SAFETY DATA SHEET

1. PRODUCT AND COMPANY IDENTIFICATION:

PRODUCT CODE	A0253
PRODUCT NAME	ISO E SUPER
SUPPLIER	Shanghai M & U International Trade Co., Ltd. Rm 1717, No 598 North NuJiang Road 200333 Shanghai, China +86-21-32515501 32515502 sales@mu-intel.com

FOR EMERGENCIES CALL CHEMTREC: 800-424-9300 (24-HOURS)

2. HAZARD IDENTIFICATION:

Physical hazards Not classified.

Health hazards	Skin corrosion/irritation	Category 2
	Sensitization, skin	Category 1
Environmental hazards	Hazardous to the aquatic environment, acute hazard	Category 2
	Hazardous to the aquatic environment, long-term hazard	Category 2

Label elements

Signal word
Warning

Hazard statement

H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H401	Toxic to aquatic life.
H411	Toxic to aquatic life with long lasting effects.

Precautionary statement
Prevention

P261	Avoid breathing mist or vapor.
P264	Wash thoroughly after handling.
P272	Contaminated work clothing should not be allowed out of the workplace.
P273	Avoid release to the environment.
P280	Wear protective gloves.

Response

P302 + P352	IF ON SKIN: Wash with plenty of water.
P333 + P313	If skin irritation or rash occurs: Get medical advice/attention.
P362 + P364	Take off contaminated clothing and wash it before reuse.
P391	Collect spillage.

Storage

Store away from incompatible materials.

Disposal

P501	Dispose of contents/container in accordance with local/regional/national/international regulations.

Hazard(s) not otherwise classified (HNOC)

None known.

Supplemental information

None.

3. COMPOSITION AND INFORMATION ON INGREDIENTS:

Substances

Chemical name	Common name and synonyms	CAS number	%
1-(1,2,3,4,5,6,7,8 Octahydro-2,3,8,8- tetramethyl-2naphthyl) ethan-1-one	patchouli ethanone ambergris ketone methyl cyclomyrcetone timbrone supra	54464-57-2	100

4. FIRST-AID GUIDE:

Inhalation

If breathing is difficult, remove to fresh air and keep at rest in a position comfortable for breathing.

For breathing difficulties, oxygen may be necessary. Call a physician if symptoms develop or persist.

Skin contact

Take off immediately all contaminated clothing. Get medical attention if irritation develops and persists. Wash skin thoroughly with soap and water for several minutes.

Eye contact
Remove contact lenses, if present and easy to do. Get medical attention if irritation develops and persists. Promptly wash eyes with plenty of water while lifting the eye lids.

Ingestion
Call a physician or poison control center immediately. If swallowed, rinse mouth with water (only if the person is conscious). Do not induce vomiting. If vomiting occurs, the head should be kept low so that stomach vomit doesn't enter the lungs.

Most important symptoms/effects, acute and delayed
Skin irritation. May cause redness and pain. May cause an allergic skin reaction. Dermatitis. Rash.

Indication of immediate medical attention and special treatment needed
Not available.

General information
Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Show this safety data sheet to the doctor in attendance.

5. FIRE-FIGHTING GUIDE:

Suitable extinguishing media
Water spray, fog, CO2, dry chemical, or alcohol resistant foam.

Unsuitable extinguishing media
Do not use a solid water stream as it may scatter and spread fire.

Specific hazards arising from the chemical
Fire may produce irritating, corrosive and/or toxic gases.

Special protective equipment and precautions for firefighters
Firefighters must use standard protective equipment including flame retardant coat, helmet with face shield, gloves, rubber boots, and in enclosed spaces, SCBA. Structural firefighters protective clothing will only provide limited protection. Wear self-contained breathing apparatus with a full face piece operated in the positive pressure demand mode when fighting fires.

Fire fighting equipment/instructions
In case of fire and/or explosion do not breathe fumes. Use standard firefighting procedures and consider the hazards of other involved materials. Move containers from fire area if you can do so without risk. Water runoff can cause environmental damage. Ventilate closed spaces before entering them. Keep run-off water out of sewers and water sources. Dike for water control.

Specific methods
Use water spray to cool unopened containers.

General fire hazards
Static charges generated by emptying package in or near flammable vapor may cause flash fire.

6. ACCIDENTAL RELEASE GUIDE:

Personal precautions, protective equipment and emergency procedures
Keep unnecessary personnel away. Eliminate all sources of ignition. Avoid contact with skin or inhalation of spillage, dust or vapor. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ventilate closed spaces before entering them.

Methods and materials for containment and cleaning up
Eliminate all ignition sources (no smoking, flares, sparks or flames in immediate area). Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Absorb with inert absorbent such as dry clay, sand or diatomaceous earth, commercial sorbents, or recover using pumps.
The product is immiscible with water and will spread on the water surface.
Large Spills: Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Cover with plastic sheet to prevent spreading. Prevent product from entering drains. Do not allow material to contaminate ground water system. Absorb in vermiculite, dry sand or earth and place into containers.
Small Spills: Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination.
Never return spills in original containers for re-use. This material and its container must be disposed of as hazardous waste. Collect and dispose of spillage as indicated in section 13 of the SDS.

Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not contaminate water. Avoid release to the environment. Retain and dispose of contaminated wash water. Contact local authorities in case of spillage to drain/aquatic environment.

7. H ANDLING AND STORAGE:

Precautions for safe handling
Do not handle or store near an open flame, heat or other sources of ignition. Take precautionary measures against static discharges. All equipment used when handling the product must be grounded. Avoid breathing vapor. Avoid contact with eyes, skin, and clothing. Avoid prolonged exposure. Wash thoroughly after handling.

Conditions for safe storage, including any incompatibilities
Keep container closed. Handle containers with care. Open slowly in order to control possible pressure release. Store in a cool, well-ventilated area.

8. EXPOSURE AND PERSONAL PROTECTION:

Occupational exposure limits
No exposure limits noted for ingredient(s).

Biological limit values
No biological exposure limits noted for the ingredient(s).

Exposure guidelines
DNEL (Derived No-Effect Level): Workers - Acute/short-term exposure Local effects - dermal: 101.1 µg/cm²
DNEL (Derived No-Effect Level): Workers - Long-term exposure
Systemic effects - dermal: 1.73 mg/kg bw/day
Systemic effects - inhalation: 1.76 mg/m³
DNEL (Derived No-Effect Level): General population - Acute/short-term exposure
Local effects - dermal: 50.6 µg/cm²
DNEL (Derived No-Effect Level): General population - Long-term exposure
Systemic effects - dermal: 0.86 mg/kg bw/day
Systemic effects - inhalation: 0.43 mg/m³
Systemic effects - oral: 0.25 mg/kg bw/day
PNEC (Predicted No-Effect Concentration) aqua (freshwater): 2.8 µg/L
PNEC (Predicted No-Effect Concentration) aqua (marine water): 0.28 µg/L
PNEC (Predicted No-Effect Concentration) Sewage Treatment Plant: 10 mg/L
PNEC (Predicted No-Effect Concentration) sediment (freshwater): 3.73 mg/kg sediment dw
PNEC (Predicted No-Effect Concentration) sediment (marine water): 0.75 mg/kg sediment dw
PNEC (Predicted No-Effect Concentration) soil: 0.705 mg/kg soil dw
PNEC (Predicted No-Effect Concentration) oral: 10 mg/kg food
PNEC (Predicted No-Effect Concentration) aqua (intermittent releases): 13 µg/L

Appropriate engineering controls
Use explosion-proof ventilation equipment to stay below exposure limits.

Individual protection measures, such as personal protective equipment
Eye/face protection
Wear safety glasses with side shields (or goggles). Face shield is recommended.

Skin protection
Hand protection
Chemical resistant gloves.

Other
Use of an impervious apron is recommended.

Respiratory protection
Respiratory protection not required. If ventilation is insufficient, suitable respiratory protection must be provided.

Thermal hazards
Wear appropriate thermal protective clothing, when necessary.

General hygiene considerations
Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Contaminated work clothing should not be allowed out of the workplace.

9. PHYSICAL AND CHEMICAL PROPERTIES:

Appearance	Refer to Spec Sheet
Physical state	Liquid.
Form	Liquid.
Color	Refer to Spec Sheet
Odor	Characteristic.
Odor threshold	Not available.
pH	Not available.
Melting point/freezing point	Not available.
Initial boiling point and boiling range	552.2 °F (289 °C)
Flash point	> 200.0 °F (> 93.3 °C) Closed Cup
Evaporation rate	Not available.
Flammability (solid, gas)	Not applicable.
Upper/lower flammability or explosive limits	
Flammability limit – lower (%)	Not available.
Flammability limit - upper (%)	Not available.
Explosive limit - lower (%)	Not available.
Explosive limit - upper (%)	Not available.
Vapor pressure	0 mm Hg at 25 °C
Vapor density	8.1
Relative density	Not available.
Solubility(ies)	
Solubility (water)	Insoluble
Partition coefficient (n-octanol/water)	Not available.
Auto-ignition temperature	Not available.
Decomposition temperature	Not available.
Viscosity	Not available.
Other information	
Molecular formula	C16H26O
Molecular weight	234.38 g/mol
Specific gravity	0.97 at 20 °C

10. STABILITY AND REACTIVITY:

Reactivity

The product is stable and non-reactive under normal conditions of use, storage and transport.

Chemical stability
Material is stable under normal conditions.

Possibility of hazardous reactions
No dangerous reaction known under conditions of normal use.

Conditions to avoid
Avoid temperatures exceeding the flash point. Contact with incompatible materials.

Incompatible materials
Strong oxidizing agents.

Hazardous decomposition products
No hazardous decomposition products if stored and handled as indicated.

11. TOXICOLOGICAL INFORMATION:

Information on likely routes of exposure
Inhalation
No adverse effects due to inhalation are expected.

Skin contact
Causes skin irritation. May cause an allergic skin reaction.

Eye contact
Direct contact with eyes may cause temporary irritation. Causes mild eye irritation.

Ingestion
Expected to be a low ingestion hazard.

Symptoms related to the physical, chemical and toxicological characteristics
Skin irritation. May cause redness and pain. May cause an allergic skin reaction. Dermatitis. Rash.

Information on toxicological effects
Acute toxicity
May cause an allergic skin reaction.

Product	**Species**	**Test Results**
1-(1,2,3,4,5,6,7,8- Octahydro-2,3,8,8- tetramethyl-2- naphthyl) ethan-1-one (CAS 54464-57-2)		
Acute Dermal LD50	Rabbit	> 5000 mg/kg
Oral		

LD50	Rat	> 5000 mg/kg

* Estimates for product may be based on additional component data not shown.

Skin corrosion/irritation
Causes skin irritation.

Serious eye damage/eye irritation
The substance was found irritating in an in vitro study using a reconstructed human epidermis (EPISKIN)
Direct contact with eyes may cause temporary irritation.
Based on the irritation properties of two structural analogues, the substance is considered as not irritating to eyes.

Respiratory or skin sensitization
Respiratory sensitization
Not a respiratory sensitizer.

Skin sensitization
May cause an allergic skin reaction.
The substance was found to be skin sensitizing in several assays performed in mice according to the OECD guideline 429 (LLNA- Local Lymph Node Assay).

Germ cell mutagenicity
No mutagenicity was observed with the substance in several in vitro assays:
- In bacteria (Ames test carried out according to the OECD 471 guideline);
- In mammalian cells (mouse lympoma - test carried out according to OECD 476 guideline).
No genotoxicity was observed in vitro with the substance:
- In a chromosome aberration test in human lymphocytes (test carried out according to OECD 473 guideline).
No genotoxicity was observed in vivo with the substance in mammalian erythrocyte micronucleus tests carried out according to the OECD 474 guideline:
- In rats;
- In male mice.
The results were ambiguous in females.

Carcinogenicity
The substance is not expected to be carcinogenic: it is not mutagenic/genotoxic and there is no evidence from the repeated dose toxicity study that the substance is able to induce hyperplasia or preneoplastic lesions.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)
Not listed.

Reproductive toxicity
No developmental effects were observed in an oral toxicity study carried out in rats:
NOAEL (maternal toxicity): 240 mg/kg bw/day (effects on body weight and food consumption)

NOAEL (developmental toxicity): 480 mg/kg bw/day (highest concentration tested).
No reproductive toxicity is supported bu the absence of effects on reproductive organs in the 28-day repeated dose toxicity study.

Specific target organ toxicity single exposure
No specific target organ was observed in the LD50 determination studies.

Specific target organ toxicity repeated exposure
A 28-day oral repeated dose toxicity study was conducted with the substance in rats (according to the OECD 407 guideline):
NOAEL: 150 mg/kg bw/day)reversible liver effects).

Aspiration hazard
No aspiration hazard expected.

Further information
CMR effects (carcinogenity, mutagenicity, and toxicity for reproduction)
Acoording to Regulation (EC) No 1272/2008, the substance is not considered to be CMR

12. ECOLOGICAL INFORMATION:

Ecotoxicity
Toxic to aquatic life with long lasting effects.
Short term tests were conducted
Water accomodated fractions (WAF) of the ^{14}C-labeled substance were prepared (the treatment solutions were stirred during 20 hours and left to settle for one hour). Concentrations were measured using Liquid Scintillation Counting.
Longer term tests were also carried out.
Flow-through systems were used with the ^{14}C-labeled substance dissolved in acetone.
Concentrations were measured using Liquid Scintillation Counting.
NOEC in a 28-d test is available for three different invertebrate species of sediment organisms, representing different living and feeding conditions: the lowest NOEC, based on measured concentrations, is 17.1 mg/kg dw (tests carried out according to or in line with the OECD 218 guideline).

Product		Species	Test Results
Aquatic Algae	Acute EC50	Green algae (Desmodesmus subspicatus)	> 2.6 mg/l, 72 hours (based on biomass) - Algae study carried out according to a method similar to the OECD 201 guideline > 2.6 mg/l, 72 hours (based on growth rate) - Algae study carried out according to a method similar to the OECD 201

			guideline
	NOEC	Green algae (Desmodesmus subspicatus)	2.6 mg/l, 72 hours (based on growth rate) - Algae study carried out according to a method similar to the OECD 201 guideline
Crustacea	EC50	Daphnia magna	1.38 mg/l, 48 hours Daphnia study carried out according to a method similar to the OECD 202 guideline
Fish	LC50	Bluegill (Lepomis macrochirus)	1.3 mg/l, 96 hours Fish study carried out according to a method similar to the OECD 203 guideline
Chronic Crustacea	LOEC	Daphnia magna	0.244 mg/l, 21 days (based on body length) - Daphnia study carried out according to the OECD 211 guideline 0.096 mg/l, 21 days (based on reproduction) - Daphnia study carried out according to the OECD 211 guideline
	NOEC	Daphnia magna	0.448 mg/l, 21 days (based on mortality) - Daphnia study carried out according to the OECD 211 guideline 0.096 mg/l, 21 days (based on body length) - Daphnia study carried out according to the OECD 211 guideline 0.028 mg/l, 21 days (based on reproduction) - Daphnia study carried out according to the OECD 211 guideline
Fish	LOEC	Danio rerio	0.29 mg/l, 30 days (based on length and weight) - Fish study carried out according to the OECD 210 guideline
	NOEC	Danio rerio	0.54 mg/l, 30 days (based on time to hatch) - Fish study carried out according to the OECD 210 guideline 0.54 mg/l, 30 days (based on egg survival) - Fish study carried out according to the OECD 210 guideline 0.3 mg/l, 30 days (based on post hatch

		survival) - Fish study carried out according to the OECD 210 guideline 0.16 mg/l, 30 days (based on length and weight) - Fish study carried out according to the OECD 210 guideline

13. DISPOSAL RECOMMENDATIONS:

Disposal instructions
Do not discharge into drains, water courses or onto the ground. Do not allow this material to drain into sewers/water supplies. Do not contaminate ponds, waterways or ditches with chemical or used container. Dispose of contents/container in accordance with local/regional/national/international regulations.

Local disposal regulations
Dispose in accordance with all applicable regulations.

Hazardous waste code
Not established.

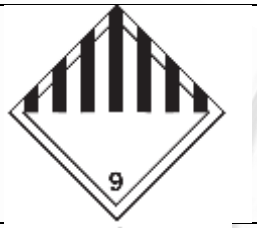
Waste from residues / unused products
Empty containers or liners may retain some product residues. This material and its container must
be disposed of in a safe manner (see: Disposal instructions).

Contaminated packaging
Empty containers should be taken to an approved waste handling site for recycling or disposal. Since emptied containers may retain product residue, follow label warnings even after container is emptied.

14. TRANSPORTATION INFORMATION:

ADN	
UN number	3082
UN proper shipping name	
Transport hazard class(es)	9
Subsidiary class(es)	-
Packing group	III
Environmental hazards	Yes
Labels required	9 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (1-(1,2,3,4,5,6,7,8Octahydro-2,3,8,8-tetramethyl-2- naphthyl) ethan-1-one)

ADR	
UN number	3082
UN proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (1-(1,2,3,4,5,6,7,8-Octahydro-2,3,8,8- tetramethyl-2- naphthyl) ethan-1-one)
Transport hazard class(es)	9
Subsidiary class(es)	-
Packing group	III
Environmental hazards	Yes
Labels required	9
RID	
UN number	3082
UN proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (1-(1,2,3,4,5,6,7,8-Octahydro-2,3,8,8- tetramethyl-2- naphthyl) ethan-1-one)
Transport hazard class(es)	9
Subsidiary class(es)	-
Packing group	III
Environmental hazards	Yes
Labels required	9
DOT	
BULK	
UN number	3082
Proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (1-(1,2,3,4,5,6,7,8Octahydro-2,3,8,8-tetramethyl-2- naphthyl) ethan-1-one)
Hazard class	9
Packing group	III
Environmental hazards	
Marine pollutant	Yes
Special provisions	8, 146, 335, IB3, T4, TP1, TP29
Packaging exceptions	155
Packaging bulk	241
DOT	
NON-BULK	Not regulated as dangerous goods.
IATA	Not regulated as dangerous goods.
IMDG	
UN number	3082
UN proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (1-(1,2,3,4,5,6,7,8Octahydro-2,3,8,8-tetramethyl-2- naphthyl) ethan-1-one)
Transport hazard class(es)	9
Subsidiary class(es)	-
Packing group	III
Environmental hazards	

Marine pollutant **Labels required** **Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code**	Yes 9 Not applicable.
ADN; ADR; DOT BULK; IMDG; RID	
Marine pollutant	

15. REGULATORY INFORMATION:

US federal regulations
This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication

Standard, 29 CFR 1910.1200.
CERCLA Hazardous Substance List (40 CFR 302.4)
Not listed.

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)
Not listed.

SARA 304 Emergency release notification
Not regulated.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)
Not listed.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)
Not regulated.

Superfund Amendments and Reauthorization Act of 1986 (SARA)
Hazard categories
Immediate Hazard - Yes
Delayed Hazard - No
Fire Hazard - No
Pressure Hazard - No
Reactivity Hazard – No

SARA 302 Extremely hazardous substance
Not listed.

SARA 311/312 Hazardous chemical
No

SARA 313 (TRI reporting)
Not regulated.

Other federal regulations
Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List
Not regulated.

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)
Not regulated.

Safe Drinking Water Act (SDWA)
Not regulated.

US state regulations
US. Massachusetts RTK - Substance List
Not regulated.

US. New Jersey Worker and Community Right-to-Know Act
Not listed.

US. Pennsylvania Worker and Community Right-to-Know Law
Not listed.

US. Rhode Island RTK
Not regulated.

US. California Proposition 65
US - California Proposition 65 - Carcinogens & Reproductive Toxicity (CRT): Listed substance
Not listed.

International Inventories

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Chemical Substances (AICS)	Yes
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No

China	Inventory of Existing Chemical Substances in China (IECSC)	Yes
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	Yes
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	Yes
Korea	Existing Chemicals List (ECL)	Yes
New Zealand	New Zealand Inventory	Yes
Philippines Philippine	Inventory of Chemicals and Chemical Substances(PICCS)	Yes
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)
A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

16. OTHER INFORMATION:

HMIS® ratings

Health: 2

Flammability: 1

Physical hazard: 0

The information in this SDS was obtained from current and reliable sources. However, the data is provided without any warranty, expressed or implied, regarding its correctness or accuracy. Since the conditions for use, handling, storage and disposal of this product are beyond M&U's control, it is the responsibility of the user both to determine safe conditions for use of this product and to assume liability for loss, damage, or expense arising out of the products improper use. No warranty expressed or implied regarding the product described herein will be created by or inferred from any statement or omission in the SDS. Various federal, state, or provincial agencies may have specific regulations concerning the transportation, handling, storage, use, or disposal of this product which may not be reflected in the SDS. The user should review these regulations to ensure full compliance.

Prepared By: M&U International LLC **REVISED:** 02/17/2015