling should be flushed to sewer. If material becomes contaminated during use, dispose of accordingly. Dispose of container and unused contents in accordance with federal, state and local requirements.

Section 14 – Transport Information

Not Regulated

Section 15 – Regulatory Information

Not regulated



Section 16 – Other Information

NFPA Ratings:

Health: 0 Flammability: 0 Reactivity: 0

Label Hazard Warning:

Not applicable.

Label Precautions:

Keep in tightly closed container.

Label First Aid:

Not applicable.

Product Use:

Laboratory Reagent

Revision Information:

No Changes.



Material Data Safety Sheet

AutoGen, Inc.
84 October Hill Rd.
Holliston, MA 01746
(508) 429-5965

Date revised: 03-01-06
Emergency Telephone Number: (800) 424-9300
Agent: CHEMTREC

Section 1 – Product and Company Information

Product Name: AGP965 Whole Blood DNA – DNA Precipitation Solution A
Product Number: WB-R5

Company: AutoGen, Inc.
Address: 84 October Hill Rd.
Holliston, MA 01746
Phone: (508) 429-5965
Fax: (508) 429-9765

Section 2 – Composition/Information on Ingredients

<u>Chemical name</u>	<u>CAS #</u>
Isopropanol	66-63-0

Section 3 - Hazards Identification

Dangerous Components:
UN Number: 1993
Chemical: Isopropanol
Class: 3, Flammable liquid

Emergency Overview
Flammable liquid and vapor.
Vapor may cause flash fire.

Hazard Description:
Harmful if swallowed or inhaled. Causes irritation to skin, eyes and respiratory tract.



NFPA Rating (0-4)

Fire hazard	3
Health	1
Reactivity	0
Specific hazard	0

Section 4- First Aid Measures

General Information:

Immediately remove any clothing soiled by the substance .Wash affected area with copious amounts of water for at least 15 minutes and then soap and water. Speed in removing material from skin is extremely important. Use safety shower.

Eye Contact:

Rinse opened eye for at least 15 minutes under running water. Then consult at a physician.

Skin Contact:

Immediately wash with water and soap and rinse thoroughly. Cover the irritated skin with an emollient. Remove contaminated clothing and shoes. Call physician immediately.

Inhalation:

Supply fresh air. If not breathing, give artificial respiration. If breathing is difficult give oxygen. Call physician immediately.

Swallowing:

If conscious, drink water and induce vomiting immediately as directed by medical personal. Never give an unconscious person anything to ingest.

Section 5- Fire Fighting Measures

Flammability of the Product

Product will burn

Auto-Ignition Temperature

399.05 C

Flash Points

Open cup: 11.9 C



Suitable Extinguishing Agents:

SMALL FIRE: Use DRY chemical powder.

LARGE FIRE: Use alcohol foam, water spray or fog. Cool containing vessels with water jet in order to prevent pressure build-up, auto ignition or explosion.

Protective Clothing (Fire)

Be sure to use an approved/certified respirator or equivalent.

Section 6 – Accidental Release Measures

Small Spill and Leak

Dilute with water and mop up, or absorb with an inert dry material and place in an appropriate waste disposal container.

Large Spill and Leak

Keep away from heat. Keep away from sources of ignition. Stop leak if without risk. Cover with DRY earth, DRY sand or other non-combustible material followed with plastic sheet to minimize spreading or contact with rain. Do not get water inside container. Do not touch spilled material. Use water spray to reduce vapors. Prevent entry into sewers, basements or confined areas; dike if needed. Call for assistance on disposal. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

Section 7 – Handling and Storage

Handling:

Keep away from heat, sparks and flame. Keep container closed. Do not get in eyes, on skin, or on clothing. Do not ingest. Do not breathe gas/fumes/vapor/spray.

Storage:

Keep container in a cool, well-ventilated area.

Section 8 – Exposure controls/Personal Protection

Personal Protection

Use chemical safety goggles, protective gloves or vapor respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate.

Engineering Controls



Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value. Ensure that eyewash stations and safety showers are proximal to the work-station location.

Exposure Limits

ACGIH (United States, 1994).

STEL: 1230 mg/m³, 500 ppm

TWA: 983 mg/m³ Period: 10 hour(s), 400 ppm Period: 10 hour(s).

NIOSH REL (United States, 1994).

STEL: 1225 mg/m³, 500 ppm

TWA: 980 mg/m³ Period: 10 hour(s), 400 ppm Period: 10 hour(s).

OSHA Final Rule (United States, 1989).

STEL: 1225 mg/m³, 500 ppm

TWA: 980 mg/m³, 400 ppm

Section 9 – Physical and Chemical Properties

Appearance:

Colorless liquid with characteristic odor.

Boiling point: 82.4 C

Melting point: -89.5 C

Specific gravity: 0.786 (water=1)

Solubility in /Miscibility with water: Soluble in water.

Vapor density: 2.07

Vapor pressure: 32.4 (20 C) mmHg

Section 10 – Stability and Reactivity

Stability/Reactivity

Stable under ordinary handling conditions.

Incompatibility with Various Substances

Highly reactive with oxidizing agents.

Section 11 – Toxicological Information

CAS NO. Designation of Materials:

67-63-0 Isopropyl alcohol

Acute toxicity: oral mouse LD₅₀, 4,960 mg/kg

Caustic effect on skin, mucous membranes and eye.

Acute Toxicity

Oral LD₅₀: mouse 3,600mg/kg

Dermal LD₅₀: rabbit 12,800mg/kg



Acute Effects on Humans

Extremely hazardous in case of eye contact (irritant). Inflammation of the eye is characterized by redness, watering, and itching. May be hazardous in case of skin contact (irritant). Skin inflammation is characterized by itching, scaling, reddening, or, occasionally, blistering. Non-permeator by skin. Hazardous in case of inhalation. Hazardous in case of ingestion.

Section 12 – Ecological Information

This product itself and its products of degradation are not toxic.

Section 13 – Disposal Considerations

Incineration, fuels blending or recycle. State and local disposal regulations may differ from federal disposal regulations. Dispose of container and unused contents in accordance with federal, state and local requirements.

Section 14 – Transport Information

DOT Classification

Proper Shipping Name: ISOPROPANOL

Hazard Class: 3

UN number: UN1993

Packing Group: II

IMO/IMDG Classification

Proper Shipping Name: ISOPROPANOL

Hazard Class: 3

UN number: UN1993

Packing Group: II

TDG Classification

Not available

ICAO/IATA Classification

Proper Shipping Name: ISOPROPANOL

Hazard Class: 3

UN number: UN1993

Packing Group: II

Section 15 – Regulatory Information

U.S. Federal Regulations

TSCA 4(a) final test rules: ISOPROPYL ALCOHOL



TSCA 8(b) inventory: ISOPROPYL ALCOHOL

TSCA 8(d) H and S data reporting: ISOPROPYL ALCOHOL: 1986

TSCA 12(b) one time export: ISOPROPYL ALCOHOL

SARA 302/304/311/312 extremely hazardous substances: No products were found.

SARA 302/304 emergency planning and notification: No products were found.

SARA 302/304/311/312 hazardous chemicals: ISOPROPYL ALCOHOL

SARA 311/312 MSDS distribution - chemical inventory - hazard identification:

ISOPROPYL ALCOHOL: Fire Hazard, Immediate (Acute) Health Hazard, Delayed (Chronic) Health Hazard

SARA 313 toxic chemical notification and release reporting: ISOPROPYL ALCOHOL

Clean Water Act (CWA) 307: No products were found.

Clean Water Act (CWA) 311: No products were found.

Clean air act (CAA) 112 accidental release prevention: No products were found.

Clean air act (CAA) 112 regulated flammable substances: No products were found.

Clean air act (CAA) 112 regulated toxic substances: No products were found.

Section 16 – Other Information

This bulletin is for your guidance and is based upon information and tests believed to be reliable. AutoGen makes no guarantee of the accuracy or completeness of the data and shall not be liable for any damages thereto. The data are offered solely for your consideration, investigation, and verification. These suggestions should not be confused with state, municipal, or insurance requirements, or with national safety codes and constitute no warranty. Any use of these data and information must be determined by the user to be in accordance with applicable federal, state, and local regulations.



Material Data Safety Sheet

AutoGen, Inc.
84 October Hill Rd.
Holliston, MA 01746
(508) 429-5965

Date revised: 11-23-04
Emergency Telephone Number: (800) 424-9300
Agent: CHEMTREC

Section 1 – Product and Company Information

Product Name: AGP965 Whole Blood DNA – DNA Wash Solution
Product Number: WB-R6/7/8

Company: AutoGen, Inc.
Address: 84 October Hill Rd.
Holliston, MA 01746
Phone: (508) 429-5965
Fax: (508) 429-9765

Section 2 – Composition/Information on Ingredients

<u>Chemical name</u>	<u>CAS #</u>
Ethanol	2-202
Isopropyl alcohol	67-63-0
Water	

Section 3 - Hazards Identification

Dangerous Components:
UN Number: 1993
Chemical: Ethanol/Isopropanol alcohol
Class: 3, Flammable liquid

Emergency Overview
Poison
Flammable liquid and vapor. Vapor may cause flash fire.

Hazard Description
Poison! Flammable liquid and vapor. Vapor may cause flash fire. May be fetal if swallowed. Cannot be made non-poisonous. Birth defect hazard. Harmful if inhaled or absorbed through skin. Causes respiration tract, eye and skin irritation. Contains material which causes danger to the following organs: blood,



kidneys, reproductive system, liver, gastrointestinal, tract, respiratory tract, skin, central nervous system, eye, lens or cornea.

NFPA Rating (0-4)

Fire hazard	3	
Health	1	
Reactivity	0	
Specific hazard		0

Section 4- First Aid Measures

General Information:

Immediately remove any clothing soiled by the substance .Wash affected area with copious amounts of water for at least 15 minutes and then soap and water. Speed in removing material from skin is extremely important. Use safety shower.

Eye Contact:

Rinse opened eye for at least 15 minutes under running water. Then consult at a physician.

Skin Contact:

Immediately wash with water and soap and rinse thoroughly. Cover the irritated skin with an emollient. Remove contaminated clothing and shoes. Call physician immediately.

Inhalation:

Supply fresh air. If not breathing, give artificial respiration. If breathing is difficult give oxygen. Call physician immediately.

Swallowing

If conscious, drink water and induce vomiting immediately as directed by medical personal. Never give an unconscious person anything to ingest.

Section 5- Fire Fighting Measures

Flammability of the Product

Product will burn

Auto-Ignition Temperature

The lowest known value is 371 C (as ethanol)

Flash Points

Closed cup: 19.0 C (as ethanol)

Suitable Extinguishing Agents

SMALL FIRE: Use DRY chemical powder.



LARGE FIRE: Use alcohol foam, water spray or fog. Cool containing vessels with water jet in order to prevent pressure build-up, auto ignition or explosion.

Protective Clothing (Fire)

Be sure to use an approved/certified respirator or equivalent.

Section 6 – Accidental Release Measures

Small Spill and Leak

Dilute with water and mop up, or absorb with an inert dry material and place in an appropriate waste disposal container.

Large Spill and Leak

Keep away from heat. Keep away from sources of ignition. Stop leak if without risk. Cover with DRY earth, DRY sand or other non-combustible material followed with plastic sheet to minimize spreading or contact with rain. Do not get water inside container. Do not touch spilled material. Use water spray to reduce vapors. Prevent entry into sewers, basements or confined areas; dike if needed. Call for assistance on disposal. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

Section 7 – Handling and Storage

Handling:

Keep away from heat, sparks and flame. Keep container closed. Do not get in eyes, on skin, or on clothing. Do not ingest. Do not breathe gas/fumes/vapor/spray.

Storage:

Keep container in a cool, well-ventilated area.

Section 8 – Exposure controls/Personal Protection

Personal Protection

Use chemical safety goggles, protective gloves or vapor respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate.

Engineering Controls

Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value. Ensure that eyewash stations and safety showers are proximal to the work-station location.



Exposure Limits

Isopropyl alcohol

ACGIH (United States, 1994).

STEL: 1230 mg/m³, 500 ppm

TWA: 983 mg/m³ Period: 10 hour(s), 400 ppm Period: 10 hour(s).

NIOSH REL (United States, 1994).

STEL: 1225 mg/m³, 500 ppm

TWA: 980 mg/m³ Period: 10 hour(s), 400 ppm Period: 10 hour(s).

OSHA Final Rule (United States, 1989).

STEL: 1225 mg/m³, 500 ppm

TWA: 980 mg/m³, 400 ppm ON MATERIALS

Ethanol

ACGIH (United States, 1994).

TWA: 1880 mg/m³: 1000 ppm

NIOSH REL (United States, 2000).

TWA: 1900 mg/m³ Period: 10 hour(s): 1000 ppm Period: 10 hour(s).

OSHA Final Rule (United States, 1989).

TWA: 1900 mg/m³: 1000 ppm

Section 9 – Physical and Chemical Properties

Appearance:

Colorless liquid with characteristic odor.

Boiling point: The lowest known value is 78.3 C (Ethanol)

Melting point: Not determined.

Specific gravity: Not determined.

Solubility in /Miscibility with water: Soluble in water.

Vapor density: The highest known value is 2.07 (isopropyl alcohol)

Vapor pressure: The highest known value is 5.9 kPa (44 mmHg) at 25 C (Ethanol)

Section 10 – Stability and Reactivity

Stability/Reactivity

Stable under ordinary handling conditions.

Incompatibility with Various Substances

Reactive with oxidizing agents, acids.

Section 11 – Toxicological Information

CAS NO. Designation of Materials:

64-17-5 Ethanol

Acute toxicity: oral mouse LD50, 3,450mg/kg

67-63-0 Isopropyl alcohol (100%, W/V)



Acute toxicity: oral mouse LD50, 4,960 mg/kg
Caustic effect on skin, mucous membranes and eye.

Chronic Effects of Humans:

Developmental Toxicity: Classified Reproductive system/toxin/female, Reproductive system/toxin/male [SUSPECTED].

Contains material which may cause damage to the following organs: blood, the reproductive system, liver, upper respiratory tract, skin, eyes, central nervous system (CNS), eye, lens or cornea.

Acute Effects on Humans: Extremely hazardous in case of eye contact (irritant). Inflammation of the eye is characterized by redness, watering, and itching. May be hazardous in case of skin contact (irritant). Skin inflammation is characterized by itching, scaling, reddening, or, occasionally, blistering. Non-permeator by skin. Hazardous in case of inhalation. Hazardous in case of ingestion.

Section 12 – Ecological Information

This product itself and its products of degradation are not toxic.

Section 13 – Disposal Considerations

Incineration, fuels blending or recycle. State and local disposal regulations may differ from federal disposal regulations. Dispose of container and unused contents in accordance with federal, state and local requirements.

Section 14 – Transport Information

DOT Classification

Proper Shipping Name: Flammable liquid, n.o.s., (Ethanol/Isopropyl alcohol)

Hazard Class: 3

UN number: UN1993

Packing Group: II

ICAO/IATA Classification

Proper Shipping Name: Flammable liquid, n.o.s., (Ethanol/Isopropyl alcohol)

Hazard Class: 3

UN number: UN1993

Packing Group: II

Section 15 – Regulatory Information

U.S. FEDERAL REGULATIONS

TSCA 4(a) final test rules: ISOPROPYL ALCOHOL

TSCA 8(b) inventory: ISOPROPYL ALCOHOL; ETHANOL; WATER.

TSCA 8(d) H and S data reporting: ISOPROPYL ALCOHOL: 1986



TSCA 12(b) one time export: ISOPROPYL ALCOHOL

SARA 302/304/311/312 extremely hazardous substances: No products were found.

SARA 302/304 emergency planning and notification: No products were found.

SARA 302/304/311/312 hazardous chemicals: ISOPROPYL ALCOHOL;
ETHANOL

SARA 311/312 MSDS distribution - chemical inventory - hazard identification:
ISOPROPYL ALCOHOL: Fire Hazard, Immediate (Acute) Health Hazard, Delayed
(Chronic) Health Hazard:

SARA 313 toxic chemical notification and release reporting: ISOPROPYL
ALCOHOL

Clean Water Act (CWA) 307: No products were found.

Clean Water Act (CWA) 311: No products were found.

Clean air act (CAA) 112 accidental release prevention: No products were found.

Clean air act (CAA) 112 regulated flammable substances: No products were
found.

Clean air act (CAA) 112 regulated toxic substances: No products were found.

Section 16 – Other Information

This bulletin is for your guidance and is based upon information and tests believed to be reliable. AutoGen makes no guarantee of the accuracy or completeness of the data and shall not be liable for any damages thereto. The data are offered solely for your consideration, investigation, and verification. These suggestions should not be confused with state, municipal, or insurance requirements, or with national safety codes and constitute no warranty. Any use of these data and information must be determined by the user to be in accordance with applicable federal, state, and local regulations.



Material Data Safety Sheet

AutoGen, Inc.
84 October Hill Rd.
Holliston, MA 01746
(508) 429-5965

Date revised: 09-04-06
Emergency Telephone Number: (800) 424-9300
Agent: CHEMTREC

Section 1 – Product and Company Information

Product Name: AGP965 Whole Blood DNA – DNA Resuspension Solution
Product Number: WB-R9

Company: AutoGen, Inc.
Address: 84 October Hill Rd.
Holliston, MA 01746
Phone: (508) 429-5965
Fax: (508) 429-9765

Section 2 – Composition/Information on Ingredients

<u>Chemical name</u>	<u>CAS #</u>
Tris-HCl	77-86-1
EDTA	6381-92-6
Water	7732-18-5

Section 3 - Hazards Identification

Emergency Overview

CAUTION! Handling care generally in keeping with safe laboratory practices is recommended.

Routes of Entry

Potential Acute Health Effects

Eyes: No known acute effects of this product resulting from eye contact.
Skin: No known acute effects of this product resulting from skin contact.
Inhalation: No known acute effects of this product resulting from inhalation.
Ingestion: No known acute effects of this product resulting from ingestion.

Potential Chronic Health Effects

Carcinogenic Effects: This material is not known to cause cancer in animals or humans.

Additional information: See Toxicological Information (section 11)



Medical Conditions Aggravated by Overexposure:

Repeated or prolonged exposure is not known to aggravate medical condition.

Hazard Description:

Harmful if swallowed or inhaled. Causes irritation to skin, eyes and respiratory tract.

NFPA Rating (0-4):

Fire hazard	0
Health	0
Reactivity	0
Specific hazard	0

Section 4- First Aid Measures

General Information:

Immediately remove any clothing soiled by the substance .Wash affected area with copious amounts of water for at least 15 minutes and then soap and water. Speed in removing material from skin is extremely important. Use safety shower.

Eye Contact:

Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Cold water may be used. Get medical attention if irritation occurs.

Skin Contact:

Wash with soap and water. Cover the irritated skin with an emollient. Get medical attention if irritation develops. Cold water may be used.

Inhalation:

If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention if symptoms appear.

Ingestion:

Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. If large quantities of this material are swallowed, call a physician immediately.

Loosen tight clothing such as a collar, tie, belt or waistband.

Section 5- Fire Fighting Measures

Flammability of the Product:

Non-flammable.

Auto-Ignition Temperature:

Not applicable.

Flash Points

Not applicable.

Flammable Limits

Not applicable.



Products of Combustion

Not available.

Fire Hazards in Presence of Various Substances

Not applicable.

Explosion Hazards in Presence of Various Substances

Risks of explosion of the product in presence of static discharge: No.

Risks of explosion of the product in presence of mechanical impact: No.

Fire Fighting Media and Instructions

Not applicable.

Protective Clothing (Fire)

Not applicable.

Special Remarks on Fire Hazards

Not available.

Special Remarks on Explosion Hazards

May emit toxic fumes under fire conditions.

Thermal decomposition may release toxic and/or hazardous gases. (EDTA di-Sodium Dihydrate)

Section 6 – Accidental Release Measures

Small Spill and Leak

Dilute with water and mop up, or absorb with an inert dry material and place in an appropriate waste disposal container.

Large Spill and Leak

Absorb with an inert material and put the spilled material in an appropriate waste disposal.

Spill Kit Information

No specific spill kit required for this product.

Section 7 – Handling and Storage

Handling:

Avoid breathing vapors or spray mists. Avoid contact with skin and eyes. Do not ingest.

Storage:

Keep container tightly closed. Keep container in a cool, well-ventilated area.

Section 8 – Exposure controls/Personal Protection

Engineering Controls

Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective occupational exposure limits.



Personal Protection

Eyes: Safety glasses.
Body: Lab coat.
Respiratory: Vapor respirator. Be sure to use an approved/certified respirator or equivalent.
Hands: Gloves.
Feet: Not applicable.

Personal Protection in Case of a Large Spill

Splash goggles. Full suit. Vapor respirator. Boots. Gloves. A self-contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits

Tris (hydroxymethyl) aminomethane: Not available.
EDTA di-Sodium Dihydrate: Not available.
Water: Not available.

Section 9 – Physical and Chemical Properties

Odor: Not available.
Color: Colorless.

Appearance:

Physical State and Appearance: Liquid.
Molecular Weight: Not applicable.
Molecular Formula: Not applicable.
pH: Not available.
Boiling/Condensation Point: The lowest known value is 99.9°C (211.8°F) (Water).
Melting/Freezing Point: May start to solidify at -0.1°C (31.8°F) based on data for: Water.
Specific Gravity: Not available.
Vapor Pressure: Not available.
Vapor Density: Not available.
Odor Threshold: Not available.
Evaporation Rate: 0.36 (Water) compared to (n-BUTYL ACETATE=1)
LogKow: Not available.
Solubility: Soluble in water.

Section 10 – Stability and Reactivity

Stability/Reactivity

The product is stable.

Conditions of Instability

Not available.

Incompatibility with Various Substances

Not available.



Section 11 – Toxicological Information

RTECS Number:

Tris (hydroxymethyl) aminomethane: TY2900000

EDTA di-Sodium Dihydrate: Not available.

Water: ZC0110000

Toxicity

LD50: Not available.

LC50: Not available.

Chronic Effects on Humans: Not available.

Acute Effects on Humans: Not available.

Synergetic Products (Toxicologically): Not available.

Irritancy Draize Test: Not available.

Sensitization: Not available.

Carcinogenic Effects: This material is not known to cause cancer in animals or humans.

Toxicity to Reproductive System: Not available.

Teratogenic Effects: Not available.

Mutagenic Effects: Not available.

Section 12 – Ecological Information

Ecotoxicity: Not available.

BOD5 and COD: Not available.

Toxicity of the Products of Biodegradation: The product itself and its products of degradation are not toxic.

Section 13 – Disposal Considerations

EPA Waste Number: Not available.

Treatment: Material does not have an EPA Waste Number and is not a listed waste; however consultation with a permitted waste disposal site (TSD) should be accomplished. Always contact a permitted waste disposal (TSD) to assure compliance with all current local, state, and Federal Regulations.

Section 14 – Transport Information

DOT Classification

Proper Shipping Name: CHEMICALS, N.O.S.

IMO/IMDG Classification

Proper Shipping Name: CHEMICALS, N.O.S.

TDG Classification

Not available

ICAO/IATA Classification

CHEMICALS, N.O.S.



Section 15 – Regulatory Information

U.S. Federal Regulations

TSCA 8(b) inventory: Tris (hydroxymethyl) aminomethane; EDTA di-Sodium Dihydrate; Water

SARA 302/304/311/312 extremely hazardous substances: No products were found.

SARA 302/304 emergency planning and notification: No products were found.

SARA 302/304/311/312 hazardous chemicals: No products were found.

SARA 311/312 MSDS distribution - chemical inventory - hazard identification: No products were found. SARA 313 toxic chemical notification and release reporting: No products were found.

Clean Water Act (CWA) 307: No products were found.

Clean Water Act (CWA) 311: No products were found.

Clean air act (CAA) 112 accidental release prevention: No products were found.

Clean air act (CAA) 112 regulated flammable substances: No products were found.

Clean air act (CAA) 112 regulated toxic substances: No products were found.

WHMIS (Canada): Not controlled under WHMIS (Canada).

CEPA DSL: Tris (hydroxymethyl) aminomethane; Water

This product has been classified in accordance with the hazard criteria of the Controlled Product Regulations and the MSDS contains all required information.

Section 16 – Other Information

This bulletin is for your guidance and is based upon information and tests believed to be reliable. AutoGen makes no guarantee of the accuracy or completeness of the data and shall not be liable for any damages thereto. The data are offered solely for your consideration, investigation, and verification. These suggestions should not be confused with state, municipal, or insurance requirements, or with national safety codes and constitute no warranty. Any use of these data and information must be determined by the user to be in accordance with applicable federal, state, and local regulations.