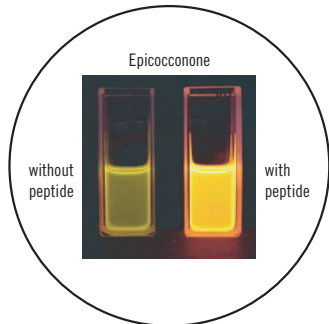


MATERIAL SAFETY DATA SHEET

LavaPep Peptide Quantification Kit



Part Number: LP-022010
Version: 2
Storage: Store at -15 to -30°C in original container
Product Use: Analytical chemistry. Research use only.

MATERIAL SAFETY DATA SHEET

April 2016

1. HAZARD IDENTIFICATION

Hazard Symbol(s): F-Xn R11-20/21/22-36

Xi:R37/38-41

Risk Phrases: R11-20/21/22-36 – Highly flammable. Harmful by inhalation, in contact with skin and if swallowed.

R37/38-41 - Irritating to respiratory system and skin. Risk of serious damage to eyes.

Safety Phrases: 16-37/39-45 - Keep away from sources of ignition – no smoking. Do not breathe dust. Wear suitable protective clothing, gloves and eye/face protection. In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

Statement of hazardous/dangerous nature: HAZARDOUS SUBSTANCE. NON-DANGEROUS GOODS.

2. COMPOSITION/INFORMATION ON INGREDIENTS

Mixture. Yes. The hazards identified with this kit are those associated with the following substances. For additional information, please refer to the individual material safety data sheet(s).

Kit Components: LavaPep Peptide Assay Kit A
LavaPep Peptide Assay Kit B
LavaPep Peptide Assay Kit C

3. HANDLING AND STORAGE

Store at -15 to -30°C in original container

4. TRANSPORT INFORMATION

International transport regulations. Not classified

MLP-022010

MATERIAL SAFETY DATA SHEET

LavaPep Peptide Quantification Kit



5. REGULATORY INFORMATION

Hazard Symbol(s): F-Xn. Xi. Highly flammable. Harmful. Irritant.

Risk Phrases: R-11-20/21/22-36, 37/38-41 - Highly flammable. Harmful by inhalation, in contact with skin and if swallowed. Irritating to respiratory system, eyes and skin. Risk of serious damage to eyes.

Safety Phrases: 16-37/39-45 - Keep away from sources of ignition – no smoking. Do not breathe dust.

Wear suitable protective clothing, gloves and eye/face protection. In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

6. OTHER INFORMATION

Date of previous issue: No previous validation

To the best of our knowledge, the information contained herein is accurate. However, neither the above named supplier nor any of its subsidiaries assumes any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist. Enquiries regarding MSDS Content should be directed to: Gel Company office.

Disclaimer: For research use only. Not for drug, household or any other use.

MATERIAL SAFETY DATA SHEET

LavaPep Peptide Quantification Kit



LVAPEP PROTEIN ASSAY KIT PART A

Mixture : Yes

1. Chemical name	CAS no.	% by Volume
Epicocconone	371163-96-1	N/A
Dimethyl sulfoxide	67-68-5	80
Acetonitrile	75-05-8	20

2. FIRST-AID MEASURES

Inhalation: If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Obtain medical attention.

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.

Skin contact: In case of contact, immediately flush skin copiously with water for at least 15 minutes while removing contaminated clothing and shoes. Cover the irritated skin with an emollient. Cold water may be used. Wash clothes before reuse. Clean shoes thoroughly before reuse. Obtain medical attention immediately.

Eye contact: Check for and remove any contact lenses. In case of contact, immediately flush the eyes with a copious amount of water for at least 15 minutes. Cold water may be used. Obtain medical attention.

3. FIRE-FIGHTING MEASURES

Nature of material / Extinguishing media:

SMALL Fire: Use DRY chemical powder.

LARGE Fire: Use water spray, fog or foam. Do not use water jet.

Hazardous thermal (de)composition products:

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

Special fire-fighting procedures:

Fire fighters should wear self-contained positive pressure breathing apparatus (SCBA) and full turnout gear.

Protection of fire-fighters:

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

MATERIAL SAFETY DATA SHEET

LavaPep Peptide Quantification Kit



4. ACCIDENTAL RELEASE MEASURES

Personal precautions:

Splash goggles. Full suit. Boots. Gloves. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Environmental precautions and cleanup methods:

Keep away from heat. Keep away from sources of ignition. Stop leak if without risk.

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. Finish cleaning by spreading water on the contaminated surface and allow to evacuate through the sanitary system.

5. 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 in a cool well-ventilated area. Keep container tightly closed and sealed until ready for use. Avoid all possible sources of ignition (spark or flame).

Store stain at -15 to -30°C in original container.

Special Requirements:

Avoid exposure to light. Do not allow moisture inside container.

Combustible Liquid:

Combustible liquid Class C1 (AS 1940).

Packaging materials recommended use:

Use original container.

6. EXPOSURE CONTROLS/PERSONAL PROTECTION

OCCUPATIONAL EXPOSURE LIMITS

Ingredient name: Occupational Exposure limit

Dimethyl sulfoxide: TRGS900 (Germany 8/2004). Skin

TWA:160 mg/m³ 8 hour/hours. Form: All forms

Acetonitrile NOHSC (Australia, 8/2005) Skin Notes: ACGIH is the documentation source.

STEL: 101 mg/m³ 15 minute/minutes. Form: All forms

STEL: 60 ppm 15 minute /minutes. Form: All forms

TWA 67mg/m³ 8 hour/ hours. Form: All forms

TWA 40ppm 8 hour/hours. Form: All forms

MATERIAL SAFETY DATA SHEET

LavaPep Peptide Quantification Kit



Recommended monitoring procedures

If this product contains ingredients with exposure limits, personal workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment.

Reference should be made to European Standard EN689 for methods for the assessment of exposure by inhalation to chemical agents and national guidance documents for methods for the determination of hazardous substances.

Engineering measures:

Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective occupational exposure limits. Ensure that eyewash stations and safety showers are close to the workstation location.

Hygiene measures:

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

PERSONAL PROTECTION

- Eyes:** Safety eye wear complying with an approved standard standards should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases.
- 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.
- Respiratory:** Use a properly fitted, air purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirators must be based on known or anticipated exposure levels, the hazard of the product and save working limits of the selected respirator.
- 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.

MATERIAL SAFETY DATA SHEET

LavaPep Peptide Quantification Kit



7. PHYSICAL AND CHEMICAL PROPERTIES

Physical state:	Liquid
Color:	Purple
Odor:	Ethereal (slight)
Odor threshold:	The lowest known value is 40 ppm (acetonitrile)
Boiling point:	The lowest known value is 81.7°C (179°F) (acetonitrile)
Melting point:	May start to solidify at approx. -10°C.
Vapor pressure:	The highest known value is 9.7 kPa (72.8 mmHg) (at 20°C) (acetonitrile).
Specific gravity:	Weighted average approximately 0.98
Density:	Weighted average approximately 0.98
Flash point:	Closed cup: Between 61°C (142°F) and 93.3°C (200°F).
Explosive properties:	Not considered as a product presenting risks of explosion.
Flammable Limits:	The greatest known range is LOWER: 1.8% UPPER: 63% (dimethyl sulfoxide)
Vapor density:	The highest known value is 2.71 (Air = 1) (dimethyl sulfoxide).
Viscosity: Dynamic:	The highest known value is 1.1 cP (dimethyl sulfoxide).
	Kinematic: the highest known value is 0.316 cSt (acetonitrile).
Autoignition temperature:	The lowest known value is 214.9°C (418.8°F) (dimethyl sulfoxide).
Evaporation rate:	The highest known value is 2.33 (acetonitrile) compared with butyl acetate (1)
Solubility:	Easily soluble in cold water, hot water, diethyl ether, acetone.

8. STABILITY AND REACTIVITY

Stability :	The product is stable
Materials to avoid:	Reactive with oxidizing agents, reducing agents, acids, alkalis. Slightly reactive to moisture.
Hazardous decomposition products:	These products are carbon oxides (CO, CO ₂), nitrogen oxides (NO, NO ₂ , etc), sulfur oxides (SO ₂ , SO ₃ , etc.).

HAZARDOUS EXOTHERMIC REACTIONS

Hazardous Exothermic Reactions:

Dimethyl sulfoxide (DMSO) undergoes a violent exothermic reaction on mixing with copper wool and trichloroacetic acid. On mixing with potassium permanganate it will flash instantaneously. It reacts violently with: acid halides, cyanuric chloride, silicon tetrachloride, phosphorous trichloride and trioxide, thionyl chloride, magnesium per chlorate, silver fluoride, methyl bromide, iodine pentafluoride, nitrogen periodate, diborane, sodium hydride and perchloric and periodic acids. When heated above its boiling point dimethyl sulfoxide degrades giving off formaldehyde, methyl mercaptan and sulfur dioxide.

MLP-022010

MATERIAL SAFETY DATA SHEET

LavaPep Peptide Quantification Kit



Remarks: Incompatibilities:
Strong ox, acyl halides, boron compounds, non-metal halides, metal halides.
Acetyl chloride, Acyl halides, Benzenesulfonylchloride, Benzoyl chloride, p-Bromobenzoyl acetanilide, Cyanuric chloride, Iodine pentafluoride, Magnesium perchlorate, Methyl bromide, Perchloric acid, Periodic acid, Phenyl chloride, Phosphorus oxychloride, Phosphorus trichloride, Phosphorus trioxide, Potassium permanganate, Silver fluoride, Sodium hydride, Thionyl chloride, Toly chloride--NFPA 491M

Reactions with other materials:

Reactions with common materials: forms stable coordination complexes with metals.

9. TOXICOLOGICAL INFORMATION

LOCAL EFFECTS

Skin irritation: Hazardous in case of skin contact (irritant)
Skin absorption: May be harmful if absorbed through the skin.
Readily absorbed through the skin
Eye irritation: Hazardous in case of eye contact (irritant)
Inhalation: Hazardous in case of inhalation (irritant)
May be harmful if inhaled.
Ingestion: May be harmful if swallowed.

TOXICITY DATA

Ingredient	Test	Result	Route	Species
Dimethy sulfoxide	LD50	14500 mg/kg	Oral	Rat
	LD50	100 mg/kg	Oral	Wild bird species
	LD50	7920 mg/kg	Oral	Mouse
	LD50	50000 mg/kg	Dermal	Mouse
	LD50	40000 mg/kg	Dermal	Rat
Acetonitrile	LD50	2460 mg/kg	Oral	Rat
	LD50	50mg/kg	Oral	Rabbit
	LD50	177 mg/kg	Oral	Guinea Pig
	LD50	99 mg/kg	Dermal	Rat
	LC50	27.3 mg/l	Inhalation	Rat

(4 hour/hours)

POTENTIAL CHRONIC HEALTH EFFECTS

Carcinogenic effects: No known significant effects or critical hazards.
Mutagenic effects: No known significant effects or critical hazards
Reproductive toxicity: No known significant effects or critical hazards

MLP-022010

MATERIAL SAFETY DATA SHEET

LavaPep Peptide Quantification Kit



OVER EXPOSURE SIGNS/SYMPTOMS

Inhalation: No known significant effects or critical hazards
Ingestion: No known significant effects or critical hazards
Skin: No known significant effects or critical hazards
Target organs: Contains material which causes damage to the following organs: blood, kidney, liver, cardiovascular system, upper respiratory tract, skin, central nervous system, lens or cornea.

10. ECOLOGICAL INFORMATION

ECOTOXICITY DATA

Ingredient	Species	Period	Result
Dimethyl sulfoxide	Pimephales promelas (LC50)	96 hour/hours	34000 mg/l
	Oncorhynchus mykiss (LC50)	96 hour/hours	35000 mg/l
	Lepomis macrochirus (LC50)	96 hour/hours	400000 mg /l
Acetonitrile	Daphnia magna (LC50)	96 hour/hours	>100 mg/l
	Sc quadricauda (IC50)	192 hour/hours	7300 mg/l

Ingredient	Aquatic half-life	Photolysis	Biodegradability
Dimethyl sulfoxide	-	3.1%; 14 day/ days	Not readily
Acetonitrile	-	98%; 28 day/days	Readily

BIOACCUMULATIVE POTENTIAL

Ingredient	LogPow	BCF	Potential
Dimethyl sulfoxide	-2.03	<4	Low
Acetonitrile	-0.34	0.3 to 0.4	Low

OTHER ADVERSE EFFECTS

No known significant effects or hazards.

11. DISPOSAL CONSIDERATIONS

Methods of disposal: The generation of waste should be avoided or minimized wherever possible. Avoid dispersal of spilt material and runoff and contact with soil, water, 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 authority requirements.

MATERIAL SAFETY DATA SHEET

LavaPep Peptide Quantification Kit



12. TRANSPORT INFORMATION

International transport regulations. Not classified

13. REGULATORY INFORMATION

Hazard Symbol(s): F-Xn. Xi. Highly flammable. Harmful. Irritant.

Risk Phrases: R-11-20/21/22-36, 37/38-41 - Highly flammable. Harmful by inhalation, in contact with skin and if swallowed. Irritating to respiratory system, eyes and skin.

Risk of serious damage to eyes.

Safety Phrases: 16-37/39-45 - Keep away from sources of ignition – no smoking.

Do not breathe dust. Wear suitable protective clothing, gloves and eye/face protection.

In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

14. OTHER INFORMATION

Date of previous issue : No previous Validation

To the best of our knowledge, the information contained herein is accurate. However, neither the above named supplier nor any of its subsidiaries assumes any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist. Enquiries regarding MSDS Content should be directed to: Gel Company.

MATERIAL SAFETY DATA SHEET

LavaPep Peptide Quantification Kit



LAVAPEP PROTEIN ASSAY KIT PART B

1. Chemical name	CAS no.	% by Volume
Bicarbonate buffer	10043-35-3	1-3

2. FIRST-AID MEASURES

- Swallowed: If victim is conscious and alert, rinse mouth with water, and then give plenty of water to drink. Seek medical advice.
- Eye: Flush with copious volumes of water for at least 15 minutes. Seek medical advice.
- Skin: Wash skin with copious volumes of water. Seek medical advice if irritation persists.
- Inhaled: Remove victim to fresh air. If breathing stops, give artificial respiration by trained first aid person. Seek medical advice.
- Eye contact: Check for and remove any contact lenses. In case of contact, immediately flush the eyes with a copious amount of water for at least 15 minutes. Cold water may be used. Seek medical advice.

3. FIRE-FIGHTING MEASURES

Nature of material / Extinguishing media :

SMALL Fire: Use DRY chemical powder.

LARGE Fire: Use water spray, fog or foam. Do not use water jet.

Special fire-fighting procedures:

Fire fighters should wear self-contained positive pressure breathing apparatus (SCBA) and full turnout gear.

Protection of fire-fighters:

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

4. ACCIDENTAL RELEASE MEASURES

Personal precautions:

Splash goggles. Full suit. Boots. Gloves. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Environmental precautions and cleanup methods:

Absorb on sand or vermiculite and place in closed containers for disposal.

Ventilate area and wash spill site after material pickup is complete.

MATERIAL SAFETY DATA SHEET

LavaPep Peptide Quantification Kit



5. HANDLING AND STORAGE

User Exposure:

Avoid inhalation. Avoid contact with eyes, skin and clothing.

Avoid prolonged or repeated exposure.

Storage: Store at 2-25°C in original container. Keep container tightly closed and sealed.

6. EXPOSURE CONTROLS/PERSONAL PROTECTION

PERSONAL PROTECTION

Eyes: Safety eye wear complying with an approved standard standards should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases.

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.

Respiratory: Respiratory protection is not required. Where protection if desired.

7. PHYSICAL AND CHEMICAL PROPERTIES

Physical state: Colorless liquid, water-based, pH 9.0 - 9.3

Solvent content: n/a

8. STABILITY AND REACTIVITY

Stability: The product is stable

Materials to avoid: Strong oxidizing agents, metals, acids

Hazardous decomposition products:

Nature of decomposition is not known.

Hazardous polymerization:

Will not occur

9. TOXICOLOGICAL INFORMATION

Skin contact: May cause skin irritation.

Skin absorption: May be harmful if absorbed through the skin.

Eye contact: May cause eye irritation.

Inhalation: Material may be irritating to mucous membranes and upper respiratory tract.
May be harmful if inhaled.

Ingestion: May be harmful if swallowed.

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

MLP-022010

MATERIAL SAFETY DATA SHEET

LavaPep Peptide Quantification Kit



10. ECOLOGICAL INFORMATION

No known significant effects or critical hazards.

11. DISPOSAL CONSIDERATIONS

Methods of disposal: Observe all federal, state and local environmental regulations. Within the present knowledge of the supplier, this product is not regarded as hazardous waste.

12. TRANSPORT INFORMATION

Non-hazardous for Transport and Non-hazardous Air Transport

13. REGULATORY INFORMATION

HCS Classification: Irritating material

14. OTHER INFORMATION

To the best of our knowledge, the information contained herein is accurate. However, neither the above named supplier nor any of its subsidiaries assumes any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist. Enquiries regarding MSDS Content should be directed to: Gel Company

MATERIAL SAFETY DATA SHEET

LavaPep Peptide Quantification Kit



LAVAPEP PROTEIN ASSAY KIT PART C

1. Chemical name	CAS no.	% by Volume
2-cyclohexylaminoethanesulfonic acid	103-47-9	1-3

2. FIRST-AID MEASURES

- Swallowed: If victim is conscious and alert, rinse mouth with water, and then give plenty of water to drink. Seek medical advice.
- Eye: Flush with copious volumes of water for at least 15 minutes. Seek medical advice.
- Skin: Wash skin with copious volumes of water. Seek medical advice if irritation persists.
- Inhaled: Remove victim to fresh air. If breathing stops, give artificial respiration by trained first aid person. Seek medical advice.
- Eye contact: Check for and remove any contact lenses. In case of contact, immediately flush the eyes with a copious amount of water for at least 15 minutes. Cold water may be used. Seek medical advice.

3. FIRE-FIGHTING MEASURES

Nature of material / Extinguishing media :

SMALL Fire: Use DRY chemical powder.

LARGE Fire: Use water spray, fog or foam. Do not use water jet.

Special fire-fighting procedures:

Fire fighters should wear self-contained positive pressure breathing apparatus (SCBA) and full turnout gear. Specific hazards: Emits toxic fumes under fire conditions.

Protection of fire-fighters:

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

4. ACCIDENTAL RELEASE MEASURES

Personal precautions:

Splash goggles. Full suit. Boots. Gloves. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Environmental precautions and cleanup methods:

Absorb on sand or vermiculite and place in closed containers for disposal.

Ventilate area and wash spill site after material pickup is complete.

MATERIAL SAFETY DATA SHEET

LavaPep Peptide Quantification Kit



5. HANDLING AND STORAGE

User Exposure:

Avoid inhalation. Avoid contact with eyes, skin and clothing.

Avoid prolonged or repeated exposure.

Storage: Store at 2-25°C in original container. Keep container tightly closed and sealed.

6. EXPOSURE CONTROLS/PERSONAL PROTECTION

PERSONAL PROTECTION

Eyes: Safety eye wear complying with an approved standard standards should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases.

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.

Respiratory: Respiratory protection is not required. Where protection if desired.

7. PHYSICAL AND CHEMICAL PROPERTIES

Physical state: Colorless liquid, water-based, pH 9.0 - 9.3

Solvent content: < 1%

8. STABILITY AND REACTIVITY

Stability: The product is stable

Materials to avoid: Strong oxidizing agents, acids

Hazardous decomposition products:

Nature of decomposition is not known.

Hazardous polymerization:

Will not occur

9. TOXICOLOGICAL INFORMATION

Skin contact: May cause skin irritation.

Skin absorption: May be harmful if absorbed through the skin.

Eye contact: Causes eye irritation.

Inhalation: Material may be irritating to mucous membranes and upper respiratory tract.
May be harmful if inhaled.

Ingestion: May be harmful if swallowed.

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

MLP-022010

MATERIAL SAFETY DATA SHEET

LavaPep Peptide Quantification Kit



10. ECOLOGICAL INFORMATION

No known significant effects or critical hazards.

11. DISPOSAL CONSIDERATIONS

Methods of disposal: Observe all federal, state and local environmental regulations. Within the present knowledge of the supplier, this product is not regarded as hazardous waste.

12. TRANSPORT INFORMATION

Non-hazardous for Transport and Non-hazardous Air Transport

13. REGULATORY INFORMATION

HCS Classification: Irritating material

14. OTHER INFORMATION

For R&D use only. Not for drug, household or other uses.

To the best of our knowledge, the information contained herein is accurate. However, neither the above named supplier nor any of its subsidiaries assumes any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist. Enquiries regarding MSDS Content should be directed to: Gel Company