

# Material Safety Data Sheet



ESI-L Low Concentration Tuning Mix, Part Number G1969-85000

## Section 1. Chemical product and company identification

**A. Product name** : ESI-L Low Concentration Tuning Mix, Part Number G1969-85000  
**Part No.** : G1969-85000

### B. Relevant identified uses of the substance or mixture and uses advised against

#### Identified uses

Analytical chemistry.  
1 x 100 mL

**C. Supplier** : Agilent Technologies (Korea) Ltd  
25-12 Yeouido-dong  
Yeongdeungpo-gu  
Seoul 150  
Telephone: 080 004 5090

**Emergency telephone number (with hours of operation)** : CHEMTREC®: 00-308-13-2549; +(82) 070-7686-0086

## Section 2. Hazards identification

**A. Hazard classification** :  H225 FLAMMABLE LIQUIDS - Category 2  
H302 ACUTE TOXICITY (oral) - Category 4  
H312 ACUTE TOXICITY (dermal) - Category 4  
H332 ACUTE TOXICITY (inhalation) - Category 4  
H319 SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 2  
H373 SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) (blood system, central nervous system (CNS), kidneys and liver) - Category 2

### B. GHS label elements, including precautionary statements

**Symbol** :



**Signal word** : Danger

**Hazard statements** :  H225 - Highly flammable liquid and vapour.  
H302 + H312 + H332 - Harmful if swallowed, in contact with skin or if inhaled.  
H319 - Causes serious eye irritation.  
H373 - May cause damage to organs through prolonged or repeated exposure. (blood system, central nervous system (CNS), kidneys, liver)

#### Precautionary statements

**Prevention** : P280 - Wear protective gloves. Wear eye or face protection. Wear protective clothing.  
P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
P241 - Use explosion-proof electrical, ventilating, lighting and all material-handling equipment.  
P242 - Use only non-sparking tools.  
P243 - Take precautionary measures against static discharge.  
P233 - Keep container tightly closed.  
P271 - Use only outdoors or in a well-ventilated area.  
P260 - Do not breathe vapour.

## Section 2. Hazards identification

- Response**
- P270 - Do not eat, drink or smoke when using this product.
  - P264 - Wash hands thoroughly after handling.
  - : P314 - Get medical attention if you feel unwell.
  - P304 + P340 + P312 - IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or physician if you feel unwell.
  - P301 + P312 + P330 - IF SWALLOWED: Call a POISON CENTER or physician if you feel unwell. Rinse mouth.
  - P303 + P361 + P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower.
  - P302 + P352 + P312 - IF ON SKIN: Wash with plenty of soap and water. Call a POISON CENTER or physician if you feel unwell.
  - P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
  - P337 + P313 - If eye irritation persists: Get medical attention.
- Storage**
- : P403 - Store in a well-ventilated place.
  - P235 - Keep cool.
- Disposal**
- : P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations.
- C. Other hazards which do not result in classification**
- : None known.

## Section 3. Composition/information on ingredients

**Substance/mixture** : Mixture

### CAS number/other identifiers

Ingredient name	Common name	CAS number	%
Acetonitrile	Acetonitrile	75-05-8	≥90 - <95

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

## Section 4. First aid measures

- A. Eye contact**
- : Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention.
- B. Skin contact**
- : Wash with plenty of soap and water. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Continue to rinse for at least 10 minutes. Get medical attention following exposure or if feeling unwell. If necessary, call a poison center or physician. Wash clothing before reuse. Clean shoes thoroughly before reuse.
- C. Inhalation**
- : Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. 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. Get medical attention following exposure or if feeling unwell. If necessary, call a poison center or physician. 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. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.

## Section 4. First aid measures

- D. Ingestion** : Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. 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. Get medical attention. If necessary, call a poison center or physician. 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.
- E. Notes to physician** : In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.
- Specific treatments** : No specific treatment.
- 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. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

See toxicological information (Section 11)

## Section 5. Firefighting measures

- A. Extinguishing media**
- Suitable extinguishing media** : Use dry chemical, CO<sub>2</sub>, water spray (fog) or foam.
- Unsuitable extinguishing media** : Do not use water jet.
- B. Specific hazards arising from the chemical** : Highly flammable liquid and vapour. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion. The vapour/gas is heavier than air and will spread along the ground. Vapours may accumulate in low or confined areas or travel a considerable distance to a source of ignition and flash back. Runoff to sewer may create fire or explosion hazard.
- Hazardous thermal decomposition products** : Decomposition products may include the following materials:  
carbon dioxide  
carbon monoxide  
nitrogen oxides  
cyanides
- C. 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 precautions for fire-fighters** : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.

## Section 6. Accidental release measures

- A. Personal precautions, protective equipment and emergency procedures** : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilt material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Avoid breathing vapour or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

## Section 6. Accidental release measures

**B. Environmental precautions** : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

### C. Methods and material for containment and cleaning up

Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

## Section 7. Handling and storage

### A. Precautions for safe handling

**Protective measures** : Put on appropriate personal protective equipment (see Section 8). Do not breathe vapour or mist. Do not ingest. Avoid contact with eyes, skin and clothing. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use only non-sparking tools. Take precautionary measures against electrostatic discharges. Empty containers retain product residue and can be hazardous. Do not reuse container.

**Advice on general occupational hygiene** : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

**B. Conditions for safe storage, including any incompatibilities** : Store in accordance with local regulations. Store in a segregated and approved area. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Eliminate all ignition sources. Separate from oxidizing materials. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabelled containers. Use appropriate containment to avoid environmental contamination.

## Section 8. Exposure controls/personal protection

### A. Control parameters

#### Occupational exposure limits

Ingredient name	Exposure limits
Acetonitrile	<b>Ministry of Labor (Republic of Korea, 8/2013). Absorbed through skin.</b> TWA: 33 mg/m <sup>3</sup> 8 hours. TWA: 20 ppm 8 hours.

**B. Appropriate engineering controls** : Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. The engineering controls also need to keep gas, vapour or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment.

**Environmental exposure controls** : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

### C. Personal protective equipment

## Section 8. Exposure controls/personal protection

- Respiratory protection** :  When used as intended (with Agilent instruments), the use of the product under normal laboratory conditions and with standard practices does not result in significant airborne exposures, and, therefore, respiratory protection isn't needed.
- In emergency situations, when a respirator is needed, use a full-face supplied air respirator and components tested and approved under appropriate government standards such as CEN (EU) or NIOSH (US).
- Eye protection** : 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. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles.
- Hand protection** :  When used as intended, use of the product is not expected to result in direct contact with the chemical. However, in case of accidental contact with splash wear good quality:
- Glove material: Butyl rubber  
Glove thickness:  $\geq 0.2$  mm  
Breakthrough time: >30 minutes
- While not recommended, if typical disposable laboratory nitrile gloves are used, they need to be removed immediately if contacted with the mixture. When contacted with acetonitrile, typical laboratory nitrile gloves have very short breakthrough times, considerably less than 10 minutes.
- Body protection** : 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. When there is a risk of ignition from static electricity, wear anti-static protective clothing. For the greatest protection from static discharges, clothing should include anti-static overalls, boots and gloves.
- 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

- A. Appearance**
- Physical state** : Liquid.
- Colour** : Clear. Colourless.
- B. Odour** : Ether-like.
- C. Odour threshold** : Not available.
- D. pH** : Not available.
- E. Melting/freezing point** :  $-45^{\circ}\text{C}$  ( $-49^{\circ}\text{F}$ )
- F. Boiling point/boiling range** :  $81.6^{\circ}\text{C}$  ( $178.9^{\circ}\text{F}$ )
- G. Flash point** : Closed cup:  $12.8^{\circ}\text{C}$  ( $55^{\circ}\text{F}$ )
- Fire point** :  Not available.
- H. Evaporation rate** : 5.79 (butyl acetate = 1)
- I. Flammability (solid, gas)** : Not applicable.
- J. Lower and upper explosive (flammable) limits** : Lower: 4.4%  
Upper: 16%
- K. Vapour pressure** : 11.6 kPa (87 mm Hg) [room temperature]
- L. Solubility** : Soluble in the following materials: cold water and hot water.
- M. Vapour density** : 1.42 [Air = 1]
- N. Relative density** : Not available.

## Section 9. Physical and chemical properties

- O. **Partition coefficient: n-octanol/water** : Not available.
- P. **Auto-ignition temperature** : 524°C (975.2°F)
- Q. **Decomposition temperature** : Not available.
- R. **Viscosity** : Not available.
- S. **Molecular weight** : Not applicable.

## Section 10. Stability and reactivity

- A. **Chemical stability** : The product is stable.  
**Possibility of hazardous reactions** : Under normal conditions of storage and use, hazardous reactions will not occur.
- B. **Conditions to avoid** : Avoid all possible sources of ignition (spark or flame). Do not pressurise, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition. Do not allow vapour to accumulate in low or confined areas.
- C. **Incompatible materials** : Reactive or incompatible with the following materials:  
 oxidizing materials  
 Incompatible with: metals, acids, alkalis and moisture.
- D. **Hazardous decomposition products** : Under normal conditions of storage and use, hazardous decomposition products should not be produced.

## Section 11. Toxicological information

- A. **Information on likely routes of exposure** : Routes of entry anticipated: Oral, Dermal, Inhalation.

### Potential acute health effects

- Inhalation** : Harmful if inhaled.
- Ingestion** : Harmful if swallowed.
- Skin contact** : Harmful in contact with skin.
- Eye contact** : Causes serious eye irritation.

### Over-exposure signs/symptoms

- Inhalation** : No specific data.
- Ingestion** : No specific data.
- Skin contact** : No specific data.
- Eye contact** : Adverse symptoms may include the following:  
 pain or irritation  
 watering  
 redness

### B. Health hazards

#### Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
Acetonitrile	LC50 Inhalation Vapour LD50 Oral	Rat Rat	17100 ppm 2460 mg/kg	4 hours -

#### Irritation/Corrosion

## Section 11. Toxicological information

Product/ingredient name	Result	Species	Score	Exposure	Observation
Acetonitrile	Eyes - Moderate irritant	Rabbit	-	24 hours	-
	Skin - Mild irritant	Rabbit	-	100 microliters 500 milligrams	-

### Sensitisation

Not available.

### Mutagenicity

Not available.

### Carcinogenicity

Not available.

### Reproductive toxicity

Not available.

### Teratogenicity

Not available.

### Specific target organ toxicity (single exposure)

Not available.

### Specific target organ toxicity (repeated exposure)

Name	Category	Route of exposure	Target organs
Acetonitrile	Category 2	Not determined	blood system, central nervous system (CNS), kidneys and liver

### Aspiration hazard

Not available.

### Potential chronic health effects

#### Chronic toxicity

Not available.

- General** : May cause damage to organs through prolonged or repeated exposure.
- Carcinogenicity** : No known significant effects or critical hazards.
- Mutagenicity** : No known significant effects or critical hazards.
- Teratogenicity** : No known significant effects or critical hazards.
- Developmental effects** : No known significant effects or critical hazards.
- Fertility effects** : No known significant effects or critical hazards.

### ATE value

Route	Result
Oral	534.2 mg/kg
Dermal	1175.3 mg/kg
Inhalation (vapours)	11.75 mg/l



## Section 12. Ecological information

### A. Ecotoxicity

Product/ingredient name	Result	Species	Exposure
Acetonitrile	Acute IC50 3685000 µg/l Fresh water Acute LC50 3600000 µg/l Fresh water Acute LC50 1000000 µg/l Fresh water Chronic NOEC 1000000 µg/l Fresh water Chronic NOEC 160000 µg/l Fresh water	Aquatic plants - Lemna minor Daphnia - Daphnia magna Fish - Pimephales promelas Aquatic plants - Lemna minor Daphnia - Daphnia magna	96 hours 48 hours 96 hours 96 hours 21 days

### B. Persistence and degradability

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
Acetonitrile	-	-	Readily

### C. Bioaccumulative potential

Product/ingredient name	LogP <sub>ow</sub>	BCF	Potential
Acetonitrile	-0.34	-	low

### D. Mobility in soil

Soil/water partition coefficient (K<sub>oc</sub>) : Not available.

E. Other adverse effects : No known significant effects or critical hazards.

## Section 13. Disposal considerations

**A. Disposal methods** : The generation of waste should be avoided or minimised wherever possible. 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. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible.




**B. Disposal precautions** : This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Vapour from product residues may create a highly flammable or explosive atmosphere inside the container. Do not cut, weld or grind used containers unless they have been cleaned thoroughly internally. Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers.

## Section 14. Transport information

	UN	IMDG	IATA
<b>A. UN number</b>	UN1648	UN1648	UN1648
<b>B. UN proper shipping name</b>	ACETONITRILE solution	ACETONITRILE solution	Acetonitrile solution



## Section 14. Transport information

<b>C. Transport hazard class(es)</b>	3 	3 	3 
<b>D. Packing group</b>	II	II	II
<b>E. Environmental hazards</b>	No.	No.	No.
<b>F. Additional information</b>	-	<b>Emergency schedules (EmS)</b> F-E, S-D	<b>Passenger and Cargo Aircraft</b> Quantity limitation: 5 L Packaging instructions: 353 <b>Cargo Aircraft Only</b> Quantity limitation: 60 L Packaging instructions: 364 <b>Limited Quantities - Passenger Aircraft</b> Quantity limitation: 1 L Packaging instructions: Y341

**Special precautions for user** : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

## Section 15. Regulatory information

### A. Regulation according to ISHA

**ISHA article 37 (Harmful substances prohibited from manufacture)** : None of the components are listed.

**ISHA article 38 (Harmful substances requiring permission)** : None of the components are listed.

**Article 2 of Youth Protection Act on Substances Hazardous to Youth** : Not applicable.

### Exposure Limits of Chemical Substances and Physical Factors

The following components have an OEL:

Acetonitrile

**ISHA Enforcement Regs Annex 11-3 (Exposure standards established for harmful factors)** : None of the components are listed.

**ISHA Enforcement Regs Annex 11-4 (Harmful factors subject to Work Environment Measurement)** : The following components are listed: Acetonitrile

**ISHA Enforcement Regs Annex 12-2 (Harmful Factors Subject to Special Health Check-up)** : The following components are listed: Acetonitrile

## Section 15. Regulatory information

**Standard of Industrial Safety and Health Annex 12 (Hazardous substances subject to control)** : The following components are listed: Acetonitrile

### B. Regulation according to Chemicals Control Act

**K-Reach Article 20 (Toxic chemicals)** : Not applicable

**K-Reach Article 27 (Prohibited)** : None of the components are listed.

**K-Reach Article 27 (Restricted)** : None of the components are listed.

**CSCA Article 11 (TRI)** : None of the components are listed.

**Korea inventory** : Not determined.

**CSCA Article 39 (Accident Precaution Chemicals)** : None of the components are listed.

**C. Dangerous Materials Safety Management Act** : Class: Class 4 - Flammable Liquid  
Item: 2. Class 1 petroleum - Water-insoluble liquid  
Threshold: 200 L  
Danger category: II  
Signal word: Contact with sources of ignition prohibited

**D. Wastes regulation** : Dispose of contents and container in accordance with all local, regional, national and international regulations.

### E. Regulation according to other foreign laws

#### International regulations

##### Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

##### Montreal Protocol (Annexes A, B, C, E)

Not listed.

##### Stockholm Convention on Persistent Organic Pollutants

Not listed.

##### Rotterdam Convention on Prior Inform Consent (PIC)

Not listed.

##### UNECE Aarhus Protocol on POPs and Heavy Metals

Not listed.

#### Inventory list

**Australia** : At least one component is not listed.

**Canada** : Not determined.

**China** : At least one component is not listed.

**Europe** : Not determined.

**Japan** : **Japan inventory (ENCS)**: Not determined.  
**Japan inventory (ISHL)**: Not determined.

**Malaysia** : Not determined.

**New Zealand** : Not determined.

**Philippines** : Not determined.

**Taiwan** : Not determined.

**Turkey** : Not determined.

**United States** : At least one component is not listed.

## Section 16. Other information

**A. References** : Not available.

**B. Date of issue/Date of revision** : 17/02/2016

**C. Version** : 6

**D. Other**

Indicates information that has changed from previously issued version.

**Key to abbreviations** : ATE = Acute Toxicity Estimate  
BCF = Bioconcentration Factor  
GHS = Globally Harmonized System of Classification and Labelling of Chemicals  
IATA = International Air Transport Association  
IBC = Intermediate Bulk Container  
IMDG = International Maritime Dangerous Goods  
LogPow = logarithm of the octanol/water partition coefficient  
MARPOL = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)  
UN = United Nations

### Notice to reader

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