SAFETY DATA SHEET

SECTION 1 PRODUCT AND COMPANY IDENTIFICATION

PRODUCT

Product Name: **EXXAL™ 10**
Product Description: Alcohol

Recommended Use: Chemical feedstock

COMPANY IDENTIFICATION

Supplier: **UNION PETROCHEMICAL PUBLIC COMPANY LIMITED**
728 Union House Building, Baromratchonnani Rd.,
Bangbumru, Bangplad, Bangkok 10700
Supplier General Contact +662 881 8288

This (M)SDS is a generic document with no country specific information included.

SECTION 2 HAZARDS IDENTIFICATION

This material is hazardous according to UN GHS Criteria. Classification includes all GHS hazard classes. For hazard categories with two cut-off/concentration limits, classification was based on the higher limit.

GHS CLASSIFICATION:

Acute oral toxicant: Category 5.
Skin irritation: Category 2.
Aspiration toxicant: Category 2.
Acute aquatic toxicant: Category 2.
Chronic aquatic toxicant: Category 3.

GHS Label Elements:
Pictogram:

Signal Word: Warning

Hazard Statements:

Health: H303: May be harmful if swallowed. H305: May be harmful if swallowed and enters airways. H315: Causes skin irritation.
Environmental: H401: Toxic to aquatic life. H412: Harmful to aquatic life with long lasting effects.

Precautionary Statements:

Prevention: P264: Wash skin thoroughly after handling. P273: Avoid release to the environment. P280: Wear protective gloves.
Response: P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician. P302 + P352: IF ON SKIN: Wash with plenty of soap and water. P312: Call a POISON CENTER or doctor/physician if you feel unwell. P331: Do NOT induce vomiting. P332 + P313: If skin irritation occurs: Get medical advice/attention. P362 + P364: Take off contaminated clothing and wash it before reuse.
Storage: P405: Store locked up.
Disposal: P501: Dispose of contents and container in accordance with local regulations.

Contains: Alcohols, C9-11-iso-, C10-rich

Other hazard information:

PHYSICAL / CHEMICAL HAZARDS
No significant hazards.

HEALTH HAZARDS
May be irritating to the eyes, nose, throat, and lungs. If swallowed, may be aspirated and cause lung damage.

ENVIRONMENTAL HAZARDS
No additional hazards.

NOTE: This material should not be used for any other purpose than the intended use in Section 1 without expert advice. Health studies have shown that chemical exposure may cause potential human health risks which may vary from person to person.

SECTION 3 COMPOSITION / INFORMATION ON INGREDIENTS

This material is defined as a complex substance.

Hazardous Substance(s) or Complex Substance(s) required for disclosure

Name	CAS#	Concentration*	GHS Hazard Codes
Alcohols, C9-11-iso-, C10-rich	68526-85-2	100 %	H303, H305, H315, H401,

			H412

* All concentrations are percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

SECTION 4 FIRST AID MEASURES

INHALATION

Immediately remove from further exposure. Get immediate medical assistance. For those providing assistance, avoid exposure to yourself or others. Use adequate respiratory protection. Give supplemental oxygen, if available. If breathing has stopped, assist ventilation with a mechanical device.

SKIN CONTACT

Wash contact areas with soap and water. Remove contaminated clothing. Launder contaminated clothing before reuse.

EYE CONTACT

Flush thoroughly with water. If irritation occurs, get medical assistance.

INGESTION

Seek immediate medical attention. Do not induce vomiting.

ACUTE AND DELAYED SYMPTOMS/EFFECTS

See Toxicological Section

NOTE TO PHYSICIAN

If ingested, material may be aspirated into the lungs and cause chemical pneumonitis. Treat appropriately.

SECTION 5 FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA

Appropriate Extinguishing Media: Use water fog, alcohol-resistant foam, dry chemical or carbon dioxide (CO2) to extinguish flames.

Inappropriate Extinguishing Media: Straight streams of water or standard foam

FIRE FIGHTING

Fire Fighting Instructions: Evacuate area. Prevent run-off from fire control or dilution from entering streams, sewers or drinking water supply. Fire-fighters should use standard protective equipment and in enclosed spaces, self-contained breathing apparatus (SCBA). Use water spray to cool fire exposed surfaces and to protect personnel.

Unusual Fire Hazards: Hazardous material. Firefighters should consider protective equipment indicated in Section 8.

Hazardous Combustion Products: Incomplete combustion products, Oxides of carbon, Smoke, Fume

FLAMMABILITY PROPERTIES

Flash Point [Method]: >90°C (194°F) [ASTM D-93]
Flammable Limits (Approximate volume % in air): LEL: 0.6 UEL: 6.2
Autoignition Temperature: >250°C (482°F) [In-house method]

SECTION 6 ACCIDENTAL RELEASE MEASURES

NOTIFICATION PROCEDURES

In the event of a spill or accidental release, notify relevant authorities in accordance with all applicable regulations.

PROTECTIVE MEASURES

Avoid contact with spilled material. Warn or evacuate occupants in surrounding and downwind areas if required, due to toxicity or flammability of the material. See Section 5 for fire fighting information. See the Hazard Identification Section for Significant Hazards. See Section 4 for First Aid Advice. See Section 8 for advice on the minimum requirements for personal protective equipment. Additional protective measures may be necessary, depending on the specific circumstances and/or the expert judgment of the emergency responders.

SPILL MANAGEMENT

Land Spill: Stop leak if you can do so without risk. Do not touch or walk through spilled material. Small Spills: Absorb with earth, sand or other non-combustible material and transfer to containers for later disposal. Recover by pumping or with suitable absorbent.

Water Spill: Stop leak if you can do so without risk. Confine the spill immediately with booms. Warn other shipping. Remove from the surface by skimming or with suitable absorbents. Seek the advice of a specialist before using dispersants.

Water spill and land spill recommendations are based on the most likely spill scenario for this material; however, geographic conditions, wind, temperature, (and in the case of a water spill) wave and current direction and speed may greatly influence the appropriate action to be taken. For this reason, local experts should be consulted. Note: Local regulations may prescribe or limit action to be taken.

ENVIRONMENTAL PRECAUTIONS

Large Spills: Dyke far ahead of liquid spill for later recovery and disposal. Prevent entry into waterways, sewers, basements or confined areas.

SECTION 7 HANDLING AND STORAGE

HANDLING

Avoid contact with skin. Use proper bonding and/or earthing procedures. However, bonding and earthing may not eliminate the hazard from static accumulation. Prevent small spills and leakage to avoid slip hazard. DO NOT handle, store or open near an open flame, sources of heat or sources of ignition. Protect material from direct sunlight.

Loading/Unloading Temperature: [Ambient]

Transport Temperature: [Ambient]
Transport Pressure: [Ambient]

Static Accumulator: This material is not a static accumulator.

STORAGE

Do not store in open or unlabelled containers. Keep container closed. Handle containers with care. Open slowly in order to control possible pressure release. Store in a cool, well-ventilated area.

Storage Temperature: [Ambient]
Storage Pressure: [Ambient]

Suitable Containers/Packing: Tank Trucks; Drums; Tank Cars
Suitable Materials and Coatings (Chemical Compatibility): Carbon Steel; Stainless Steel; Polypropylene; Aluminium; PTFE
Unsuitable Materials and Coatings: Rubber; Butyl Rubber; Vinyls

SECTION 8 EXPOSURE CONTROLS / PERSONAL PROTECTION

Control parameters/Exposure limits:

Exposure limits/standards (Note: Exposure limits are not additive)

Substance Name	Form				Note	Source	Year
Alcohols, C9-11-iso-, C10-rich		TWA	50 ppm			ExxonMobil	2018

Biological limits

No biological limits allocated.

NOTE: Limits/standards shown for guidance only. Follow applicable regulations.

ENGINEERING CONTROLS

The level of protection and types of controls necessary will vary depending upon potential exposure conditions. Control measures to consider:
Adequate ventilation should be provided so that exposure limits are not exceeded.

PERSONAL PROTECTION

Personal protective equipment selections vary based on potential exposure conditions such as applications, handling practices, concentration and ventilation. Information on the selection of protective equipment for use with this material, as provided below, is based upon intended, normal usage.

Respiratory Protection: If engineering controls do not maintain airborne contaminant concentrations at a level which is adequate to protect worker health, an approved respirator may be appropriate. Respirator selection, use, and maintenance must be in accordance with regulatory requirements, if applicable. Types of respirators to be considered for this material include:
Half-face filter respirator Type A filter material.

For high airborne concentrations, use an approved supplied-air respirator, operated in positive pressure mode. Supplied air respirators with an escape bottle may be appropriate when oxygen levels are inadequate, gas/vapour warning properties are poor, or if air purifying filter capacity/rating may be exceeded.

Hand Protection: Any specific glove information provided is based on published literature and glove manufacturer data. Glove suitability and breakthrough time will differ depending on the specific use conditions. Contact the glove manufacturer for specific advice on glove selection and breakthrough times for your use

conditions. Inspect and replace worn or damaged gloves. The types of gloves to be considered for this material include:

Chemical resistant gloves are recommended. Nitrile

Eye Protection: If contact is likely, safety glasses with side shields are recommended.

Skin and Body Protection: Any specific clothing information provided is based on published literature or manufacturer data. The types of clothing to be considered for this material include:

Chemical/oil resistant clothing is recommended.

Specific Hygiene Measures: 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. Discard contaminated clothing and footwear that cannot be cleaned. Practice good housekeeping.

ENVIRONMENTAL CONTROLS

Comply with applicable environmental regulations limiting discharge to air, water and soil. Protect the environment by applying appropriate control measures to prevent or limit emissions.

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Note: Physical and chemical properties are provided for safety, health and environmental considerations only and may not fully represent product specifications. Contact the Supplier for additional information.

GENERAL INFORMATION

Physical State: Liquid
Form: Clear
Colour: Colourless
Odour: Mild
Odour Threshold: N/D

IMPORTANT HEALTH, SAFETY, AND ENVIRONMENTAL INFORMATION

Relative Density (at 20 °C): 0.839 [ASTM D4052 modified]
Density (at 20 ºC): 838 kg/m³ (6.99 lbs/gal, 0.84 kg/dm³) [ASTM D4052]
Flammability (Solid, Gas): N/A
Flash Point [Method]: >90°C (194°F) [ASTM D-93]
Flammable Limits (Approximate volume % in air): LEL: 0.6 UEL: 6.2
Autoignition Temperature: >250°C (482°F) [In-house method]
Boiling Point / Range: 216°C (421°F) - 226°C (439°F) [ASTM D1078]
Decomposition Temperature: N/D
Vapour Density (Air = 1): > 1 at 101 kPa [Calculated] [In-house method]
Vapour Pressure: [N/D at 20ºC] | 1.1 kPa (8.25 mm Hg) at 100°C | 0.002 kPa (0.02 mm Hg) at 25°C [In-house method]
Evaporation Rate (n-butyl acetate = 1): < 0.01 [In-house method]
pH: N/D
Log Pow (n-Octanol/Water Partition Coefficient): 3.2 [In-house method]
Solubility in Water: Negligible
Viscosity: [N/D at 40 °C] | 21 cSt (21 mm2/sec) at 20°C [ASTM D7042]

Oxidizing Properties: See Hazards Identification Section.

OTHER INFORMATION

Freezing Point: N/A
Melting Point: N/A
Pour Point: < -50°C (-58°F) [ASTM D5950]
Molecular Weight: 158
Hygroscopic: No
Coefficient of Thermal Expansion: 0.00081 per Deg C [Calculated] [In-house method]

SECTION 10 STABILITY AND REACTIVITY

STABILITY: Material is stable under normal conditions.

CONDITIONS TO AVOID: Excessive heat. High energy sources of ignition.

MATERIALS TO AVOID: Strong oxidisers

HAZARDOUS DECOMPOSITION PRODUCTS: Material does not decompose at ambient temperatures.

POSSIBILITY OF HAZARDOUS REACTIONS: Hazardous polymerization will not occur.

SECTION 11 TOXICOLOGICAL INFORMATION

INFORMATION ON TOXICOLOGICAL EFFECTS

Hazard Class	Conclusion / Remarks
Inhalation	
Acute Toxicity: (Rat) 6 hour(s) LC50 > 95.3 ppm (Max attainable vapor conc.)	Minimally Toxic. Based on test data for the material. Test(s) equivalent or similar to OECD Guideline 403
Irritation: No end point data for material.	Elevated temperatures or mechanical action may form vapours, mist, or fumes which may be irritating to the eyes, nose, throat, or lungs.
Ingestion	
Acute Toxicity (Rat): LD50 > 2648 mg/kg	Minimally Toxic. Based on test data for the material. Test(s) equivalent or similar to OECD Guideline 420
Skin	
Acute Toxicity (Rabbit): LC50 > 2648 mg/kg	Minimally Toxic. Based on test data for the material. Test(s) equivalent or similar to OECD Guideline 402
Skin Corrosion/Irritation: Data available.	Irritating to the skin. Based on test data for the material. Test(s) equivalent or similar to OECD Guideline 404
Eye	
Serious Eye Damage/Irritation: Data available.	May cause mild, short-lasting discomfort to eyes. Based on test data for the material. Test(s) equivalent or similar to OECD Guideline 405
Sensitisation	
Respiratory Sensitization: No end point data for material.	Not expected to be a respiratory sensitizer.
Skin Sensitization: Data available.	Not expected to be a skin sensitizer. Based on test data for structurally similar materials. Test(s) equivalent or similar to OECD Guideline 406
Aspiration: Data available.	May be harmful if swallowed and enters airways. Based on

	physico-chemical properties of the material.
Germ Cell Mutagenicity: Data available.	Not expected to be a germ cell mutagen. Based on test data for structurally similar materials. Test(s) equivalent or similar to OECD Guideline 471 473 476
Carcinogenicity: No end point data for material.	Not expected to cause cancer.
Reproductive Toxicity: Data available.	Not expected to be a reproductive toxicant. Based on test data for structurally similar materials. Test(s) equivalent or similar to OECD Guideline 414
Lactation: No end point data for material.	Not expected to cause harm to breast-fed children.
Specific Target Organ Toxicity (STOT)	
Single Exposure: No end point data for material.	Not expected to cause organ damage from a single exposure.
Repeated Exposure: Data available.	Not expected to cause organ damage from prolonged or repeated exposure. Based on test data for structurally similar materials. Test(s) equivalent or similar to OECD Guideline 407 410 422

OTHER INFORMATION

For the product itself:

Vapour concentrations above recommended exposure levels are irritating to the eyes and the respiratory tract, may cause headaches and dizziness, are anaesthetic and may have other central nervous system effects. Small amounts of liquid aspirated into the lungs during ingestion or from vomiting may cause chemical pneumonitis or pulmonary edema.

IARC Classification:

The following ingredients are cited on the lists below: None.

--REGULATORY LISTS SEARCHED--

1 = IARC 1 2 = IARC 2A 3 = IARC 2B

SECTION 12 ECOLOGICAL INFORMATION

The information given is based on data available for the material, the components of the material, and similar materials.

ECOTOXICITY

Material -- Expected to be toxic to aquatic organisms.

Material -- Expected to be harmful to aquatic organisms. May cause long-term adverse effects in the aquatic environment.

MOBILITY

Material -- Expected to remain in water or migrate through soil.

PERSISTENCE AND DEGRADABILITY

Biodegradation:

Material -- Expected to be readily biodegradable.

Hydrolysis:

Material -- Transformation due to hydrolysis not expected to be significant.

Photolysis:

Material -- Transformation due to photolysis not expected to be significant.

Atmospheric Oxidation:

Material -- Expected to degrade rapidly in air

BIOACCUMULATION POTENTIAL

Material -- Potential to bioaccumulate is low.

ECOLOGICAL DATA

Ecotoxicity

Test	Duration	Organism Type	Test Results
Aquatic - Acute Toxicity	72 hour(s)	Alga	EC50 2.4 mg/l: Model prediction
Aquatic - Acute Toxicity	48 hour(s)	Daphnia magna	EL50 6.2 mg/l: data for the material
Aquatic - Acute Toxicity	96 hour(s)	Oncorhynchus mykiss	LC50 3.1 mg/l: data for the material
Aquatic - Chronic Toxicity	72 hour(s)	Alga	NOEC 0.89 mg/l: Model prediction
Aquatic - Chronic Toxicity	30 day(s)	Fish	NOEC 0.26 mg/l: Model prediction
Aquatic - Chronic Toxicity	16 day(s)	Invertebrate	NOEC 0.26 mg/l: Model prediction

Persistence, Degradability and Bioaccumulation Potential

Media	Test Type	Duration	Test Results
Water	Bioaccumulation	16 day(s)	BCF 21 L/kg: material
Feed	Dietary Bioaccumulation	22 day(s)	BMF 0.016 : material
Water	Ready Biodegradability	28 day(s)	Percent Degraded 83 : material

SECTION 13 DISPOSAL CONSIDERATIONS

DISPOSAL METHODS

Disposal recommendations based on material as supplied. Disposal must be in accordance with current applicable laws and regulations, and material characteristics at time of disposal.

DISPOSAL RECOMMENDATIONS

Suitable routes of disposal are supervised incineration, preferentially with energy recovery, or appropriate recycling methods in accordance with applicable regulations and material characteristics at the time of disposal.

Empty Container Warning Empty Container Warning (where applicable): Empty containers may contain residue and can be dangerous. Do not attempt to refill or clean containers without proper instructions. Empty drums should be completely drained and safely stored until appropriately reconditioned or disposed. Empty containers should be taken for recycling, recovery, or disposal through suitably qualified or licensed contractor and in accordance with governmental regulations. DO NOT PRESSURISE, CUT, WELD, BRAZE, SOLDER, DRILL, GRIND, OR EXPOSE SUCH CONTAINERS TO HEAT, FLAME, SPARKS, STATIC ELECTRICITY, OR OTHER SOURCES OF IGNITION.

THEY MAY EXPLODE AND CAUSE INJURY OR DEATH.

SECTION 14 TRANSPORT INFORMATION

LAND (ADR/RID) : Not Regulated for Land Transport

SEA (IMDG): Not Regulated for Sea Transport according to IMDG-Code

Marine Pollutant: No

SEA (MARPOL 73/78 Convention - Annex II)

Product Name: DECYL ALCOHOL (ALL ISOMERS)
Ship type: 2
Pollution category: Y

AIR (IATA): Not Regulated for Air Transport

SECTION 15 REGULATORY INFORMATION

Material is hazardous according to UN GHS Criteria.

REGULATORY STATUS AND APPLICABLE LAWS AND REGULATIONS

Listed or exempt from listing/notification on the following chemical inventories (May contain substance(s) subject to notification to the EPA Active TSCA inventory prior to import to USA): AICS, DSL, ENCS, IECSC, KECI, PICCS, TCSI, TSCA

SECTION 16 OTHER INFORMATION

N/D = Not determined, N/A = Not applicable
KEY TO THE H-CODES CONTAINED IN SECTION 3 OF THIS DOCUMENT (for information only):
H303: May be harmful if swallowed; Acute Tox Oral, Cat 5
H305: May be harmful if swallowed and enters airways; Aspiration, Cat 2
H315: Causes skin irritation; Skin Corr/Irritation, Cat 2
H401: Toxic to aquatic life; Acute Env Tox, Cat 2
H412: Harmful to aquatic life with long lasting effects; Chronic Env Tox, Cat 3

THIS SAFETY DATA SHEET CONTAINS THE FOLLOWING REVISIONS:
Composition: Component Table information was modified.
GHS Health Classification information was modified.
GHS Health Hazards information was modified.
GHS Health Symbol information was modified.
GHS Precautionary Statements - Prevention information was modified.
GHS Precautionary Statements - Response information was modified.
Hazard Identification: Health Hazards information was modified.

Section 01: Company Contact Methods information was modified.
Section 05: Fire Fighting Measures - Unusual Fire Hazards information was added.
Section 07: Materials/Coatings - Suitable information was modified.
Section 07: Materials/Coatings - Unsuitable information was modified.
Section 07: Suitable Containers information was modified.
Section 08: Exposure Limits Table information was modified.
Section 11: Other Health Effects information was modified.
Section 11: Skin Irritation Conclusion information was modified.
Section 16: HCode Key information was modified.
Revision Date: 25 Jun 2018
