



K-FLEX MALAYSIA SDN. BHD.

Safety Data Sheet

K-Flex K-414 Glue

Issued date: 20/09/17

Revision date: 17/09/2020

Revision No.: 6

1 IDENTIFICATION OF THE SUBSTANCE / PREPARATION AND OF THE COMPANY / UNDERTAKING

Commercial Name: **K-FLEX K-414 GLUE**
 Type of product and use: **Solvent-based adhesive**
 Supplier: **K-FLEX Malaysia Sdn. Bhd.**
 Lot 2725, Jalan Raja Nong,
 Taman Klang Jaya,
 41200 Klang, Selangor, Malaysia.
 Phone Number: +603 5162 7899
 Fax Number: +603 5162 3799
 Emergency Telephone Number: +603 5162 7899

2 HAZARD(S) IDENTIFICATION

Substance/Mixture : Mixture

According to "CLASS Regulations 2013 [Globally Harmonized System of Classification and Labelling of Chemicals (GHS) 3rd Editions]

Flamable liquid : Category 2
 Specific Target Organ Toxicity – Repeat Exposure : Category 2
 Specific Target Organ Toxicity – Single Exposure : Category 3
 Skin Irritation : Category 2
 Reproductive Toxicity : Category 2
 Aquatic Chronic : Category 3

Pictogram



: GHS02 Flame



: GHS07 Exclamation mark



: GHS08 Health hazard

Signal Word : DANGER

Hazard Statement (s):

H225	Highly flammable liquid and vapour.
H315	Causes skin irritation.
H336	May cause drowsiness or dizziness.
H361	Suspected of damaging fertility or the unborn child.
H373	May cause damage to organs through prolonged or repeated exposure.
H412	Harmful to aquatic life with long lasting effects.



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Precautionary Statement(s):

P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P233	Keep container tightly closed.
P240	Ground container and receiving equipment.
P241	Use explosion-proof electrical/ventilating/lighting equipment.
P242	Use only non-sparking tools.
P243	Take precautionary measures against static discharge.
P260	Do not breathe dust/fumes/gas/mist/vapours/spray.
P261	Avoid breathing dust/fume/gas/mist/vapours/spray.
P264	Wash hands thoroughly after handling.
P271	Use only outdoors or in a well-ventilated area.
P273	Avoid release to the environment.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P281	Use personal protective equipment as required.
P302+P352	IF ON SKIN: Wash with soap and water.
P303+P361+P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water.
P304+P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P308+P313	IF exposed or concerned: Get medical advice/attention.
P312	Call a POISON CENTER or doctor/physician if you feel unwell.
P314	Get medical advice/attention if you feel unwell.
P332+P313	If skin irritation occurs: Get medical advice/attention.
P362	Take off contaminated clothing and wash before reuse.
P403+P233	Store in a well-ventilated place. Keep container tightly closed.
P403+P235	Store in a well-ventilated place. Keep cool.
P405	Store locked up.

Other hazards which do not result in classification but contribute to overall hazards: None known



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3 COMPOSITION/INFORMATION ON INGREDIENTS

Chemical name	CAS No.	EINECS No.	%
Touene	108-88-3	203-625-9	70 - 90
Ethyl acetate	141-78-6	205-500-4	
Hexane	110-54-3	203-777-6	

4 FIRST-AID MEASURES

In case of inhalation:

Remove to fresh air, keep warm and at rest. Contact physician if symptom persists.

In case of skin contact:

Remove contaminated clothing. Rinse with copious amount of water and soap. Get medical advice if skin irritation or a rash occurs. Wash clothing before reuse.

In case of eye contact:

Contact lenses should be removed. Rinse with copious amount of water immediately. Seek medical advice if eye irritation develops and persists.

In case of ingestion:

DO NOT induce vomiting. Rinse mouth thoroughly with water. Get medical attention if a symptom persists.

Personal protection equipment for first-aiders:

Pay attention to any potential hazards and use recommended personal protection equipment if potential for exposure exists.

Most important symptoms and effects, acute and delayed:

May cause skin irritation. May cause drowsiness and dizziness. May cause damage to organs through prolonged or repeated exposure. Suspected of damaging fertility or the unborn child.

5 FIRE-FIGHTING MEASURES

Suitable extinguishing media:

Alcohol-resistant foam, carbon dioxide, dry chemical.

Unsuitable extinguishing media:

None known.

Specific firefighting procedures:

Remove undamaged containers from fire area if it is safe to do so. Use extinguishing media that is suitable to local circumstances and surrounding environment.

Special person protection equipment for firefighters:

NIOSH-approved self-contained breathing apparatus and full protective clothing must be worn in case of fire.

Specific hazards arising from firefighting:

Exposure to combustion products may be a hazard to health.



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Thermal decomposition products:

Carbon dioxide, carbon monoxide, nitrogen oxides, and other irritant gases.

6 ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedure:

Use recommended personal protective equipment. Keep unprotected persons away. Ensure adequate ventilation.

Measure for cleaning/collecting:

Wipe or soak with inert liquid binding material (sand, sawdust, etc.). Scrape away cured material. Dispose the spilt material according to local or national regulations. Section 13 of this safety data sheet provides information regarding certain local or national requirements.

Additional information:

Prevent spillage from entering drainage/sewer systems. Spillages or uncontrolled discharges into watercourses must be IMMEDIATELY alerted to the Environmental Agency or other appropriate regulatory body.

7 HANDLING AND STORAGE

Handling:

Ensure good ventilation during use. Avoid contact with skin and eyes. Do not eat, drink, or smoke when using the product.

Storage:

Ensure containers and cartridges are tightly closed. Store in a dry, well-ventilated area, and protected from direct sunlight with temperature not exceeding 30 °C. Keep away from incompatibles. Refer to section 10 for incompatible materials.

8 EXPOSURE CONTROLS/PERSONAL PROTECTION

Components	CAS No.	Form of exposure (Value type)	Control Parameter	Basis
Toluene	108-88-3	8 hours TWA (skin)	188 mg/m ³	Malaysia OSHA
Toluene	108-88-3	8 hours TWA	200 ppm	US OSHA
Toluene	108-88-3	8 hours TWA	191 mg/m ³	UK WEL
Toluene	108-88-3	8 hours TWA	191 mg/m ³	Safe Work Australia
Ethyl acetate	141-78-6	8 hours TWA	1,440 mg/m ³	Malaysia OSHA
Ethyl acetate	141-78-6	8 hours TWA	1,440 mg/m ³	US OSHA
Ethyl acetate	141-78-6	8 hours TWA	730 mg/m ³	UK WEL
Ethyl acetate	141-78-6	8 hours TWA	720 mg/m ³	Safe Work Australia
Hexane	110-54-3	8 hours TWA	176 mg/m ³	Malaysia OSHA
Hexane	110-54-3	8 hours TWA	1,800 mg/m ³	US OSHA
Hexane	110-54-3	8 hours TWA	72 mg/m ³	UK WEL
Hexane	110-54-3	8 hours TWA	72 mg/m ³	Safe Work Australia



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Engineering controls:

Product curing may form hazardous compounds. Ensure adequate ventilation and minimise workplace exposure concentrations.

Industrial hygiene:

Remove immediately all contaminated clothing. Do not inhale vapour. Wash hands and contaminated areas with water and soap before leaving the work site. Change clothing before leaving workplace and wash before reuse. Do not eat, drink, or smoke while using product.

Hand protection:

Suitable impervious protective gloves (neoprene, nitrile, etc.). Breakthrough time is not tested for this product. Change gloves often if possible.

Respiratory protection:

A NIOSH-approved respirator with filter for organic vapours is recommended where local ventilation is not adequate.

Eye/Face protection:

Protective goggles/safety glasses.

9 PHYSICAL AND CHEMICAL PROPERTIES

Appearance	: Thixotropic paste
Odour	: Characteristic odour
Odour threshold	: Not determined
pH	: Not applicable
Freezing/Melting point	: Not determined
Boiling point range	: Not determined
Flash point	: <23 °C
Evaporation rate	: Not applicable
Flammability	: Highly flammable
Explosive properties	: Not classified as explosive
Oxidising properties	: Not classified as oxidising
Vapour pressure	: Not applicable
Vapour density	: Not applicable
Relative density	: Approximately 0.87
Solubility in water	: Not determined
N-octanol/water partition coefficient	: Not determined
Decomposition temperature	: Not determined
Viscosity	: 3,500 - 4,500 cPs

10 STABILITY AND REACTIVITY

Reactivity:

No reactive hazards known.

Stability:

Stable under recommended handling and storage conditions.

Conditions to avoid:

Avoid sources of ignition.

Hazardous reactions:

Hazardous polymerisation will not occur.



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Hazardous decomposition products:

None known.

Incompatible materials:

Strong oxidising agents, acids, and sources of ignition.

11 TOXICOLOGY INFORMATION

No specific oral, inhalation or dermal toxicology data is known for this product. Any toxicological data included in this section is based on the data associated with the components.

Acute oral toxicity, LD₅₀ (rat):

Not classified based on available information and/or concentration of components.

Toluene	5,580 mg/kg
Ethyl acetate	5,620 mg/kg
Hexane	15,720 mg/kg

Acute dermal toxicity, LD₅₀ (rabbit):

Not classified based on available information and/or concentration of components.

Toluene	>5,000 mg/kg
Ethyl acetate	>20,000 mg/kg
Hexane	2,000 mg/kg

Acute inhalation toxicity, LC₅₀ (4 hours, rat):

Not classified based on available information and/or concentration of components.

Toluene	20 mg/L
Hexane	17,600 mg/m ³

Serious eye damage/eye irritation:

Not classified based on available information and/or concentration of components.

Toluene	Not eye irritant.
Ethyl acetate	Not eye irritant.
Hexane	Not eye irritant.

Skin corrosion/skin irritation:

Classified as a skin irritant.

Toluene	Causes skin irritation.
Ethyl acetate	Not skin irritant.
Hexane	Causes skin irritation.

Respiratory/Skin sensitisation:

Not classified based on available information and/or concentration of components.

Toluene	Not sensitising on skin.
Ethyl acetate	Not sensitising on skin.



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Hexane	Not sensitising on skin.
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Germ cell mutagenicity:

Not classified based on available information and/or concentration of components.

Toluene	Negative genotoxicity <i>in vitro</i> . Negative genotoxicity <i>in vivo</i> .
Ethyl acetate	Negative genotoxicity <i>in vitro</i> . Negative genotoxicity <i>in vivo</i> .
Hexane	Negative genotoxicity <i>in vitro</i> . Negative genotoxicity <i>in vivo</i> .

Carcinogenicity:

Not classified based on available information and/or concentration of components.

Toluene	Negative carcinogenicity. NOAEC: 1,200 ppm
Ethyl acetate	Negative carcinogenicity.
Hexane	Negative carcinogenicity. NOAEL: >5,000 ppm

Reproductive toxicity:

Suspected of damaging fertility or the unborn child.

Toluene	Parental and off-spring toxicity: 500 ppm Fertility, NOAEC: 2,000 ppm Maternal toxicity, NOAEC: 750 ppm Foetal toxicity, NOAEC: 750 ppm
Ethyl acetate	No effect on fertility and foetal development.
Hexane	Maternal toxicity, LOAEC: 5,000 ppm Development toxicity, LOAEC: 200 ppm

Specific target organ toxicity – single exposure:

Classified as having narcotic effects.

Toluene	May cause drowsiness and dizziness.
Ethyl acetate	May cause drowsiness and dizziness.
Hexane	May cause drowsiness and dizziness.

Specific target organ toxicity – repeated exposure:

Classified as specific target organ toxicant.

Toluene	Exposure for 13 weeks by oral on mouse. NOAEL: 625 mg/kg/day
	Exposure for 24 months by inhalation on rats. NOAEC: 1,131 mg/m ³ air
Ethyl acetate	Exposure by oral on rats for 90 days. NOAEL: 900 mg/kg bw/day
	Exposure by inhalation on rats for 94 days. NOAEC: 350 ppm
Hexane	Exposure by oral on rats for 90 days. NOAEL: 568 mg/kg bw
	May cause damage to the nervous system via inhalation. NOAEC: <500 ppm



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Aspiration toxicity:

Not classified based on available information and/or concentration of components.

Hexane	Classified as an aspiration hazard.
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Likely route of administration:

Inhalation, skin contact, and ingestion.

12 ECOLOGICAL INFORMATION

Individual components of this mixture have been independently tested by the raw material suppliers and any known results have been presented below. The results for the individual components may not be representative of the ecological toxicity of this finished product. This finished product has not been tested to determine individual toxicological/ecological limits.

Ecology toxicity:

Harmful to aquatic life with long lasting effects.

Toluene Toxicity to fish Toxicity to crustacean Toxicity to algae or other aquatic plants	Exposure for 96 hours, LC ₅₀ : 5.5 mg/L Exposure for 48 hours, EC ₅₀ : 3.78 mg/L Exposure for 3 hours, EC ₅₀ : 207 mg/L
Ethyl acetate Toxicity to fish Toxicity to crustacean Toxicity to algae or other aquatic plants	Exposure for 96 hours, LC ₅₀ : 220 mg/L Exposure for 48 hours, EC ₅₀ : 1,200 mg/L Exposure for 72 hours, NOEC: >100 mg/L
Hexane Toxicity to fish Toxicity to crustacean Toxicity to algae or other aquatic plants	Exposure for 96 hours, LC ₅₀ : >1,000 mg/L Exposure for 48 hours, EC ₅₀ : >3.5 mg/L Exposure for 10 days, EC ₅₀ : 2.66%

Persistence and degradability:

Not likely to be persistent based on available information and/or concentration of components.

Toluene	Readily biodegradable. Exposure for 20 days, 86% biodegradation.
Ethyl acetate	Readily biodegradable. Exposure for 20 days, 69% biodegradation.
Hexane	Readily biodegradable. Exposure for 28 days, 98% biodegradation.

Bioaccumulative potential:

No bioaccumulation potential based on available information and/or concentration of components.

Toluene	BCF: 90
Ethyl acetate	BCF: 30
Hexane	BCF: 500

Mobility in soil:

No data available.

13 DISPOSAL INFORMATION



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Waste treatment/disposal methods - unused products

Disposal of waste to be in accordance with the Environmental Quality (Scheduled Wastes) Regulations and other guidelines issuance by DOE and/or local authorities.

Waste treatment/disposal methods - contaminated packaging

Dispose of as unused product. Empty container should be taken to an approved waste handling site for recycling or disposal.

14 TRANSPORT INFORMATION

Road transport (UNRTDG):

UN number : UN1133
Proper shipping name : ADHESIVES containing flammable liquid
Technical name : Not applicable
Hazard class : 3
Classification code : F1
Packing group : II

Marine transport (IMDG):

UN number : UN1133
Proper shipping name : ADHESIVES containing flammable liquid
Technical name : Not applicable
Hazard class : 3
EmS : F-E, S-D
Packing group : II
Marine pollutant : Not marine pollutant

Air transport (IATA):

UN number : UN1133
Proper shipping name : ADHESIVES containing flammable liquid
Technical name : Not applicable
Hazard class : 3
Packing group : II

15 REGULATORY INFORMATION

Safety, health, and environmental regulations specific for the hazardous chemical in question:

Occupational Safety and Health (Use and Standards of Exposure of Chemicals Hazardous to Health) Regulations 2010 (Malaysia)

Occupational Safety and Health (Classification, Labelling, and Safety Data Sheet of Hazardous Chemicals) Regulations 2013 (Malaysia)

Regulation (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures (European Union)

Occupational Safety and Health Administration (OSHA) (2006) Air Contaminants. 29 CFR 1910.1000 (United States of America)

Work Health and Safety Act 2011 (Australia)

EH40/2005 Workplace exposure limits (United Kingdom)



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Chemical inventory status:

Australia AICS	: All ingredients listed or exempt.
Canada DSL	: All ingredients listed or exempt.
China IECSC	: All ingredients listed or exempt.
Japan ENCS	: All ingredients listed or exempt.
Korea KECI	: All ingredients listed or exempt.
Philippines PICCS	: All ingredients listed or exempt.
United States TCSA	: All ingredients listed or exempt.

16 OTHER INFORMATION

Definitions:

TWA	: Time-weighted average.
STEL	: Short-term exposure level.
OSHA	: Occupational Safe and Health Act
WEL	: Workplace exposure limits
LD50	: The minimum dose required for lethal effects in 50% of a given population of test specimens.
ppm	: part per million
bw	: body weight
BCF	: Bioconcentration factor
NOAEL	: No-observed-adverse-effect-level
LOAEL	: Lowest-observed-adverse-effect level
NIOSH	: National Institute for Occupational Safety and Health.
UNRTDG	: United Nations Recommendations on the Transport of Dangerous Goods
IMDG	: International Maritime Dangerous Goods
IATA	: International Air Transport Association
AICS	: Australian Inventory of Chemical Substances
DSL	: Domestic Substance List
ENCS	: Existing and New Chemical Substances.
KECI	: Korea Existing Chemicals Inventory.
ECSN	: Existing Chemical Substance Nomination.
TSCA	: Toxic Substances Control Act

All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee these are the only hazards that exist. The details contained herein are based on our present state of knowledge and experience in characterising our product with regard to any possible safety requirement at the date of its publication. We do, however, pass them on without any warranty or property assurances.