

**SAFETY DATA SHEET**

[IN ACCORDANCE WITH THE CRITERIA OF REGULATION NO 1907/2006 (REACH) AND 2015/830]

**Section 1: Identification of the substance/mixture and of the company/undertaking****1.1 Product identifiers**

Highway Flavor essence

**1.2 Relevant identified uses of the substance or mixture and uses advised against****Identified uses:** liquid filling for e-liquid**Uses advised against:** not determined**1.3 Details of the supplier of the safety data sheet****Company:** Shenzhen Hangsen Star Technology Co., Ltd**Address:** Hangsen Plaza, Ganli 5th Road, Ganli Industrial Park, Buji Street, Longgang District, Shenzhen, Guangdong, China**Telephone:** +86 755-33905593**Fax:** +86 755-33905595**E-mail address:** hank@hkhangsen.com**1.4 Emergency telephone number****Telephone:** 911**Section 2: Hazards identification****2.1 Classification of the substance or mixture:****Classification according to Regulation 1272/2008/EC**

This product does not meet the criteria for classification in any hazard class according to Regulation (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures. However a safety data sheet is being supplied for it upon request as it contains a substance for which there is a Union workplace exposure limit.

**2.2 Label elements****Hazard pictograms and signal words**

Not available

**Hazard phrases**

Not available

**Safety phrases**

Not available

**Names of components on the label**

Contains: -

**2.3 Other hazards:**

Contains 0.13% of components with unknown hazards to the aquatic environment.

Product does not contain ingredients, which meet criteria for PBT or vPvB in accordance with Annex XIII of REACH Regulation.

**Section 3: Composition/information on ingredients****3.1 Substance:** Not applicable. Please refer to 3.2 for more information.**3.2 Mixtures:**

<b>Components:</b>				
Name	CAS/EC number	Index number	Classification acc. to 1272/2008/EC	Weight % content
1,2-Propylene glycol	CAS: 57-55-6 EINECS: 200-338-0	Not available	Substance is not classified as hazardous.	89.96
Ethyl maltol	CAS: 4940-11-8 EINECS: 225-582-5	Not available	Acute Tox.4 (H302)	6.11
Glycerol	CAS: 56-81-5 EINECS: 200-289-5	Not available	Substance is not classified as hazardous.	2.35
2-Acetylpyrazine	CAS: 22047-25-2 EINECS: 244-753-5	Not available	Substance is not classified as hazardous.	0.89
Tetramethylpyrazine	CAS: 1124-11-4 EINECS: 214-391-2	Not available	Acute Tox.4 (H302)	0.19

Nicotine	CAS: 54-11-5 EINECS: 200-193-3	614-001-00-4	Acute Tox.2 (H300) Acute Tox.2 (H310) Acute Tox.2 (H330) Aquatic Chronic 2 (H411)	0.15
2,3,5-Trimethylpyrazine	CAS: 14667-55-1 EINECS: 238-712-0	Not available	Flam. Liq.3 (H226) Acute Tox.4 (H302)	0.15
Neophytadiene	CAS: 504-96-1	Not available	Not available	0.13
Cyclotene	CAS: 80-71-7 EINECS: 212-154-8	Not available	Substance is not classified as hazardous.	0.07

Additional information:

Substances for which there are Union workplace exposure limits are listed in section 8

For full text of H-statements: see SECTION 16.

#### Section 4: First aid measures

##### 4.1 Description of first aid measures

**Skin contact:** take off contaminated clothing. Wash the contaminated skin with water and soap. Immediately consult a doctor.

**Eye contact:** remove contact lenses. Wash the contaminated eye with plenty of water for at least 15 minutes. Avoid powerful water stream. Consult a doctor if disturbing symptoms occur.

**Ingestion:** do not induce vomiting. Rinse mouth with water. Never give anything to drink to an unconscious person. Consult a doctor. Show the container or label.

**Inhalation:** Remove to fresh air. Keep warm and calm. Consult a doctor, if disturbing symptoms appear.

##### 4.2 Most important symptoms and effects, both acute and delayed:

None reasonably foreseeable

##### 4.3 Indication of any immediate medical attention and special treatment needed:

Physician makes a decision regarding further medical treatment after thorough examination of the injured. Symptomatic treatment.

#### Section 5: Firefighting measures

##### 5.1 Extinguishing media

**Suitable extinguishing media:** Foam, dry extinguishing agents, water spray.

**Unsuitable extinguishing media:** Water jet - risk of the propagation of the flame.

##### 5.2 Special hazards arising from the substance or mixture:

During the fire, the product may produce toxic fumes of carbon monoxide and dioxide, nitric oxides and other unidentified products of thermal decomposition. Do not inhale combustion products.

##### 5.3 Advice for firefighters:

Personal protection typical in case of fire. Do not stay in the fire zone without self-contained breathing apparatus and protective clothing resistant to chemicals.

#### Section 6: Accidental release measures

##### 6.1 Personal precautions, protective equipment and emergency procedures

Limit the access for the outsiders into the breakdown area, until suitable cleaning operations are completed. In case of large spills, isolate the exposed area. Avoid contact with skin and eyes. Use personal protective measures.

##### 6.2 Environmental precautions:

In case of release of large amounts of the product, it is necessary to take appropriate steps to prevent it from spreading into the environment. Material may be hazardous if released in large quantities to the environment. Notify relevant emergency services.

##### 6.3 Methods and material for containment and cleaning up

Damaged container put in emergency container. Absorb leakage with incombustible liquid-binding material (e.g. sand, earth, universal binders, silica, vermiculite) and collect mechanically into properly labeled containers for disposal. Clean the contaminated place.

**6.4 Reference to other sections:** Section 13 and section 8.

#### Section 7: Handling and storage

##### 7.1 Precautions for safe handling:

Handle in accordance with good occupational hygiene and safety practices. Avoid skin and eyes contamination. Before break and after work wash hands carefully. Use personal protective measures. Ensure adequate ventilation. Do not let the product to get into mouth.

**7.2 Conditions for safe storage, including any incompatibilities:**

Keep only in original, tightly closed containers in a cool and well-ventilated area. Keep away from food, beverages or feed for animals. Avoid direct exposure to sunlight. Keep away from strong acids and oxidizing agents. After opening, seal the container and store in an upright position to prevent leakage.

**7.3 Specific end use(s):**

Liquid filling for e-liquid.

**Section 8: Exposure controls/personal protection**

**8.1 Control parameters**

Substance	Occupational Exposure Limits	
Glycerol	OSHA PEL	TWA 15 mg/m <sup>3</sup> (total), TWA 5 mg/m <sup>3</sup> (resp)
	TLV (ACGIH 2005)	TWA 0.5 mg/m <sup>3</sup> (Skin) (Mist)
	MAK	50 mg/m <sup>3</sup> (Inhalable fraction)
Nicotine	NIOSH REL	TWA 0.5 mg/m <sup>3</sup> (Skin)
	OSHA PEL	TWA 0.5 mg/m <sup>3</sup> (Skin)
	TLV (ACGIH 1996)	TWA 0.5 mg/m <sup>3</sup> (Skin)
	NIOSH IDLH	0.5 mg/m <sup>3</sup>
	EU OEL (EU 2006)	TWA 0.5 mg/m <sup>3</sup> (Skin)

**Recommended control procedures**

Procedures Concerning the control over the dangerous components concentrations in the air and control over the air quality in the workplace in Accordance with the European Standards.

**8.2 Exposure controls:**

Use the product in accordance with good occupational hygiene and safety practices. Ensure exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value. Ensure eye stations and safety showers.

**Hand and body protection:**

In case of short term contact use protective gloves made of nitrile rubber (minimal thickness: 0.2 mm; breakthrough time > 30 minutes). In case of long term contact use protective gloves made of butyl rubber (minimal thickness: 0.3 mm, breakthrough time > 480 minutes).

The material that the gloves are made of must be impenetrable and resistant to the product's effects. The selection of material must be performed with consideration of breakthrough time, penetration speed and degradation.

**Eye protection:**

Wear tightly fitting safety glasses if there is a risk of eye contamination.

**Respiratory protection:**

In case of normal use, in accordance with the intended use, it is not necessary.

Applied personal protective equipment must comply with the requirements of the Directive 89/686/EC. The employer is obliged to provide protective equipment relevant to performed activities and in accordance with all quality requirements, including its maintenance and cleaning.

**8.3 Environmental exposure controls:**

Do not allow to enter large amounts of product to reach ground water, sewage, waste water or soil.

**Section9. Physical and chemical properties**

**9.1 Information on basic physical and chemical properties**

**Appearance:** Light yellow oily liquid at room temperature

**Odour:** Tobacco

**Odour threshold:** Not available

**pH:** 6.32 at 10g/L at 25 °C

**Melting point/freezing range:** Not available

**Initial boiling point and boiling range:** 160-170 °C

**Flash point:** Not available

**Evaporation rate:** Not available

**Flammability (solid, gaseous):** This product is liquid, not applicable.

**Upper/lower flammability or explosive limits:** Not available  
**Vapour pressure:** Not available  
**Vapour density:** Not available  
**Relative density:** 1.02 g/mL(25°C)  
**Solubility(ies):** Not available  
**Partition coefficient: n-octanol/water:** Not available  
**Auto-ignition temperature:** Product is not self-igniting.  
**Decomposition temperature:** Not available  
**Viscosity:** 53 mPa·s (25°C)  
**Explosive properties:** Product does not present an explosion hazard.  
**Oxidising properties:** Product does not present oxidizing properties.

**9.2 Other information:** Not available

#### Section10: Stability and reactivity

**10.1 Reactivity:** Product is feebly reactive. Product does not undergo a dangerous polymerization. See also 10.4-10.5  
**10.2 Chemical stability:** The product is stable under normal storage and using condition.  
**10.3 Possibility of hazardous reactions:** Dangerous reactions are not known.  
**10.4 Conditions to avoid:** Avoid direct exposure to sunlight.  
**10.5 Incompatible materials:** Strong oxidizing agents, acids.  
**10.6 Hazardous decomposition products:** Not available

#### Section11: Toxicological information

##### 11.1 Information on toxicological effects

###### Toxicity of components

LD/LC50 values relevant for classification:		
CAS: 4940-11-8 Ethyl maltol		
Oral	LD50	1150 mg/kg bw
CAS:54-11-5 Nicotine		
Oral	LD50	5 mg/kg bw
Dermal	LD50	70 mg/kg bw
Inhalation	LC50	0.19 mg/L

###### Toxicity of the mixture

The acute toxicity estimate (ATEmix) for the classification of a substance in a mixture was determined using the appropriate value from relevant literature and RAC proposal.

###### Acute toxicity

**ATEmix (oral)** = 2832 mg/kg bw (Not classified)

**ATEmix (dermal)** = 46667 mg/kg bw (Not classified)

**ATEmix (inhalation)** = 127 mg/L (Not classified)

###### Skin corrosion/irritation:

This product does not contain any substances that produce skin corrosion or irritation. See section 3.

###### Serious eye damage/irritation:

This product does not contain any substances that produce serious eye damage or irritation. See section 3.

###### Respiratory or skin sensitization:

This product does not contain any substances that produce respiratory or skin sensitization. See section 3.

###### Germ cell mutagenicity:

This product does not contain any substances that produce germ cell mutagenicity. See section 3.

###### Carcinogenicity:

This product does not contain any substances that produce carcinogenicity. See section 3.

###### Reproductive toxicity:

This product does not contain any substances that produce reproductive toxicity. See section 3.

###### Summary of evaluation of the CMR properties:

Based on available data, the classification criteria are not met.

###### STOT-single exposure:

This product does not contain any substances that produce STOT-SE. See section 3.

###### STOT-repeated exposure:

This product does not contain any substances that produce STOT-RE. See section 3.

###### Aspiration hazard:

This product does not contain any substances that produce aspiration hazard. See section 3.

## Section12:Ecological information

### 12.1 Toxicity:

Parameters of environmental toxicity:	
CAS: 54-11-5 Nicotine	
Classification:	Aquatic Chronic 2 (H411)
Fish ( <i>Onchorhynchus mykiss</i> )	LC50-96h = 4 mg/L
Fish (fresh water)	3-29 ppm
Daphnia ( <i>Daphnia magna</i> )	EC50-48h = 0.24 mg/L
Alga ( <i>Desmodesmus subspicatus</i> )	EC50-72h = 37 mg/L

According to Regulation (EC) No 1272/2008, this product does not meet the criteria of classification of environmental hazard.

### 12.2 Persistence and degradability:

Data for the mixture are not available.

Nicotine	
OECD 301B	71% degradation
1,2-Propylene glycol	
OECD Method 301F Biodegradation in soil	81% biodegradation High concentrations of propylene glycol released into a soil environment can be expected to biodegrade.
Phototransformation in water	DT50 = 1.3 year
Glycerol	
Ready biodegradability	Readily biodegradable

### 12.3 Bioaccumulative potential:

Data for the mixture are not available.

Nicotine	
Log Pow	1.17 (pH=12.17)
1,2-Propylene glycol	
BCF	0.09
Glycerol	
Log Pow	-1.75 (pH=7.4, °C)

### 12.4 Mobility in soil:

Data for the mixture are not available.

1,2-Propylene glycol	
Koc	2.9 (calculated from log Pow = -1.07 using the equation from the TGD (non-hydrophobics))
Henry's Law constant	0.06 atm m <sup>3</sup> /mol (12 °C)
Glycerol	
Henry's Law Constant (H):	0 atm m <sup>3</sup> /mol

### 12.5 Results of PBT and vPvB assessment:

Product does not contain ingredients, which meet criteria for PBT or vPvB.

### 12.6 Other adverse effects:

The mixture is not classified as hazardous to the ozone layer.

## Section13:Disposal considerations

### 13.1 Waste treatment methods

Disposal method for the product: disposal in accordance with the local legislation. Do not empty into drains. Waste code should be given in the place of waste formation. The classification of this waste meets criteria for dangerous waste. Disposal methods for used packing: reuse/recycling/liquidation of empty containers dispose in accordance with the local legislation. The classification of this waste meets criteria for dangerous waste.

Legal Basis: Directive 2008/98/EC, 94/62/EC.

#### Section14:Transport information

**14.1. UN number:**

Not available. Product is not classified as hazardous during transport.

**14.2. UN proper shipping name:**

Not applicable.

**14.3. Transport hazard class(es):**

Not applicable.

**14.4. Packing group:**

Not applicable.

**14.5. Environmental hazards:**

Not applicable.

**14.6. Special precautions for user:**

Move carefully to prevent leakage during carriage. Keep necessary protective articles at hand in case of accident.

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

Not applicable.

#### Section15: Regulatory information

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

**Regulation (EC) No 1907/2006** of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorization and Restriction of Chemicals (REACH), establishing a European Chemicals Agency, amending Directive 1999/45/EC and repealing Council Regulation (EEC) No 793/93 and Commission Regulation (EC) No 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC.

**Regulation (EC) No 1272/2008** of the European Parliament and of the Council of 16 December 2008 on classification, labeling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006 (Text with EEA relevance).

**Commission Regulation (EU) No 2015/830** of 28 May 2015 amending Regulation (EC) No 1907/2006 of the European Parliament and of the Council on the Registration, Evaluation, Authorization and Restriction of Chemicals (REACH) (Text with EEA relevance)

**Directive 2008/98/EC** of the European Parliament and of the Council of 19 November 2008 on waste and repealing certain Directives.

**European Parliament and Council Directive 94/62/EC** of 20 December 1994 on packaging and packaging waste.

**ADR European Agreement** concerning the International Carriage of Dangerous Goods.

**Convention concerning International Carriage by Rail (COTIF): Appendix C – Regulations concerning the International Carriage of Dangerous Goods by Rail (RID)** with effect from 1 January 2011.

**15.2 Chemical safety assessment:**

A Chemical Safety Assessment is not required for mixtures in accordance with REACH Regulation.

#### Section16: Other information

**Full text if indicated H phrases mentioned in section 2,3:**

H226: Flammable liquid and vapour

H300: Fatal if swallowed

H302: Harmful if swallowed

H310: Fatal in contact with skin

H330: Fatal if inhaled

H411: Toxic to aquatic life with long lasting effects

**Clarifications of aberrations and acronyms**

Acute Tox.2, 4: Acute toxicity, Category 2, 4

Aquatic Chronic 2: Hazardous to the aquatic environment, long-term hazard Category 2

Flam. Liq.3: Flammable liquid, Category 3

PBT: Persistent, Bioaccumulative and Toxic substance

vPvB: very Persistent, very Bioaccumulative substance

OECD: Organisation for Economic Co-operation and Development

OSHA: Occupational Safety and Health Administration

PEL: Permissible Exposure Limit

TWA: Time weighted average (for up to a 10-hour workday during a 40-hour workweek)

TLV: Threshold limit value  
ACGIH: American Conference of Governmental Industrial Hygienists  
MAK: Maximum allowed concentration at workplace  
NIOSH: National Institute for Occupational Safety and Health  
REL: Recommended Exposure Limit  
IDLH: Immediately Dangerous to Life or Health concentration  
OEL Occupational exposure limit  
LC50: Median Lethal concentration  
LD50: Median Lethal dose  
ATEmix: Acute Toxicity Estimate of mixture  
bw: body weight  
LoW: List of Wastes

**Trainings:**

Before commencing working with the product, the user should learn the Health & Safety regulations, regarding handling chemicals, and in particular, undergo a proper workplace training.

**Key literature references and sources for data:**

This SDS was prepared on the basis of sheets of the individual components, literature data, online databases (eg. ECHA) as well as our knowledge and experience, taking into account current legislation.

**Methods of evaluating information which was used for the purpose of classification acc. Regulation (EC) No 1272/2008**

ATEmix: calculation method

**Methods of evaluating information which was used for the purpose of transport acc. ECE/TRANS/242 (Vol.I):**

Calculation method

**Other data**

Purity of the ingredients present in Section 3 is > 98%, and does not affect the classification.

**Date of update:** 10/08/2017

**Version:** 1.2

**THIS SDS ANNULS AND REPLEACES ALL PREVIOUS VERSIONS**

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