SAFETY DATA SHEET
Mexican official standard NOM-018-STPS-2015

NGL - Commercial Grade Butane (non odorized)

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SECTION 1. IDENTIFICATION OF THE HAZARDOUS PRODUCT OR MIXTURE AND THE SUPPLIER OR MANUFACTURER

Product name : NGL - Commercial Grade Butane (non odorized)

Product code : X3510

Manufacturer or supplier's details

Company : **Shell Chemical LP**
PO Box 576
HOUSTON TX 77001
USA

SDS Request : +52 (55) 3223 9057

Customer Service :

Emergency telephone number

Chemtrec Domestic (24 hr) : SETIQ ANIQ 01 800 002 1400 (Rep. Mexicana), +52 (55) 5559 1588 (local e internacional); CHEMTREC +1 (703) 527-3887 (Internacional)

Chemtrec International (24 hr) :

Recommended use of the chemical and restrictions on use

Recommended use : Used as a domestic, commercial, industrial and automotive fuel, a feedstock in chemical processes.

Restrictions on use : This product must not be used in applications other than those listed in Section 1 without first seeking the advice of the supplier.

SECTION 2. HAZARDS IDENTIFICATION

GHS Classification

Flammable gases : Category 1

Gases under pressure : Liquefied gas

GHS label elements

Hazard pictograms :

Signal word : Danger

Hazard statements : PHYSICAL HAZARDS:
H220 Extremely flammable gas.
H280 Contains gas under pressure; may explode if heated.
HEALTH HAZARDS:
Not classified as a health hazard under GHS criteria.
ENVIRONMENTAL HAZARDS:
Not classified as a physical hazard under GHS criteria.

Precautionary statements :

Prevention:

P102 Keep out of reach of children.
P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P243 Take action to prevent static discharges.

Response:

P377 Leaking gas fire: Do not extinguish, unless leak can be stopped safely.
P381 In case of leakage, eliminate all ignition sources.

Storage:

P410 + P403 Protect from sunlight. Store in a well-ventilated place.

Disposal:

No precautionary phrases.

Other hazards which do not result in classification

Electrostatic charges may be generated during pumping. Electrostatic discharge may cause fire.
Vapours are heavier than air. Vapours may travel across the ground and reach remote ignition sources causing a flashback fire danger.
High gas concentrations will displace available air; unconsciousness and death may occur suddenly from lack of oxygen.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Hazardous components

Chemical name	CAS-No.	Concentration (% w/w)
isobutane	75-28-5	20 -60
butane	106-97-8	20 -60
propane	74-98-6	< 10
Aliphatic hydrocarbons, C5 and greater	68647-60-9	< 10

SECTION 4. FIRST-AID MEASURES

General advice : Not expected to be a health hazard when used under normal conditions.

If inhaled : Call emergency number for your location / facility.

		Remove to fresh air. Do not attempt to rescue the victim unless proper respiratory protection is worn. If the victim has difficulty breathing or tightness of the chest, is dizzy, vomiting, or unresponsive, give 100% oxygen with rescue breathing or Cardio-Pulmonary Resuscitation as required and transport to the nearest medical facility.
In case of skin contact	:	Remove contaminated clothing. Flush exposed area with water and follow by washing with soap if available. If persistent irritation occurs, obtain medical attention. In the event of frostbite, slowly warm the exposed area by rinsing with warm water. Transport to the nearest medical facility for additional treatment.
In case of eye contact	:	Flush eye with copious quantities of water. Remove contact lenses, if present and easy to do. Continue rinsing. If persistent irritation occurs, obtain medical attention. In the event of frostbite, slowly warm the exposed area by rinsing with warm water. Transport to the nearest medical facility for additional treatment.
If swallowed	:	In the unlikely event of ingestion, obtain medical attention immediately.
Most important symptoms and effects, both acute and delayed	:	Breathing of high vapour concentrations may cause central nervous system (CNS) depression resulting in dizziness, lightheadedness, headache and nausea. Rapid release of gases which are liquids under pressure may cause frost burns of exposed tissues (skin, eye) due to evaporative cooling.
Protection of first-aiders	:	When administering first aid, ensure that you are wearing the appropriate personal protective equipment according to the incident, injury and surroundings.
Indication of any immediate medical attention and special treatment needed	:	IMMEDIATE TREATMENT IS EXTREMELY IMPORTANT! Artificial respiration and/or oxygen may be necessary. Call a doctor or poison control center for guidance. Treat symptomatically.

SECTION 5. FIRE-FIGHTING MEASURES

Suitable extinguishing media	:	Shut off supply. If not possible and no risk to surroundings, let the fire burn itself out. Dry chemical Carbon dioxide (CO2) Keep containers and surroundings cool with water spray. Large fires should only be fought by properly trained fire fight-

ers.

Unsuitable extinguishing media	:	Do not use direct water jets on the burning product as they could cause a steam explosion and spread of the fire.
Specific hazards during fire-fighting	:	Hazardous combustion products may include: Carbon monoxide may be evolved if incomplete combustion occurs. Unidentified organic and inorganic compounds. Sustained fire attack on vessels may result in a Boiling Liquid Expanding Vapor Explosion (BLEVE). Contents are under pressure and can explode when exposed to heat or flames. The vapour is heavier than air, spreads along the ground and distant ignition is possible.
Specific extinguishing methods	:	Clear fire area of all non-emergency personnel. Keep adjacent containers cool by spraying with water. If possible remove containers from the danger zone. If the fire cannot be extinguished the only course of action is to evacuate immediately.
Special protective equipment for firefighters	:	Proper protective equipment including chemical resistant gloves are to be worn; chemical resistant suit is indicated if large contact with spilled product is expected. Self-Contained Breathing Apparatus must be worn when approaching a fire in a confined space. Select fire fighter's clothing approved to relevant Standards (e.g. Europe: EN469).

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures	:	Shut off leaks, if possible without personal risks. Remove all possible sources of ignition in the surrounding area and evacuate all personnel. Attempt to disperse the gas or to direct its flow to a safe location for example by using fog sprays. Take precautionary measures against static discharge. Ensure electrical continuity by bonding and grounding (earthing) all equipment. Monitor area with combustible gas meter. Vapour may form an explosive mixture with air. Test atmosphere for flammable gas concentrations to ensure safe working conditions before personnel are allowed to enter the area. Notify authorities if any exposure to the general public or the environment occurs or is likely to occur. Vapour may form an explosive mixture with air.
Environmental precautions	:	Use appropriate containment to avoid environmental contamination. Risk of explosion. Inform the emergency services if product enters surface water drains.

Methods and materials for containment and cleaning up	:	Allow to evaporate. Attempt to disperse the gas or to direct its flow to a safe location, for example by using fog sprays. Evacuate the area of all non-essential personnel. Ventilate contaminated area thoroughly. Avoid contact with skin, eyes and clothing.
Additional advice	:	For guidance on selection of personal protective equipment see Chapter 8 of this Safety Data Sheet. For guidance on disposal of spilled material see Chapter 13 of this Safety Data Sheet. Local authorities should be advised if significant spillages cannot be contained.

SECTION 7. HANDLING AND STORAGE

Technical measures	:	Avoid breathing of or direct contact with material. Only use in well ventilated areas. Wash thoroughly after handling. For guidance on selection of personal protective equipment see Chapter 8 of this Safety Data Sheet. Use the information in this data sheet as input to a risk assessment of local circumstances to help determine appropriate controls for safe handling, storage and disposal of this material. Air-dry contaminated clothing in a well-ventilated area before laundering. Use local exhaust ventilation if there is risk of inhalation of vapours, mists or aerosols. Take precautionary measures against static discharges.
Precautions that must be taken to ensure safe handling	:	This product can create a low temperature exposure hazard when released as a liquid. Extinguish any naked flames. Do not smoke. Remove ignition sources. Avoid sparks. Avoid prolonged or repeated contact with skin. Electrostatic charges may be generated during pumping. Electrostatic discharge may cause fire. Earth all equipment. Use local exhaust ventilation if there is risk of inhalation of vapours, mists or aerosols. This product is intended for use in closed systems only. Ensure that all local regulations regarding handling and storage facilities are followed.
Avoidance of contact	:	Strong oxidising agents.
Product Transfer	:	Do not use compressed air for filling discharge or handling. Electrostatic charges may be generated during pumping. Electrostatic discharge may cause fire. Ensure electrical continuity

by bonding and grounding (earthing) all equipment. Delivery lines may become cold enough to present a cold burns hazard.

Further information on storage stability : Store only in purpose-designed, appropriately labelled pressure vessels or cylinders.
Must be stored in a well-ventilated area, away from sunlight, ignition sources and other sources of heat.
Do not store near cylinders containing compressed oxygen or other strong oxidizers.
Refer to section 15 for any additional specific legislation covering the packaging and storage of this product.

Packaging material : Suitable material: For containers and container linings, use materials specifically approved for use with this product., Examples of suitable materials are: PA-11, PEEK, PVDF, PTFE, GRE (Epoxy), GRVE (vinyl ester), Viton (FKM), type F and GB, Neoprene (CR).
Unsuitable material: Some forms of cast iron., Examples of materials to avoid are: ABS, polymethyl methacrylate (PMMA), polyethylene (PE / HDPE), polypropylene (PP), PVC, natural rubber (NR), Nitrile (NBR) ethylene propylene rubber (EPDM), Butyl (IIR), Hypalon (CSM), polystyrene, polyvinyl chloride (PVC), polyisobutylene., For containers and container linings, aluminium should not be used if there is a risk of caustic contamination of the product.

Container Advice : Containers, even those that have been emptied, can contain explosive vapours. Do not cut, drill, grind, weld or perform similar operations on or near containers.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
isobutane	75-28-5	VLE-PPT	1,000 ppm	NOM-010-STPS-2014
butane	106-97-8	LMPE-PPT	800 ppm 1,900 mg/m3	MX OEL
butane		VLE-PPT	1,000 ppm	NOM-010-STPS-2014
propane	74-98-6	VLE-PPT	1,000 ppm	NOM-010-STPS-2014

Biological occupational exposure limits

No biological limit allocated.

Monitoring Methods

Monitoring of the concentration of substances in the breathing zone of workers or in the general workplace may be required to confirm compliance with an OEL and adequacy of exposure controls. For some substances biological monitoring may also be appropriate.
Validated exposure measurement methods should be applied by a competent person and samples analysed by an accredited laboratory.
Examples of sources of recommended exposure measurement methods are given below or contact the supplier. Further national methods may be available.

National Institute of Occupational Safety and Health (NIOSH), USA: Manual of Analytical Methods http://www.cdc.gov/niosh/
Occupational Safety and Health Administration (OSHA), USA: Sampling and Analytical Methods http://www.osha.gov/
Health and Safety Executive (HSE), UK: Methods for the Determination of Hazardous Substances http://www.hse.gov.uk/
Institut für Arbeitsschutz Deutschen Gesetzlichen Unfallversicherung (IFA) , Germany http://www.dguv.de/inhalt/index.jsp
L'Institut National de Recherche et de Securité, (INRS), France http://www.inrs.fr/accueil

Engineering measures : The level of protection and types of controls necessary will vary depending upon potential exposure conditions. Select controls based on a risk assessment of local circumstances.
Appropriate measures include:
Use sealed systems as far as possible.
Adequate explosion-proof ventilation to control airborne concentrations below the exposure guidelines/limits.
Local exhaust ventilation is recommended.

General Information:

Always observe good personal hygiene measures, such as washing hands 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.
Define procedures for safe handling and maintenance of controls.
Educate and train workers in the hazards and control measures relevant to normal activities associated with this product.
Ensure appropriate selection, testing and maintenance of equipment used to control exposure, e.g. personal protective equipment, local exhaust ventilation.
Drain down system prior to equipment break-in or maintenance.

Personal protective equipment

Respiratory protection : If engineering controls do not maintain airborne concentrations to a level which is adequate to protect worker health, select respiratory protection equipment suitable for the spe-

cific conditions of use and meeting relevant legislation.
Check with respiratory protective equipment suppliers.
Where air-filtering respirators are unsuitable (e.g. airborne concentrations are high, risk of oxygen deficiency, confined space) use appropriate positive pressure breathing apparatus.
Where air-filtering respirators are suitable, select an appropriate combination of mask and filter.

Select a filter suitable for organic gases and vapours [Type AX boiling point ≤65°C (149°F)].

Hand protection
Remarks : Suitability and durability of a glove is dependent on usage, e.g. frequency and duration of contact, chemical resistance of glove material, dexterity. Always seek advice from glove suppliers. Contaminated gloves should be replaced. Personal hygiene is a key element of effective hand care. Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly. Application of a non-perfumed moisturizer is recommended. Where hand contact with the product may occur the use of gloves approved to relevant standards (e.g. Europe: EN374, US: F739) made from the following materials may provide suitable chemical protection. Neoprene rubber. Nitrile rubber. If contact with liquefied product is possible or anticipated, gloves should be thermally insulated to prevent cold burns.

Eye protection : Wear goggles for use against liquids and gas, combined with face shield with chin guard.

Skin and body protection : Chemical and cold resistant gloves/gauntlets, boots, and apron.

Protective measures : Personal protective equipment (PPE) should meet recommended national standards. Check with PPE suppliers.

Thermal hazards : When handling cold material that can cause frost burns, wear heat resistant gloves, safety hat and visor, cold resistant overalls (with cuffs over gloves and legs over boots) and heavy duty boots e.g. leather for cold resistance.

Environmental exposure controls

General advice : Local guidelines on emission limits for volatile substances must be observed for the discharge of exhaust air containing vapour.
Information on accidental release measures are to be found in section 6.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	:	compressed liquefied gas
Colour	:	colourless
Odour	:	odourless
Odour Threshold	:	Data not available
pH	:	Not applicable
Freezing point	:	-138 °C / -216 °F
Initial boiling point and boiling range	:	Typical < -1 °C / < 30 °F
Flash point	:	-60 °C / -76 °F Method: Tag Closed Cup (ASTM D56)
Evaporation rate	:	Data not available
Flammability (solid, gas)	:	Extremely flammable.
Upper explosion limit / upper flammability limit	:	8.5 %(V)
Lower explosion limit / Lower flammability limit	:	Typical 1.9 %(V)
Vapour pressure	:	> 2,431 hPa (25 °C / 77 °F)
Relative vapour density	:	2 (Air = 1.0)
Relative density	:	Data not available
Density	:	Data not available
Solubility(ies)		
Water solubility	:	slight
Solubility in other solvents	:	Alcohol(s), Ether(s)
Partition coefficient: n-octanol/water	:	log Pow: 2.8
Auto-ignition temperature	:	Typical 287 - 537 °C / 549 - 999 °F ca. 287 °C / 549 °F

Decomposition temperature	:	Data not available
Viscosity		
Viscosity, dynamic	:	Data not available
Viscosity, kinematic	:	Data not available
Explosive properties	:	Classification Code: Not classified
Oxidizing properties	:	Not applicable
Surface tension	:	Data not available
Conductivity	:	Low conductivity: < 100 pS/m, The conductivity of this material makes it a static accumulator., A liquid is typically considered nonconductive if its conductivity is below 100 pS/m and is considered semi-conductive if its conductivity is below 10,000 pS/m., Whether a liquid is nonconductive or semiconductive, the precautions are the same., A number of factors, for example liquid temperature, presence of contaminants, and anti-static additives can greatly influence the conductivity of a liquid
Molecular weight	:	58.1 g/mol

SECTION 10. STABILITY AND REACTIVITY

Reactivity	:	No, product will not become self-reactive.
Chemical stability	:	Stable.
Possibility of hazardous reactions	:	No hazardous reaction is expected when handled and stored according to provisions
Conditions to avoid	:	Avoid heat, sparks, open flames and other ignition sources. Prevent vapour accumulation. In certain circumstances product can ignite due to static electricity.
Incompatible materials	:	Strong oxidising agents.
Hazardous decomposition products	:	Hazardous decomposition products are not expected to form during normal storage.

SECTION 11. TOXICOLOGICAL INFORMATION

Basis for assessment : Information given is based on product testing.

Information on likely routes of exposure

Inhalation is the primary route of exposure although exposure may occur through skin or eye contact.

Acute toxicity

Product:

Acute oral toxicity	:	Remarks: Not applicable
Acute inhalation toxicity	:	LC 50 (Rat): > 20000 ppmV Exposure time: 4 h Remarks: Low toxicity:
Acute dermal toxicity	:	Remarks: Not applicable
Acute toxicity (other routes of administration)	:	Remarks: Inhalation of vapours or mists may cause irritation to the respiratory system.

Skin corrosion/irritation

Product:

Remarks: Not irritating to skin.

Serious eye damage/eye irritation

Product:

Remarks: Essentially non-irritating to eyes.

Respiratory or skin sensitisation

Product:

Remarks: Not a sensitiser.
Based on available data, the classification criteria are not met.

Germ cell mutagenicity

Product:

: Remarks: Non mutagenic, Based on available data, the classification criteria are not met.

Carcinogenicity

Product:

Remarks: Not a carcinogen., Based on available data, the classification criteria are not met.

IARC	No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

OSHA No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

NTP No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

Reproductive toxicity

Product:

:
Remarks: Not a developmental toxicant., Does not impair fertility., Based on available data, the classification criteria are not met.

STOT - single exposure

Product:
Remarks: High concentrations may cause central nervous system depression resulting in headaches, dizziness and nausea; continued inhalation may result in unconsciousness and/or death.

STOT - repeated exposure

Product:
Remarks: Low systemic toxicity on repeated exposure.

Aspiration toxicity

Product:
Not an aspiration hazard.

Further information

Product:
Remarks: Rapid release of gases which are liquids under pressure may cause frost burns of exposed tissues (skin, eye) due to evaporative cooling., High gas concentrations will displace available air; unconsciousness and death may occur suddenly from lack of oxygen., Exposure to very high concentrations of similar materials has been associated with irregular heart rhythms and cardiac arrest.

Remarks: Classifications by other authorities under varying regulatory frameworks may exist.

SECTION 12. ECOTOXICOLOGICAL INFORMATION

Basis for assessment : Ecotoxicological data have not been determined specifically for this product.
Information given is based on a knowledge of the components

and the ecotoxicology of similar products.

Ecotoxicity

Product:

Toxicity to fish (Acute toxicity)	:	Remarks: LL/EL/IL50 > 100 mg/l Practically non toxic: Based on available data, the classification criteria are not met.
Toxicity to daphnia and other aquatic invertebrates (Acute toxicity)	:	Remarks: LL/EL/IL50 > 100 mg/l Practically non toxic: Based on available data, the classification criteria are not met.
Toxicity to algae (Acute toxicity)	:	Remarks: LL/EL/IL50 > 100 mg/l Practically non toxic: Based on available data, the classification criteria are not met.
Toxicity to fish (Chronic toxicity)	:	Remarks: Data not available
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)	:	Remarks: Data not available
Toxicity to microorganisms (Acute toxicity)	:	Remarks: LL/EL/IL50 > 100 mg/l Practically non toxic: Based on available data, the classification criteria are not met.

Persistence and degradability

Product:

Biodegradability	:	Remarks: Inherently biodegradable. Oxidises rapidly by photo-chemical reactions in air.

Bioaccumulative potential

Product:

Bioaccumulation	:	Remarks: Does not bioaccumulate significantly.

Mobility in soil

Product:

Mobility	:	Remarks: Evaporates extremely rapidly from water or soil surfaces. Disperses rapidly in air.

Other adverse effects

Product:

Additional ecological information : In view of the high rate of loss from solution, the product is unlikely to pose a significant hazard to aquatic life.

SECTION 13. INFORMATION ON PRODUCT DISPOSAL

Disposal methods

Waste from residues : It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste classification and disposal methods in compliance with applicable regulations.
Waste arising from a spillage or tank cleaning should be disposed of in accordance with prevailing regulations, preferably to a recognised collector or contractor. The competence of the collector or contractor should be established beforehand.
Do not dispose into the environment, in drains or in water courses
Given the nature and uses of this product, the need for disposal seldom arises. If necessary, dispose by controlled combustion in purpose-designed equipment. If this is not possible, contact the supplier.

Contaminated packaging : Drain container thoroughly.
After draining, vent in a safe place away from sparks and fire.
Residues may cause an explosion hazard.
Do not pollute the soil, water or environment with the waste container.
Return part-used or empty cylinders to the supplier.
For tanks seek specialist advice from suppliers.
Dispose in accordance with prevailing regulations, preferably to a recognized collector or contractor. The competence of the collector or contractor should be established beforehand.

Local legislation

Remarks : Disposal should be in accordance with applicable regional, national, and local laws and regulations.
Local regulations may be more stringent than regional or national requirements and must be complied with.

SECTION 14. TRANSPORT INFORMATION

National Regulations

International Regulations

IATA-DGR

UN/ID No. : UN 1075

Proper shipping name	:	PETROLEUM GASES, LIQUEFIED
Class	:	2.1
Packing group	:	Not Assigned
Labels	:	2.1

IMDG-Code

UN number	:	UN 1075
Proper shipping name	:	PETROLEUM GASES, LIQUEFIED
Class	:	2.1
Packing group	:	Not Assigned
Labels	:	2.1
Marine pollutant	:	no

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable for product as supplied. MARPOL Annex 1 rules apply for bulk shipments by sea.

Special precautions for user

Not applicable

SECTION 15. REGULATORY INFORMATION

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

Other regulations:

The regulatory information is not intended to be comprehensive. Other regulations may apply to this material.

The components of this product are reported in the following inventories:

PICCS	:	All components listed.
EINECS/ELINCS/EC	:	All components listed.
IECSC	:	All components listed.
DSL	:	All components listed.
ENCS	:	All components listed.
AIIC	:	All components listed.
TSCA	:	All components listed.
KECI	:	All components listed.
NZIoC	:	All components listed.
CH INV	:	All components listed.

SECTION 16. OTHER INFORMATION

Further information

NFPA Rating (Health, Fire, Reactivity)	1, 4, 0

Full text of other abbreviations

MX OEL	:	Mexico. Occupational Exposure Limits
NOM-010-STPS-2014	:	Mexico. Norm NOM-010-STPS-2014 on Chemicals Polluting the Work Environment - Identification, Assessment and Control - Appendix 1 Occupational Exposure Limits
MX OEL / LMPE-PPT	:	Time weighted average
NOM-010-STPS-2014 / VLE-PPT	:	Time weighted average limit value
Abbreviations and Acronyms	:	The standard abbreviations and acronyms used in this document can be looked up in reference literature (e.g. scientific dictionaries) and/or websites. ACGIH = American Conference of Governmental Industrial Hygienists ADR = European Agreement concerning the International Carriage of Dangerous Goods by Road AICS = Australian Inventory of Chemical Substances ASTM = American Society for Testing and Materials BEL = Biological exposure limits BTEX = Benzene, Toluene, Ethylbenzene, Xylenes CAS = Chemical Abstracts Service CEFIC = European Chemical Industry Council CLP = Classification Packaging and Labelling COC = Cleveland Open-Cup DIN = Deutsches Institut fur Normung DMEL = Derived Minimal Effect Level DNEL = Derived No Effect Level DSL = Canada Domestic Substance List EC = European Commission EC50 = Effective Concentration fifty ECETOC = European Center on Ecotoxicology and Toxicology Of Chemicals ECHA = European Chemicals Agency EINECS = The European Inventory of Existing Commercial Chemical Substances EL50 = Effective Loading fifty ENCS = Japanese Existing and New Chemical Substances Inventory EWC = European Waste Code GHS = Globally Harmonised System of Classification and Labelling of Chemicals IARC = International Agency for Research on Cancer

IATA = International Air Transport Association
IC50 = Inhibitory Concentration fifty
IL50 = Inhibitory Level fifty
IMDG = International Maritime Dangerous Goods
INV = Chinese Chemicals Inventory
IP346 = Institute of Petroleum test method N° 346 for the determination of polycyclic aromatics DMSO-extractables
KECI = Korea Existing Chemicals Inventory
LC50 = Lethal Concentration fifty
LD50 = Lethal Dose fifty per cent.
LL/EL/IL = Lethal Loading/Effective Loading/Inhibitory loading
LL50 = Lethal Loading fifty
MARPOL = International Convention for the Prevention of Pollution From Ships
NOEC/NOEL = No Observed Effect Concentration / No Observed Effect Level
OE_HPV = Occupational Exposure - High Production Volume
PBT = Persistent, Bioaccumulative and Toxic
PICCS = Philippine Inventory of Chemicals and Chemical Substances
PNEC = Predicted No Effect Concentration
REACH = Registration Evaluation And Authorisation Of Chemicals
RID = Regulations Relating to International Carriage of Dangerous Goods by Rail
SKIN_DES = Skin Designation
STEL = Short term exposure limit
TRA = Targeted Risk Assessment
TSCA = US Toxic Substances Control Act
TWA = Time-Weighted Average
vPvB = very Persistent and very Bioaccumulative

A vertical bar (|) in the left margin indicates an amendment from the previous version.

Sources of key data used to compile the Safety Data Sheet	:	The quoted data are from, but not limited to, one or more sources of information (e.g. toxicological data from Shell Health Services, material suppliers' data, CONCAWE, EU IUCLID date base, EC 1272 regulation, etc).
Revision Date	:	06/26/2018

The information is considered as correct, but not exhaustive, and will be used only as a guide, which is based in the current knowledge of the substance or mixture, and is applicable to proper safety precautions for the product.

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific

material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

MX / EN