

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Product Name: VKIT GC FID/TCD Response Linearity Standard

Part No.: VSOL-GC115

Contained in chemical kit part No(s).

GC FID/TCD Linearity and Precision Standard Kit	VSOL-GC120
GC FID/TCD single channel kit	V5-3015
GC FID/TCD dual channel kit	V5-3025
GC Additional channel with FID/TCD kit	V5-3045

1.2 Relevant identified use of the substance of mixture and uses advised against

Material usage: Standards for analytical laboratory use only.

1.3 Supplier details:

V:KIT Ltd
16 John Bradshaw Court
Alexandria Way
Congleton
Cheshire
CW12 1LB
United Kingdom
+44 (0) 1260 591385
info@v-kit.com
www.v-kit.com

1.4 Emergency telephone number

+44 (0) 1260 591385

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Product definition: Mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]

H225	FLAMMABLE LIQUIDS	Category 2
H315	SKIN CORROSION/IRRITATION	Category 2
H336	SPECIFIC TARGET ORGAN TOXICITY -SINGLE EXPOSURE (Narcotic effects)	Category 3
H304	ASPIRATION HAZARD	Category 1
H400	SHORT-TERM (ACUTE) AQUATIC HAZARD	Category 1
H410	LONG-TERM (CHRONIC) AQUATIC HAZARD	Category 1

Ingredients of unknown toxicity:

Percentage of the mixture consisting of ingredient(s) of unknown acute dermal toxicity: 1 – 10 %.
Percentage of the mixture consisting of ingredient(s) of unknown acute inhalation toxicity: 1 – 10 %.
Percentage of the mixture consisting of ingredient(s) of unknown acute oral toxicity: 1 – 10 %.

Ingredients of unknown ecotoxicity:

Contains 1.4 % of components with unknown hazards to the aquatic environment.

See Section 16 for the full text of the H statements declared above.

See Section 11 for more detailed information on health effects and symptoms.

2.2 Label elements

Hazard pictograms:



Signal word: Danger

Hazard statements:

H225 – Highly flammable liquid and vapour.
H304 – May be fatal if swallowed and enters airway.
H315 – Causes skin irritation.
H336 – May cause drowsiness or dizziness.
H410 – Very toxic to aquatic life with long lasting effects.

Precautionary statements

Prevention:

P210 – Keep away from heat, hot surfaces, sparks, open flames and other injection sources. No smoking.
P273 – Avoid release to the environment.

Response:

P391 – Collect spillage.
P301 + P310 – IF SWALLOWED: Immediately call a POISON CENTRE or a doctor.

Storage:

P403 + P223 – Store in a well-ventilated place. Keep container tightly closed.

Disposal:

P501 – Dispose of contents and container in accordance with all local, regional, national and international regulations.

Hazardous ingredients:

2,2,4-trimethylpentane

2.3 Other hazards

Product meets the criteria for PBT or vPvB according to Regulation (EC) No. 1907/2006, Annex XIII: This mixture does not contain any substances that are assessed to be a PBT or a vPvB.

Other hazards which do not result in classification: None known.

SECTION 3: Composition/information on ingredients

3.1 Substances

Not applicable.

3.2 Mixtures

Product/ingredient name	Identifiers	%	Regulation (EC) No. 1272/2008 [CLP]	Type
2,2,4-trimethylpentane	EC: 208-759-1 CAS: 540-84-1 Index: 601-009-00-8	≥ 90	Flam. Liq. 2, H225 Skin Irrit. 2, H315 STOT SE 3, H336 Asp. Tox. 1, H304 Aquatic Acute 1, H400 (M=1) Aquatic Chronic 1, H410 (M=1) See Section 16 for full text of the H statements declared above.	Substance classified with a health or environmental hazard.

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, are PBTs, vPvBs or Substances of equivalent concern, or have been assigned a workplace exposure limit and hence require reporting in this section.

SECTION 4: First aid measures

4.1 Description of first aid measures

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.

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. If necessary, call a poison centre or doctor. 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.

Skin contact

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

Ingestion

Get medical attention immediately. Call a poison centre or doctor. Wash out mouth with water. Remove dentures if any. 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. Aspiration hazard if swallowed. Can enter lungs and cause damage. Do not induce vomiting. 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.

4.2 Most important symptoms and effects, both acute and delayed

Symptoms

Eye contact: Adverse symptoms may include:

Pain or irritation
Watering
Redness

Inhalation: Adverse symptoms may include:

Nausea or vomiting
Headache
Drowsiness/fatigue
Dizziness/vertigo
Unconsciousness

Skin contact: Adverse symptoms may include:

Irritation
Redness

Ingestion: Adverse symptoms may include:

Nausea or vomiting

Effects

Eye contact: No known significant effects or hazards.

Inhalation: Can cause central nervous system (CNS) depression. May cause drowsiness or dizziness.

Skin contact: Causes skin irritation.

Ingestion: Can cause central nervous system (CNS) depression. May be fatal if swallowed and enters airways.

4.3 Indication of any immediate medical attention and special treatment needed

Notes for doctor

Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

Specific treatments

No specific treatment

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media

Dry chemical. Carbon dioxide (CO₂). Water spray (fog). Foam. Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable extinguishing media

Do not use water jet.

5.2 Special hazards arising from the substance or mixture

Hazards from the substance or mixture

Highly flammable liquid and vapour. Runoff to sewer may create fire or explosion hazard. 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. This material is very toxic to aquatic life with long lasting effects. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.

Hazardous combustion products

Decomposition products may include the following materials:

Carbon Dioxide (CO₂)
Carbon Monoxide (CO)

5.3 Advice for firefighters

Special precautions for firefighters

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.

Special protective equipment for firefighters

Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. Clothing for fire-fighters (including helmets, protective boots and gloves) conforming to European standard EN 469 will provide a basic level of protection for chemical incidents.

SECTION 6: Accidental release measure**6.1 Personal precautions, protective equipment and emergency procedures**For non-emergency personnel

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. Avoid breathing vapour or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

For emergency personnel

If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For nonemergency personnel".

6.2 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). Water polluting material. May be harmful to the environment if released in large quantities. Collect spillage.

6.3 Methods and material for containment and cleaning upMethods for 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.

6.4 Reference to other sections

See section 1 for emergency contact information.

See section 5 for firefighting measures.

See section 8 for information on appropriate personnel protective equipment.

See section 12 for environmental precautions.

See section 13 for additional waste treatment information.

SECTION 7: Handling and storage**7.1 Precautions for safe handling**Protective measures

Put on appropriate personal protective equipment (see Section 8). Do not swallow. Avoid contact with eyes, skin and clothing. Avoid breathing vapour or mist. Avoid release to the environment. 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.

7.2 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. Store locked up. Eliminate all ignition sources. Separate from oxidising 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. See Section 10 for incompatible materials before handling or use.

7.3 Specific end use(s)Recommendations

Laboratory applications.

SECTION 8: Exposure controls/personal protection**8.1 Control parameters**Occupational exposure limits

No exposure limit value known.

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 monitoring standards, such as the following: European Standard EN 689 (Workplace atmospheres - Guidance for the assessment of exposure by inhalation to chemical agents for comparison with limit values and measurement strategy) European Standard EN 14042 (Workplace atmospheres - Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents) European Standard EN 482 (Workplace atmospheres - General requirements for the performance of procedures for the measurement of chemical agents) Reference to national guidance documents for methods for the determination of hazardous substances will also be required.

DNELs/DMELs

Product/ingredient name	Type	Exposure	Value	Population	Effects
2,2,4-trimethylpentane	DNEL	Long term inhalation	608 mg/m ³	General population	Systemic
	DNEL	Long term oral	699 mg/kg bw/day	General population	Systemic
	DNEL	Long term dermal	699 mg/kg bw/day	General population	Systemic
	DNEL	Long term dermal	773 mg/kg bw/day	Workers	Systemic
	DNEL	Long term inhalation	2035 mg/m ³	Workers	Systemic

PNECs

No PNECs available.

8.2 Exposure controls

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.

Individual protection measures

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.

Eye/face 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.

Skin protection

Hand protection: 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.

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 antistatic protective clothing. For the greatest protection from static discharges, clothing should include anti-static overalls, boots and gloves. Refer to European Standard EN 1149 for further information on material and design requirements and test methods.

Other skin protection: Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Respiratory protection: Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.

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.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance

Physical state	Liquid (Clear)
Colour	Colourless
Odour	Gasoline-like
Odour threshold	Not available
Melting point/freezing point	-107 °C
Initial boiling point and boiling range	99.2 °C (210.6 °F)
Flammability (solid, gas)	Not applicable
Upper/lower flammability or explosive limits	Lower 1.1 % Upper 6 %
Flash point	Open cup: 4.5 °C (40.1 °F)
Auto-ignition temperature	418 °C (784.4 °F)
Decomposition temperature	Not available
pH	Not available
Viscosity	Not available
Solubility (ies)	Insoluble in the following materials: cold and hot water
Miscible with water	No
Partition coefficient: n-octanol/water	Not available
Vapour pressure	5.5 kPa (41mm Hg)
Evaporation rate	Not available
Relative density	0.6918
Density	0.692 g/cm ³
Vapour density	3.93 (Air = 1)
Oxidising properties	Not available

9.2 Other information

No additional information.

SECTION 10: Stability and reactivity

10.1 Reactivity

No specific test data related to reactivity available for this product or its ingredients.

10.2 Chemical stability

The product is stable.

10.3 Possibility of hazardous reactions

Under normal conditions of storage and use, hazardous reactions will not occur.

10.4 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.

10.5 Incompatible materials

Reactive or incompatible with the following materials: Oxidising materials

10.6 Hazardous decomposition products

Under normal conditions of storage and use, hazardous decomposition products should not be produced.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
2,2,4-trimethylpentane	LC50 Inhalation Vapour	Rat – Male, Female	> 33.52 mg/L	4 hours
	LD50 Oral	Rat – Male, Female	> 5000 mg/kg	-

Irritation/Corrosion

Skin: Repeated exposure may cause skin dryness or cracking.

Sensitiser

Conclusion/summary: Not available.

Mutagenicity

Conclusion/summary: Not available.

Carcinogenicity

Conclusion/summary: Not available.

Reproductive toxicity

Conclusion/summary: Not available.

Teratogenicity

Conclusion/summary: Not available.

Specific target organ toxicity (single exposure)

Product/ingredient name	Category	Route of exposure	Target organs
2,2,4-trimethylpentane	Category 3	-	Narcotic effects

Specific target organ toxicity (repeated exposure)

Conclusion/summary: Not available.

Aspiration hazard

Product/ingredient name	Result
2,2,4-trimethylpentane	Aspiration hazard – Category 1

Potential acute health effects

Eye contact: No known significant effects or hazards.

Inhalation: Can cause central nervous system (CNS) depression. May cause drowsiness or dizziness.

Skin contact: Causes skin irritation.

Ingestion: Can cause central nervous system (CNS) depression. May be fatal if swallowed and enters airways.

Symptoms related to physical, chemical and toxicological characteristics

Eye contact: Adverse symptoms may include:

Pain or irritation

Watering

Redness

Inhalation: Adverse symptoms may include:

Nausea or vomiting

Headache

Drowsiness/fatigue

Dizziness/vertigo

Unconsciousness

Skin contact: Adverse symptoms may include:

Irritation

Redness

Ingestion: Adverse symptoms may include:

Nausea or vomiting

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Short term exposure:

Potential immediate effects: Not available.

Potential delayed effects: Not available.

Long term exposure:

Potential immediate effects: Not available.

Potential delayed effects: Not available.

Potential chronic health effects

General: No known significant effects or critical hazards.

Carcinogenicity: No known significant effects or critical hazards.

Mutagenicity: No known significant effects or critical hazards.

Reproductive toxicity: No known significant effects or critical hazards.

SECTION 12: Ecological information

12.1 Toxicity

Not available.

12.2 Persistence and degradability

Not available.

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
2,2,4-trimethylpentane	-	-	Inherent

12.3 Bioaccumulative potential

Product/ingredient name	LogP _{ow}	BCF	Potential
2,2,4-trimethylpentane	4.08	231	Low

12.4 Mobility in soil

Soil/water partition coefficient (K_{oc}): Not available.

Mobility: Not available.

12.5 Results of PBT and vPvB assessment

This mixture does not contain any substances that are assessed to be a PBT or a vPvB.

12.6 Other adverse effects




Not known significant effects or critical hazards.

SECTION 13: Disposal considerations

13.1 Waste treatment 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.

SECTION 14: Transport information

	Land Transport (ADR/RID)	Sea Transport (IMDG)	Air Transport (IATA)
14.1 UN Number	UN1262	UN1262	UN1262
14.2 UN proper shipping name	OCTANES solution	OCTANES solution	Octanes solution
14.3 Transport hazard class(es)	3 	3 	3 
14.4 Packaging group	II	II	II
14.5 Environmental hazards	Yes	Yes	Yes. The environmentally hazardous substance mark is not required.

Additional information

ADR/RID: The environmental hazardous substance mark is not required when transported in sizes of ≤ 5L or ≤ kg.

Hazard identification number 33
Limited quantity 1L
Tunnel code (D/E)

IMDG: The marine pollutant mark is not required when transported in sizes of ≤ 5L or ≤ kg.
Emergency schedules F-E, S-E

IATA: The environmentally hazardous substance mark may appear if required by other transportation regulations.

Quantity limitation:

Passenger and Cargo aircraft: 5 L. Packaging instructions: 353
Cargo aircraft only: 60 L. Packaging instructions: 364
Limited quantities – Passenger aircraft: 1L. Packaging instructions: Y341

14.6 Special precautions for user

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

14.7 Transport in bulk according to Annex II of MARPOL and the IBC Code

Not available.

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

EU Regulation (EC) No. 1907/2006 (REACH)

Annex XIV - List of substances subject to authorisation

Annex XIV: None of the components are listed.

Substances of very high concern: None of the components are listed.

Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles

15.2 Chemical safety assessment

This product contains substances for which Chemical Safety Assessments might still be required.

SECTION 16: Other information

16.1 Abbreviations and acronyms

ATE = Acute Toxicity Estimate
CLP = Classification, Labelling and Packaging Regulation [Regulation (EC) No. 1272/2008]
DNEL = Derived No Effect Level
PNEC = Predicted No Effect Concentration
RRN = REACH Registration Number

Procedure used to derive the classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]

Flam. Liq. 2, H225	On basis of test data
Skin Irrit. 2, H315	Calculation method
STOT SE 3, H336	Calculation method
Asp. Tox. 1, H304	Expert judgment
Aquatic Acute 1, H400	Calculation method
Aquatic Chronic 1, H410	Calculation method

Full text of abbreviated H statements

H225	Highly flammable liquid and vapour.
H304	May be fatal if swallowed and enters airways.
H315	Causes skin irritation.
H336	May cause drowsiness or dizziness.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.

Full text of classifications [CLP/GHS]

Aquatic Acute 1	SHORT-TERM (ACUTE) AQUATIC HAZARD – Category 1
Aquatic Chronic 1	LONG-TERM (CHRONIC AQUATIC HAZARD – Category 1
Asp. Tox. 1	ASPIRATION HAZARD – Category 1
Flam. Liq. 2	FLAMMABLE LIQUIDS – Category 2
Skin Irrit. 2	SKIN CORROSION/IRRITATION – Category 2
STOT SE 3	SPECIFIC TARGET ORGAN TOXICITY – SINGLE EXPOSURE – Category 3

16.2 Further information

Notice to reader

All reasonably practicable steps have been taken to ensure this data sheet and the health, safety and environmental information contained in it is accurate as of the date specified below. No warranty or representation, express or implied is made as to the accuracy or completeness of the data and information in this data sheet.

The data and advice given apply when the product is sold for the stated application or applications. You should not use the product other than for the stated application.

It is the user's obligation to evaluate and use this product safely and to comply with all applicable laws and regulations. The manufacturer shall not be responsible for any damage or injury resulting from use, other than the stated product use of the material, from any failure to adhere to recommendations, or from any hazards inherent in the nature of the material. Purchasers of the product for supply to a third party for use at work, have a duty to take all necessary steps to ensure that any person handling or using the product is provided with the information in this sheet. Employers have a duty to tell employees and others who may be affected of any hazards described in this sheet and of any precautions that should be taken. Alteration of this document is strictly prohibited.