

# Material Safety Data Sheet

## Fuel Ethanol Analyzer Checkout Mix - G3440-85010

### 1. Product and company identification

<b>Product name</b>	: Fuel Ethanol Analyzer Checkout Mix - G3440-85010	
<b>Material uses</b>	: Analytical chemistry. 4 x 2 ml	
	Sample 1 (Calibration Mix)	2 ml
	Sample 2 (Fuel Ethanol)	2 ml
<b>Supplier/Manufacturer</b>	: Agilent Technologies, Inc. Logistics Center - Americas 500 Ships Landing Way New Castle, Delaware 19720 800-227-9770	
<b>Part No. (Chemical Kit)</b>	: G3440-85010	
<b>Part No.</b>	Sample 1 (Calibration Mix)	Not available.
	Sample 2 (Fuel Ethanol)	Not available.
<b>Validation date</b>	: 03/19/2013	
<b>In case of emergency</b>	: Chemtrec: 1-800-424-9300	

### 2. Hazards identification

<b>Physical state</b>	: Sample 1 (Calibration Mix) Sample 2 (Fuel Ethanol)	Liquid. [Clear.] Liquid.
<b>Odor</b>	: Sample 1 (Calibration Mix) Sample 2 (Fuel Ethanol)	Sweet. Alcohol-like. / Characteristic. / Gasoline-like [Strong]
<b>OSHA/HCS status</b>	: Sample 1 (Calibration Mix)  Sample 2 (Fuel Ethanol)	This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).  This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).
<b>Emergency overview</b>		
<b>Signal word</b>	: Sample 1 (Calibration Mix) Sample 2 (Fuel Ethanol)	WARNING! WARNING!
<b>Hazard statements</b>	: Sample 1 (Calibration Mix)  Sample 2 (Fuel Ethanol)	FLAMMABLE LIQUID AND VAPOR. INHALATION CAUSES HEADACHES, DIZZINESS, DROWSINESS AND NAUSEA AND MAY LEAD TO UNCONSCIOUSNESS. CAUSES RESPIRATORY TRACT, EYE AND SKIN IRRITATION. CONTAINS MATERIAL THAT MAY CAUSE TARGET ORGAN DAMAGE, BASED ON ANIMAL DATA.  FLAMMABLE LIQUID AND VAPOR. CAUSES RESPIRATORY TRACT, EYE AND SKIN IRRITATION. CONTAINS MATERIAL THAT MAY CAUSE TARGET ORGAN DAMAGE, BASED ON ANIMAL DATA. POSSIBLE CANCER HAZARD - CONTAINS MATERIAL WHICH MAY CAUSE CANCER, BASED ON ANIMAL DATA. CONTAINS MATERIAL WHICH MAY CAUSE HERITABLE GENETIC EFFECTS.
<b>Precautions</b>	:	

## 2. Hazards identification

<p>Sample 1 (Calibration Mix)</p> <p>Sample 2 (Fuel Ethanol)</p> <p><b>Routes of entry</b> : Sample 1 (Calibration Mix) Sample 2 (Fuel Ethanol)</p> <p><b>Potential acute health effects</b></p> <p><b>Inhalation</b> : Sample 1 (Calibration Mix) Sample 2 (Fuel Ethanol)</p> <p><b>Ingestion</b> : Sample 1 (Calibration Mix) Sample 2 (Fuel Ethanol)</p> <p><b>Skin</b> : Sample 1 (Calibration Mix) Sample 2 (Fuel Ethanol)</p> <p><b>Eyes</b> : Sample 1 (Calibration Mix) Sample 2 (Fuel Ethanol)</p> <p><b>Potential chronic health effects</b></p> <p><b>Chronic effects</b> : Sample 1 (Calibration Mix) Sample 2 (Fuel Ethanol)</p> <p><b>Carcinogenicity</b> : Sample 1 (Calibration Mix) Sample 2 (Fuel Ethanol)</p> <p><b>Mutagenicity</b> : Sample 1 (Calibration Mix) Sample 2 (Fuel Ethanol)</p> <p><b>Teratogenicity</b> : Sample 1 (Calibration Mix) Sample 2 (Fuel Ethanol)</p> <p><b>Developmental effects</b> : Sample 1 (Calibration Mix) Sample 2 (Fuel Ethanol)</p> <p><b>Fertility effects</b> : Sample 1 (Calibration Mix) Sample 2 (Fuel Ethanol)</p> <p><b>Target organs</b> : Sample 1 (Calibration Mix) Sample 2 (Fuel Ethanol)</p>	<p>Keep away from heat, sparks and flame. Avoid exposure - obtain special instructions before use. Do not breathe vapor or mist. Do not get on skin or clothing. Avoid contact with eyes. Avoid exposure during pregnancy. Use only with adequate ventilation. Keep container tightly closed and sealed until ready for use. Wash thoroughly after handling.</p> <p>Keep away from heat, sparks and flame. Avoid exposure - obtain special instructions before use. Do not breathe vapor or mist. Do not get on skin or clothing. Avoid contact with eyes. Use only with adequate ventilation. Keep container tightly closed and sealed until ready for use. Wash thoroughly after handling.</p> <p>Dermal contact. Eye contact. Inhalation. Ingestion. Not available.</p> <p>Can cause central nervous system (CNS) depression. Irritating to respiratory system. Irritating to respiratory system.</p> <p>Can cause central nervous system (CNS) depression.</p> <p>No known significant effects or critical hazards.</p> <p>Irritating to skin. Defatting to the skin.</p> <p>Irritating to skin.</p> <p>Irritating to eyes.</p> <p>Irritating to eyes.</p> <p>Contains material that may cause target organ damage, based on animal data. Prolonged or repeated contact can defat the skin and lead to irritation, cracking and/or dermatitis.</p> <p>Contains material that may cause target organ damage, based on animal data. Prolonged or repeated contact can defat the skin and lead to irritation, cracking and/or dermatitis.</p> <p>No known significant effects or critical hazards. Contains material which may cause cancer, based on animal data. Risk of cancer depends on duration and level of exposure.</p> <p>No known significant effects or critical hazards. Contains material which may cause heritable genetic effects.</p> <p>No known significant effects or critical hazards.</p> <p>No known significant effects or critical hazards.</p> <p>No known significant effects or critical hazards.</p> <p>No known significant effects or critical hazards.</p> <p>No known significant effects or critical hazards.</p> <p>Contains material which may cause damage to the following organs: lungs, liver, gastrointestinal tract, cardiovascular system, upper respiratory tract, skin, central nervous system (CNS), eye, lens or cornea.</p> <p>Contains material which may cause damage to the following organs: blood, kidneys, lungs, the nervous system, liver, upper respiratory tract, skin, central nervous system (CNS), eye, lens or cornea.</p>
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**Over-exposure signs/symptoms**

## 2. Hazards identification

<b>Inhalation</b>	: Sample 1 (Calibration Mix)	Adverse symptoms may include the following: nausea or vomiting respiratory tract irritation coughing headache drowsiness/fatigue dizziness/vertigo unconsciousness
	Sample 2 (Fuel Ethanol)	Adverse symptoms may include the following: respiratory tract irritation coughing
<b>Ingestion</b>	: Sample 1 (Calibration Mix) Sample 2 (Fuel Ethanol)	No specific data. No specific data.
<b>Skin</b>	: Sample 1 (Calibration Mix)	Adverse symptoms may include the following: irritation redness dryness cracking
	Sample 2 (Fuel Ethanol)	Adverse symptoms may include the following: irritation redness dryness cracking
<b>Eyes</b>	: Sample 1 (Calibration Mix)	Adverse symptoms may include the following: pain or irritation watering redness
	Sample 2 (Fuel Ethanol)	Adverse symptoms may include the following: pain or irritation watering redness
<b>Medical conditions aggravated by over-exposure</b>	: Sample 1 (Calibration Mix) Sample 2 (Fuel Ethanol)	Pre-existing disorders involving any target organs mentioned in this MSDS as being at risk may be aggravated by over-exposure to this product. Pre-existing disorders involving any target organs mentioned in this MSDS as being at risk may be aggravated by over-exposure to this product.

See toxicological information (Section 11)

## 3. Composition/information on ingredients

Name	CAS number	%
<b>Sample 1 (Calibration Mix)</b>		
Ethanol	64-17-5	60 - 100
Heptane	142-82-5	1 - 5
<b>Sample 2 (Fuel Ethanol)</b>		
Ethanol	64-17-5	60 - 100
Gasoline	86290-81-5	1 - 5
Gasoline, natural	8006-61-9	1 - 5

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.

## 4. First aid measures

<b>Eye contact</b>	: Sample 1 (Calibration Mix)	Check for and remove any contact lenses. Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical attention immediately.
	Sample 2 (Fuel Ethanol)	Check for and remove any contact lenses. Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical attention immediately.
<b>Skin contact</b>	: Sample 1 (Calibration Mix)	In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. Clean shoes thoroughly before reuse. Get medical attention immediately.
	Sample 2 (Fuel Ethanol)	In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. Clean shoes thoroughly before reuse. Get medical attention immediately.
<b>Inhalation</b>	: Sample 1 (Calibration Mix)	Move exposed person to fresh air. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention immediately.
	Sample 2 (Fuel Ethanol)	Move exposed person to fresh air. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention immediately.
<b>Ingestion</b>	: Sample 1 (Calibration Mix)	Wash out mouth with water. Do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention immediately.
	Sample 2 (Fuel Ethanol)	Wash out mouth with water. Do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention immediately.
<b>Protection of first-aiders</b>	: Sample 1 (Calibration Mix)	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.
	Sample 2 (Fuel Ethanol)	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.
<b>Notes to physician</b>	: Sample 1 (Calibration Mix)	No specific treatment. Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
	Sample 2 (Fuel Ethanol)	No specific treatment. Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

## 5. Fire-fighting measures

<b>Flammability of the product</b>	: Sample 1 (Calibration Mix)	Flammable liquid. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion. The vapor/gas is heavier than air and will spread along the ground. Vapors 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.
	Sample 2 (Fuel Ethanol)	Flammable liquid. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion. The vapor/gas is heavier than air and will spread along the ground. Vapors 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.
<b>Extinguishing media</b>		
<b>Suitable</b>	: Sample 1 (Calibration Mix) Sample 2 (Fuel Ethanol)	Use dry chemical, CO <sub>2</sub> , water spray (fog) or foam. Use dry chemical, CO <sub>2</sub> , water spray (fog) or foam.
<b>Not suitable</b>	: Sample 1 (Calibration Mix) Sample 2 (Fuel Ethanol)	Do not use water jet. Do not use water jet.
<b>Special exposure hazards</b>	: Sample 1 (Calibration Mix)	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.
	Sample 2 (Fuel Ethanol)	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.
<b>Hazardous thermal decomposition products</b>	: Sample 1 (Calibration Mix)	Decomposition products may include the following materials: carbon dioxide carbon monoxide
	Sample 2 (Fuel Ethanol)	Decomposition products may include the following materials: carbon dioxide carbon monoxide
<b>Special protective equipment for fire-fighters</b>	: Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.	

## 6. Accidental release measures

<b>Personal precautions</b>	: Sample 1 (Calibration Mix)	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 spilled material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Do not breathe vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment (see Section 8).
	Sample 2 (Fuel Ethanol)	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 spilled material. Shut off all ignition sources. No flares, smoking or flames in hazard

## 6. Accidental release measures

**Environmental precautions :** Sample 1 (Calibration Mix)

Sample 2 (Fuel Ethanol)

**Methods for cleaning up :** Sample 1 (Calibration Mix)

Sample 2 (Fuel Ethanol)

area. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment (see Section 8).

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).

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).

Stop leak if without risk. Move containers from spill area. 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. Use spark-proof tools and explosion-proof equipment. Dispose of via a licensed waste disposal contractor.

Stop leak if without risk. Move containers from spill area. 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. Use spark-proof tools and explosion-proof equipment. Dispose of via a licensed waste disposal contractor.

## 7. Handling and storage

**Handling :** Sample 1 (Calibration Mix)

Sample 2 (Fuel Ethanol)

Put on appropriate personal protective equipment (see Section 8). 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. Do not breathe vapor 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 non-sparking tools.

Take precautionary measures against electrostatic discharges. To avoid fire or explosion, dissipate static electricity during transfer by grounding and bonding containers and equipment before transferring material. Empty containers retain product residue and can be hazardous. Do not reuse container.

Put on appropriate personal protective equipment (see Section 8). 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





## 8. Exposure controls/personal protection

	<p>STEL: 2050 mg/m<sup>3</sup> 15 minutes.                  STEL: 500 ppm 15 minutes.                  TWA: 1640 mg/m<sup>3</sup> 8 hours.                  TWA: 400 ppm 8 hours.  <b>NIOSH REL (United States, 6/2009).</b>                  CEIL: 1800 mg/m<sup>3</sup> 15 minutes.                  CEIL: 440 ppm 15 minutes.                  TWA: 350 mg/m<sup>3</sup> 10 hours.                  TWA: 85 ppm 10 hours.  <b>OSHA PEL (United States, 6/2010).</b>                  TWA: 2000 mg/m<sup>3</sup> 8 hours.                  TWA: 500 ppm 8 hours.  <b>OSHA PEL 1989 (United States, 3/1989).</b>                  STEL: 2000 mg/m<sup>3</sup> 15 minutes.                  STEL: 500 ppm 15 minutes.                  TWA: 1600 mg/m<sup>3</sup> 8 hours.                  TWA: 400 ppm 8 hours.</p>
<p><b>Sample 2 (Fuel Ethanol)</b> Ethanol</p>	<p><b>ACGIH TLV (United States, 3/2012).</b>                  STEL: 1000 ppm 15 minutes.  <b>OSHA PEL 1989 (United States, 3/1989).</b>                  TWA: 1000 ppm 8 hours.                  TWA: 1900 mg/m<sup>3</sup> 8 hours.  <b>NIOSH REL (United States, 6/2009).</b>                  TWA: 1000 ppm 10 hours.                  TWA: 1900 mg/m<sup>3</sup> 10 hours.  <b>OSHA PEL (United States, 6/2010).</b>                  TWA: 1000 ppm 8 hours.                  TWA: 1900 mg/m<sup>3</sup> 8 hours.</p>
<p>Gasoline</p>	<p><b>ACGIH TLV (United States, 3/2012).</b>                  STEL: 1480 mg/m<sup>3</sup> 15 minutes.                  STEL: 500 ppm 15 minutes.                  TWA: 890 mg/m<sup>3</sup> 8 hours.                  TWA: 300 ppm 8 hours.</p>
<p>Gasoline, natural</p>	<p><b>OSHA PEL 1989 (United States, 3/1989).</b>                  STEL: 1500 mg/m<sup>3</sup> 15 minutes.                  STEL: 500 ppm 15 minutes.                  TWA: 900 mg/m<sup>3</sup> 8 hours.                  TWA: 300 ppm 8 hours.</p>

**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 appropriate monitoring standards. Reference to national guidance documents for methods for the determination of hazardous substances will also be required.

**Engineering measures**

: Use only with adequate ventilation. If user operations generate dust, fumes, gas, 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.

**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.

**Personal protection**

**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.



## 8. Exposure controls/personal protection

- 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. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.
- 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 or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical 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.
- 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.
- Other protection** : Not available.

## 9. Physical and chemical properties

<b>Physical state</b>	: Sample 1 (Calibration Mix) Sample 2 (Fuel Ethanol)	Liquid. [Clear.] Liquid.
<b>Flash point</b>	: Sample 1 (Calibration Mix) Sample 2 (Fuel Ethanol)	Closed cup: -8°C (17.6°F) [ASTM D56] Closed cup: 10 to 13°C (50 to 55.4°F)
<b>Auto-ignition temperature</b>	: Sample 1 (Calibration Mix) Sample 2 (Fuel Ethanol)	Not available. >365°C (>689°F)
<b>Flammable limits</b>	: Sample 1 (Calibration Mix) Sample 2 (Fuel Ethanol)	Lower: 1% Not available.
<b>Color</b>	: Sample 1 (Calibration Mix) Sample 2 (Fuel Ethanol)	Colorless. Colorless.
<b>Odor</b>	: Sample 1 (Calibration Mix) Sample 2 (Fuel Ethanol)	Sweet. Alcohol-like. / Characteristic. / Gasoline-like [Strong]
<b>pH</b>	: Sample 1 (Calibration Mix) Sample 2 (Fuel Ethanol)	Not available. Not available.
<b>Boiling/condensation point</b>	: Sample 1 (Calibration Mix) Sample 2 (Fuel Ethanol)	98 to 99°C (208.4 to 210.2°F) 73.89 to 79.45°C (165 to 175°F)
<b>Melting/freezing point</b>	: Sample 1 (Calibration Mix) Sample 2 (Fuel Ethanol)	-107°C (-160.6°F) <-113.89°C (<-173°F)
<b>Specific gravity</b>	: Sample 1 (Calibration Mix) Sample 2 (Fuel Ethanol)	0.6963 0.79
<b>Vapor pressure</b>	: Sample 1 (Calibration Mix)  Sample 2 (Fuel Ethanol)	11.7 kPa (88 mm Hg) [room temperature] @ 37.8 °C (100 °F) Not available.
<b>Vapor density</b>	: Sample 1 (Calibration Mix) Sample 2 (Fuel Ethanol)	3.9 [Air = 1] 1.6 [Air = 1]
<b>Volatility</b>	: Sample 1 (Calibration Mix) Sample 2 (Fuel Ethanol)	Not available. 100% (v/v)
<b>Odor threshold</b>	: Sample 1 (Calibration Mix) Sample 2 (Fuel Ethanol)	Not available. Not available.
<b>Evaporation rate</b>	: Sample 1 (Calibration Mix) Sample 2 (Fuel Ethanol)	>1 (butyl acetate = 1) 1.7 (butyl acetate = 1)
<b>Viscosity</b>	: Sample 1 (Calibration Mix) Sample 2 (Fuel Ethanol)	Not available. Not available.

## 9. Physical and chemical properties

<b>Solubility</b>	: Sample 1 (Calibration Mix)	Insoluble in the following materials: cold water and hot water.
	Sample 2 (Fuel Ethanol)	Soluble in the following materials: cold water and hot water.

## 10. Stability and reactivity

<b>Chemical stability</b>	: Sample 1 (Calibration Mix)	The product is stable.
	Sample 2 (Fuel Ethanol)	The product is stable.
<b>Conditions to avoid</b>	: Sample 1 (Calibration Mix)	Avoid all possible sources of ignition (spark or flame). Do not pressurize, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition. Do not allow vapor to accumulate in low or confined areas.
	Sample 2 (Fuel Ethanol)	Avoid all possible sources of ignition (spark or flame). Do not pressurize, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition. Do not allow vapor to accumulate in low or confined areas.
<b>Materials to avoid</b>	: Sample 1 (Calibration Mix)	Reactive or incompatible with the following materials: oxidizing materials
	Sample 2 (Fuel Ethanol)	Reactive or incompatible with the following materials: oxidizing materials
<b>Hazardous decomposition products</b>	: Sample 1 (Calibration Mix)	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
	Sample 2 (Fuel Ethanol)	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
<b>Possibility of hazardous reactions</b>	: Sample 1 (Calibration Mix)	Under normal conditions of storage and use, hazardous reactions will not occur.
	Sample 2 (Fuel Ethanol)	Under normal conditions of storage and use, hazardous reactions will not occur.

## 11. Toxicological information

### Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
<b>Sample 1 (Calibration Mix)</b>				
Ethanol	LC50 Inhalation Vapor	Rat	124700 mg/m <sup>3</sup>	4 hours
	LD50 Oral	Rat	7 g/kg	-
Heptane	LC50 Inhalation Gas.	Rat	48000 ppm	4 hours
	LC50 Inhalation Vapor	Rat	103 g/m <sup>3</sup>	4 hours
<b>Sample 2 (Fuel Ethanol)</b>				
Ethanol	LC50 Inhalation Vapor	Rat	124700 mg/m <sup>3</sup>	4 hours
	LD50 Oral	Rat	7 g/kg	-
Gasoline	LC50 Inhalation Vapor	Rat	>5.2 mg/l	4 hours
	LD50 Oral	Rat	13.6 g/kg	-

### Chronic toxicity

**Conclusion/Summary** : Not available.

### Irritation/Corrosion

## 11. Toxicological information

Product/ingredient name	Result	Species	Score	Exposure	Observation
<b>Sample 1 (Calibration Mix)</b> Ethanol	Eyes - Mild irritant	Rabbit	-	24 hours 500 milligrams	-
	Eyes - Moderate irritant	Rabbit	-	0.066666667 minutes 100 milligrams	-
	Eyes - Moderate irritant	Rabbit	-	100 microliters	-
	Skin - Mild irritant	Rabbit	-	400 milligrams	-
	Skin - Moderate irritant	Rabbit	-	24 hours 20 milligrams	-
<b>Sample 2 (Fuel Ethanol)</b> Ethanol	Eyes - Mild irritant	Rabbit	-	24 hours 500 milligrams	-
	Eyes - Moderate irritant	Rabbit	-	0.066666667 minutes 100 milligrams	-
	Eyes - Moderate irritant	Rabbit	-	100 microliters	-
	Skin - Mild irritant	Rabbit	-	400 milligrams	-
	Skin - Moderate irritant	Rabbit	-	24 hours 20 milligrams	-

### Sensitizer

**Conclusion/Summary** : Not available.

### Carcinogenicity

#### Classification

Product/ingredient name	ACGIH	IARC	EPA	NIOSH	NTP	OSHA
<b>Sample 1 (Calibration Mix)</b> Ethanol	A3	1	-	-	-	-
<b>Sample 2 (Fuel Ethanol)</b> Ethanol Gasoline Gasoline, natural	A3	1	-	-	-	-
	A3	-	-	-	-	-
	-	2B	-	+	-	-

### Mutagenicity

**Conclusion/Summary** : Not available.

### Teratogenicity

**Conclusion/Summary** : Not available.

### Reproductive toxicity

**Conclusion/Summary** : Not available.

**Other adverse symptoms** : Sample 1 (Calibration Mix) Not available.  
Sample 2 (Fuel Ethanol) Not available.

## 12. Ecological information

**Ecotoxicity** : This material is toxic to aquatic life. This material is harmful to aquatic life with long lasting effects.

### Aquatic ecotoxicity

## 12. Ecological information

Product/ingredient name	Result	Species	Exposure
<b>Sample 1 (Calibration Mix)</b> Ethanol	Acute EC50 17.921 mg/l Marine water	Algae - Ulva pertusa	96 hours
	Acute EC50 2000 µg/l Fresh water	Daphnia - Daphnia magna	48 hours
	Acute LC50 25500 µg/l Marine water	Crustaceans - Artemia franciscana - Larvae	48 hours
	Acute LC50 42000 µg/l Fresh water	Fish - Oncorhynchus mykiss	4 days
	Chronic NOEC 4.995 mg/l Marine water	Algae - Ulva pertusa	96 hours
	Chronic NOEC 0.375 ul/L Fresh water	Fish - Gambusia holbrooki - Larvae	12 weeks
Heptane	Acute LC50 375000 µg/l Fresh water	Fish - Oreochromis mossambicus	96 hours
<b>Sample 2 (Fuel Ethanol)</b> Ethanol	Acute EC50 17.921 mg/l Marine water	Algae - Ulva pertusa	96 hours
	Acute EC50 2000 µg/l Fresh water	Daphnia - Daphnia magna	48 hours
	Acute LC50 25500 µg/l Marine water	Crustaceans - Artemia franciscana - Larvae	48 hours
	Acute LC50 42000 µg/l Fresh water	Fish - Oncorhynchus mykiss	4 days
	Chronic NOEC 4.995 mg/l Marine water	Algae - Ulva pertusa	96 hours
	Chronic NOEC 0.375 ul/L Fresh water	Fish - Gambusia holbrooki - Larvae	12 weeks
Gasoline	Acute EC50 56 mg/l	Algae	72 hours
	Acute LC50 119 mg/l	Fish	96 hours
Gasoline, natural	Acute EC50 17.5 mg/l Marine water	Crustaceans - Artemia sp. - Nauplii	48 hours
	Acute EC50 1.5 mg/l Marine water	Daphnia - Daphnia magna - Neonate	48 hours

**Partition coefficient: n-octanol/water** : Sample 1 (Calibration Mix) Not available.  
Sample 2 (Fuel Ethanol) Not available.

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

## 13. Disposal considerations




**Waste disposal** : The generation of waste should be avoided or minimized 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. 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. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

**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.**

## 14. Transport information

Regulatory information	UN number	Proper shipping name	Classes	PG*	Label	Additional information
<b>DOT</b>	UN3316	Chemical kits	9	II		<p><b>Limited quantity</b> Yes.</p> <p><b>Packaging instruction</b> <b>Passenger aircraft</b> Quantity limitation: 10 kg</p> <p><b>Cargo aircraft</b> Quantity limitation: 10 kg</p> <p><b>Special provisions</b> 15</p>
<b>IMDG</b>	UN3316	CHEMICAL KIT	9	II		<p><b>Emergency schedules (EmS)</b> F-A, _S-P_</p>
<b>IATA</b>	UN3316	Chemical kit	9	II		<p><b>Passenger and Cargo Aircraft</b> Quantity limitation: 10 kg Packaging instructions: 960</p> <p><b>Cargo Aircraft Only</b> Quantity limitation: 10 kg Packaging instructions: 960</p> <p><b>Limited Quantities - Passenger Aircraft</b> Quantity limitation: 1 kg Packaging instructions: Y960</p> <p><b>Remarks</b> Excepted Quantity</p>

PG\* : Packing group

## 15. Regulatory information

**HCS Classification** : Sample 1 (Calibration Mix)

Flammable liquid  
Irritating material  
Target organ effects

Sample 2 (Fuel Ethanol)

Flammable liquid  
Irritating material  
Carcinogen  
Target organ effects

**U.S. Federal regulations** : TSCA 8(a) PAIR: Heptane

TSCA 8(a) CDR Exempt/Partial exemption: Not determined

United States inventory (TSCA 8b): At least one component is not listed.

## 15. Regulatory information

**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:** Ethanol; Heptane; Gasoline; Gasoline, natural  
**SARA 311/312 MSDS distribution - chemical inventory - hazard identification:**  
 Ethanol: Fire hazard, Immediate (acute) health hazard, Delayed (chronic) health hazard;  
 Heptane: Fire hazard; Gasoline: Fire hazard, Immediate (acute) health hazard, Delayed (chronic) health hazard; Gasoline, natural: Fire hazard, Immediate (acute) health hazard, Delayed (chronic) health hazard

**Clean Air Act Section 112(b) Hazardous Air Pollutants (HAPs)** : Not listed

**Clean Air Act Section 602 Class I Substances** : Not listed

**Clean Air Act Section 602 Class II Substances** : Not listed

**DEA List I Chemicals (Precursor Chemicals)** : Not listed

**DEA List II Chemicals (Essential Chemicals)** : Not listed

### State regulations

**Massachusetts** : The following components are listed: ETHYL ALCOHOL; HEPTANE (N-HEPTANE); GASOLINE

**New York** : None of the components are listed.

**New Jersey** : The following components are listed: ETHYL ALCOHOL; ALCOHOL; n-HEPTANE; HEPTANE; GASOLINE; GASOLINE, NATURAL

**Pennsylvania** : The following components are listed: DENATURED ALCOHOL; HEPTANE; GASOLINE

### California Prop. 65

**WARNING:** This product contains a chemical known to the State of California to cause birth defects or other reproductive harm.

Ingredient name	Cancer	Reproductive	No significant risk level	Maximum acceptable dosage level
Sample 1 (Calibration Mix) Methanol	No.	Yes.	No.	No.

## 16. Other information

<b>Label requirements</b>	: Sample 1 (Calibration Mix)	FLAMMABLE LIQUID AND VAPOR. INHALATION CAUSES HEADACHES, DIZZINESS, DROWSINESS AND NAUSEA AND MAY LEAD TO UNCONSCIOUSNESS. CAUSES RESPIRATORY TRACT, EYE AND SKIN IRRITATION. CONTAINS MATERIAL THAT MAY CAUSE TARGET ORGAN DAMAGE, BASED ON ANIMAL DATA.
	Sample 2 (Fuel Ethanol)	FLAMMABLE LIQUID AND VAPOR. CAUSES RESPIRATORY TRACT, EYE AND SKIN IRRITATION. CONTAINS MATERIAL THAT MAY CAUSE TARGET ORGAN DAMAGE, BASED ON ANIMAL DATA. POSSIBLE CANCER HAZARD - CONTAINS MATERIAL WHICH MAY CAUSE CANCER, BASED ON ANIMAL DATA. CONTAINS MATERIAL WHICH MAY CAUSE HERITABLE GENETIC EFFECTS.



## 16. Other information

**Date of issue** : 03/19/2013  
**Date of previous issue** : No previous validation.  
**Version** : 2

✔ Indicates information that has changed from previously issued version.

### Notice to reader

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