SECTION 1 - PRODUCT AND COMPANY IDENTIFICATION

Product Name:…… OXIDIZED ASPHALT

Commercial name ……..ADRIABITOX P.A. VARIABILE

Use of the product :……. ROADS PAVING, MISCELLANEOUS INDUSTRIAL APPLICATION

Registration Number: 01-2119498270-36-0051

N° CAS :64742-93-4 -- N° EINECS: 265-196-4

Intended use: Road paving, membranes, protective, roofing, sealants

IDENTIFIED USES IN THE CHEMICAL SAFETY REPORT: general list of applications:

INDUSTRIAL USE: production of the substance (GEST1_I), use as an intermediate (GEST1B_I), distribution of the substance (GEST1A_I) formulation and (re) packing of substances and mixtures (GEST2_I), use in coatings (GEST3_I), Use in drilling activity and production of wells for the extraction of oil and natural gas (GEST5_I) Production and processing of rubber (GEST19_I

PROFESSIONAL USE: Use in coatings (GEST3_I), Use in drilling activity and production wells for the extraction of oil and natural gas (GEST5_I), road and construction applications (GEST15-P), lubricants (GEST6_I)

CONSUMERS: Use in coatings (GEST3_I)

See the attachment for the complete list of jobs

N.B. use not provided for this product

Non allowed use: out of intended use, it is not recommended if not evaluated, before any action, the risk assessment of the new use, to demonstrate that associated risk is under control.

COMPANY IDENTIFICATION :

Supplier **ADRIATICA BITUMI S.p.A.**
Address Via Pacifico Massimi, 3
City / State 63100 Ascoli Piceno Italia
Phone tel. +39 0736 258226 - fax **+39** 0736 252186

E-mail : info@adriaticabitumi.it

24 Hours Environmental / Health Emergency Telephone:

Centro antiveleni Ospedale Niguarda Tel +39 02 66101029

SECTION 2 - HAZARDS IDENTIFICATION

According to regulatory guidelines, this material is not considered to be hazardous (see Section 15).

PHYSICAL / CHEMICAL HAZARDS

Thermal burn hazard - contact with hot material may cause thermal burns.

HEALTH HAZARDS

Exposure to high fume concentrations from heated asphalt may cause eye and respiratory tract irritation. Low order of toxicity. Hydrogen sulphide, a highly toxic gas, may be present. Signs and symptoms of overexposure to hydrogen sulphide include respiratory and eye irritation, dizziness, nausea, coughing, a sensation of dryness and pain in the nose, and loss of consciousness. Odor does not provide a reliable indicator of the presence of hazardous levels in the atmosphere. Fumes may contain Hydrogen sulfide (toxic gas) which may reach high concentration in closed ambient such as storage tanks free space.

ENVIRONMENTAL HAZARDS

No risk for environment, according to classification criteria from EU Regulation 1272/2008, and Annex VI Directive 67/548/CEE and Directive 2006/121/CE.

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.

NOTE: This material does not meet classification criteria PBT or vPvB from REACH legislation Annex XIII

SECTION 3 - COMPOSITION / INFORMATION ON INGREDIENTS

The substance is a complex UVCB : CAS 64742-93-4/EINECS 265-196-4
Complex black solid obtained by blowing air through a heated residue or by a fine from a deasphalting process, with or without catalyst. The process is based mainly on an oxidative condensation which causes the increase of molecular weight "): 100% by weight.

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. If burned by contact with hot material, molten material adhering to skin should be cooled as quickly as possible with water, and see a physician for removal of adhering material and treatment of burn.

EYE CONTACT

Flush thoroughly with water for at least 15 minutes. Get medical assistance.

INGESTION

First aid is normally not required. Seek medical attention if discomfort occurs.

SECTION 5 - FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA

Appropriate Extinguishing Media: Use dry chemical, carbon dioxide (CO2), or a dry, non-combustible material such as dry sand or earth to extinguish flames.

Inappropriate Extinguishing Media: DO NOT USE WATER.

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.

Hazardous Combustion Products: Hydrogen sulphide, Smoke, Fume, Aldehydes, Sulphur oxides, Incomplete combustion products, Oxides of carbon

FLAMMABILITY PROPERTIES

Flash Point [Method] : >240C (464F) [EN/ISO 2592]
Flammable Limits (Approximate volume % in air): LEL: 0.5 UEL: 5.0
Auto ignition Temperature: N/D

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. See Section 5 for firefighting 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. For emergency responders: Respiratory protection: half-face or full-face respirator with filter(s) for organic vapor and, when applicable, H2S, or Self Contained Breathing Apparatus (SCBA) can be used depending on the size of spill and potential level of exposure. If the exposure cannot be completely characterized or an oxygen deficient atmosphere is possible or anticipated, SCBA is recommended. Chemical goggles and face shield are recommended if contact of eyes with hot product or vapors is possible. Small spills: normal work clothes are usually adequate. Large spills: full body suit of chemical and thermal resistant material is recommended. Work gloves (preferably gauntlet style) that provide adequate chemical resistance. Note: gloves made of polyvinyl acetate (PVA) are not water- resistant and are not suitable for emergency use.

If contact with hot product is possible or anticipated, heat-resistant and thermally insulated gloves are recommended.

SPILL MANAGEMENT
Land Spill: Stop leak if you can do so without risk. Do not touch or walk through spilled material. Prevent entry into waterways, sewer, basements or confined areas. Vapor-suppressing foam may be used to reduce vapor. Absorb or cover with dry earth, sand or other non-combustible material and transfer to containers.

Water Spill: Stop leak if you can do so without risk. Material will sink. Consult an expert.

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 vapor from heated materials to prevent exposure to potentially toxic/irritating fumes. Hydrogen sulphide (H2S) may be given off when this material is heated. Do not depend on sense of smell for warning. When heating to normal handling temperatures, avoid local overheating.
Use only with adequate ventilation. Prevent small spills and leakage to avoid slip hazard.

Loading/UnloadingTemperature: 200°C - 230°C max approximately;

Static Accumulator: This material is not a static accumulator.

STORAGE
Non-absorbent insulation such as foam glass is recommended for tankage and piping. Do not store in open or unlabeled containers.

Storage Temperature: never exceed 230°C.

SPECIFIC END USES: Section 1 informs about identified end-uses.

No industrial or sector specific guidance available.

SECTION 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE LIMIT VALUES

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

Asphalt (Bitumen fumes) ACGIH 2010: TLV®-TWA: 0,5 mg/m3

Hydrogen sulfide:

2009/161/UE Directive:		ACGIH 2010:	
Limit (8 ore):	5 ppm; 7 mg/m3	TLV®-TWA:	1 ppm
Limit (short term exposure)	10 ppm; 14 mg/m3	TLV®-STEL:	5 ppm

Note: Information about recommended monitoring procedures can be obtained from the relevant agency(ies)/institute(s)

DERIVED NO EFFECT LEVEL (DNEL)/DERIVED MINIMAL EFFECT LEVEL (DMEL)

Non determined as substances are not dangerous

Worker

Substance Name	Dermal	Inhalation
Asphalt	NA	2.9 mg/m3 DNEL, Chronic Exposure, Local Effects

Consumer

Substance Name	Dermal	Inhalation	Oral
Asphalt	NA	0.6 mg/m3 DNEL, Chronic Exposure, Local Effects	NA

Note: The Derived No Effect Level (DNEL) is an estimated safe level of exposure that is derived from toxicity data in accord with specific guidance within the European REACH regulation. The DNEL may differ from an Occupational Exposure Limit (OEL) for the same chemical. OELs may be recommended by an individual company, a governmental regulatory body or an expert organization, such as the Scientific Committee for Occupational Exposure Limits (SCOEL) or the American Conference of Governmental Industrial Hygienists (ACGIH). OELs are considered to be safe exposure levels for a typical worker in an occupational setting for an 8-hour work shift, 40 hour work week, as a time weighted average (TWA) or a 15 minute short-term exposure limit (STEL). While also considered to be protective of health, OELs are derived by a process different from that of REACH.

8.2 ENGINEERING CONTROLS

The level of protection and types of controls necessary will vary depending upon potential exposure conditions. Control measures to consider:
No special requirements under ordinary conditions of use and with adequate ventilation.

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:

Positive-pressure, air-supplied respirator in areas where H2S vapors may accumulate is recommended. European Committee for Standardization (CEN) standards EN 136, 140 and 405 provide respirator masks and EN 149 and 143 provide filter recommendations.

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/vapor 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:

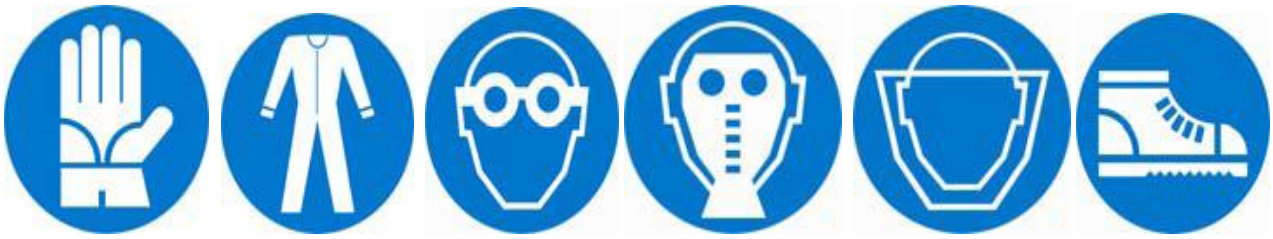
If product is hot, thermally protective, chemical resistant gloves are recommended. If contact with forearms is likely, wear gauntlet style gloves. CEN standards EN 420 and EN 374 provide general requirements and lists of glove types.

Eye Protection: If contact with material may occur, safety glasses and face shield 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:

If product is hot, thermally protective, chemical resistant apron and long sleeves are 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

See Sections 6, 7, 12, 13.

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

Typical physical and chemical properties are given below.
For additional data, consult the Supplier in Section 1.

Physical State:	**Solid**
Color:	**Black**
Odor:	**Petroleum/Solvent**
Odor Threshold:	**N/D**

IMPORTANT HEALTH, SAFETY, AND ENVIRONMENTAL INFORMATION

Relative Density (at 15° C): 0,925 - 1.15 EN ISO 12185/EN ISO 3838/EN
Flash Point [Method]: >240 °C (464 °F) [EN/ISO 2592]
Flammable Limits (Approx. vol. % in air): LEL: 0.5 UEL: 5.0

Auto ignition Temperature: N/D
Boiling Point / Range: > 400°C (752°F) [Estimated]
Vapor Density : N/A
Vapor Pressure: < 0.1 kPa at 20°C
Evaporation Rate (n-butyl acetate = 1): N/A
pH: N/A
Solubility in Water: Negligible
Viscosity: >50000 mm2/s a 60°C EN 12595
>5000 mm2/s a 135°C EN 12595
Explosive Properties: N/D

Organic solvent solubility: Soluble
Electrical conductivity: Insulating

SECTION 10 - STABILITY AND REACTIVITY

STABILITY: Material is stable under normal conditions.

CONDITIONS TO AVOID: Contact of hot product with water., Overheating.

MATERIALS TO AVOID: Halogens, Alkalies, Strong Acids, Strong oxidisers

HAZARDOUS DECOMPOSITION PRODUCTS: Material does not decompose at ambient temperatures. In closed areas, Hydrogen sulfide possible vapor may accumulate as it is heavier than air.

HAZARDOUS POLYMERIZATION: Will not occur.

SECTION 11 - TOXICOLOGICAL INFORMATION

The following is a summary of the most representative studies in the registration dossier

Acute toxicity:

The acute oral toxicity of the bitumen has been evaluated in some studies of rats from these studies is showed an acute oral LD50 greater than 5 g / kg which does not involve any classification in accordance with regulations on dangerous substances.

Oral:

Metodo	Risultato	Commenti	Fonte
RATTO M/F Somministrazione: gavage OECD Guideline 401	DL50:>5000 mg/kg (M/F)	Studio chiave CAS 64741-56-6	American Petroleum Institute (API) 1982a

Inhalation:

To assess the acute toxicity by the inhalation of bitumen there are some studies on rats.
From these studies has emerged a high acute inhalation LC50 which involves no classification under the regulations on dangerous substances.

Metodo	Risultato	Commenti	Fonte
RATTO M/F Vapori (naso soltanto) OECD Guideline 403	CL50: > 94,4 mg/m³ (M/F)	Studio chiave Read-across Aerosol di fumi condensati di bitume ossidato	Fraunhofer Institute of Toxicology and Aerosol Research (2000)

Dermal:

The acute toxicity via the dermal route of bitumen has been evaluated in several studies conducted on rabbits. From these studies has emerged an acute dermal LD50 greater than 2 g / kg which does not involve any classification in accordance with the regulations on dangerous substances.

Metodo	Risultato	Commenti	Fonte
CONIGLIO (maschi/femmine) Bendaggio occlusivo OECD Guideline 402 (Acute Dermal Toxicity)	DL50>2000 mg/kg (maschi/femmine)	Studio chiave CAS 64741-56-6	Studio di American Petroleum Institute (API) 1982a

Skin corrosion / irritation

The skin irritation potential of bitumen has been tested in some rabbit studies. The conclusions of these studies indicate absence of skin irritation.
These results do not lead to any classification in the regulations on dangerous substances.

Metodo	Risultato	Commenti	Fonte
CONIGLIO Bendaggio occlusivo OECD Guideline 404	Non irritante Punteggio medio Eritema: 0,1 di max. 4 (cute intatta) Indice Edema: 0,1 di max. 4 (cute intatta)	Studio chiave CAS 64741-56-6	American Petroleum Institute (API) 1982a

Serious eye damage / eye irritation
The potential for eye irritation of the bitumen has been tested in some rabbit studies
All studies showed no irritation of the eyes, it is therefore not necessary any classification of the substance

Metodo	Risultato	Commenti	Fonte
CONIGLIO OECD Guideline 405	Non irritante	Studio chiave CAS 64741-56-6	American Petroleum Institute (API) 1982a

Respiratory or skin sensitization

There are some studies conducted to test the sensitizing potential of the bitumen.
The results obtained from these studies indicate the absence of skin sensitization potential, it is therefore required no classification of the substance.

Metodo	Risultato	Commenti	Fonte
PORCELLINO D'INDIA OECD Guideline 406	Non sensibilizzante	Sudio chiave CAS 64741-56-6)	American Petroleum Institute (API) 1983a

Germ cell mutagenicity

The mutagenic potential of the bitumen has been widely studied in a number of tests in vivo and in vitro. The majority of studies have not shown consistent evidence of mutagenic activity, therefore there will be no classification under the rules on hazardous substances

In vitro studies:

Metodo	Risultato	Commenti	Fonte
Test di Ames con e senza attivazione metabolica S. typhimurium TA98, T100, YG 1041, YG 1042 Dosi: ≤ 10 µL and 0.1 mL (OECD Guideline 471 (Bacterial Reverse Mutation Assay)	Negativo senza attivazione metabolica Positivo con attivazione metabolica	Studio chiave Condensati di fumi di bitume	De Meo, M., Genevois, C., Brandt, H, Laget, M., Bartsch, H., Castegnaro, M. (1996)

In vivo studies:

Metodo	Risultato	Commenti	Fonte
Saggio mutagenicità transgenica in animali RATTO (maschi) Via di somministrazione: inalazione vapori Dosi: 100, mg/m3 (idrocarburi totali)	Negativo	Studio chiave CAS 8052-42-4	Bottin, M.C., Gate, L., Rihn, B., Micillino, J.C., Nathalie, M., Martin (2006)
Saggio del micronucleo (mutazione genica) RATTO (M/F) Via di somministrazione: inalazione vapori Dosi: 0, 30, 100, mg/m3 (idrocarburi totali) OECD Guideline 474	Negativo	Studio chiave Read-acros Con condensati di fumi di asfalto ossidato (CAS 64742-93-4)	Fraunhofer (2009a)

Carcinogenicity

There are some studies of carcinogenicity inhalation routes of exposure (fumes) and skin (smoke condensate)
For the inhaled there are no studies that give clear evidence of health consequences (lungs).
For skin exposure, (smoke condensates) some animal studies reported weak activity. (see table) It should be noted that the presence of solvents used in the administration of the bitumen clearly increases the bioavailability and / or dermal absorption.

Metodo	Risultato	Commenti	Fonte
TOPO via dermica Esposizione: per due anni	Positivo Sviluppati tumori della pelle in seguito all'esposizione per tutta la vita alla condensa dei fumi rappresentativi dei fumi derivanti da bitume severamente ossidato (Tipo III Bitume per costruzione di coperture) che si troverebbero ,alle condizioni di utilizzo, a temperatura superiore a 230°C	Si ritiene che i risultati riflettano una debole attività cancerogena. Il significato per la salute umana in base a questi dati è incerto	<Clark, C. et al. Press 4.22.11 *Reg.Tox and Pharma.* EPA TSCA 8(e)FYI suppl.5.7.10

Based on available data, there is no reason to change the classification of bitumen. The exposure to condensation of fumes from bitumen severely oxidized (Type III bitumen for roofing) which may be used at temperatures above 230 ° C showed a weakly carcinogenic action on the animals tested. In two epidemiological studies of workers exposed to asphalt it was not possible to find a causal link between exposure to bitumen fumes and the risk of lung cancer.
On the basis of an overall assessment of the results of animal studies and key support, and the two key epidemiological studies, it was concluded that there is no evidence to support that inhaled the bitumen as such poses a carcinogenic risk under normal utilization

Metodo	Risultato	Commenti	Fonte
RATTO (M/F) Inalazione (naso soltanto) Esposizione: 104 settimana (6 ore al giorno per 5 giorni a settimana) Dosi: 0, 4, 20, or 100 mg/m3 OECD Guideline 451	NOAEC (carcinogenicità): 103,9 mg/m³ aria (analitico) (valore aggiustato per istopatologi neoplastica: 172,5 mg/m3) Effetti neoplastici: nessun effetto:	Studio chiave Read-across Con condensati di fumi di bitume ossidato	Fraunhofer (2006)
TOPO (M/F) Via dermica (veicolo acetone) Dosi 1 goccia Esposizione: 2 volte a settimana per due anni	Incidenza di tumore cutaneo: 0 % per i primi due tipi di bitume 4 % per il terzo tipo di bitume 2 % per il quarto tipo di bitume 2 % per il quinto tipo di bitume	Studio chiave (5 tipi di bitume)	Hueper, W.C., Payne, W.W. (1960)

Toxicity for reproduction

There is only one study on reproductive toxicity (summarized in the table below) that covers both the effects on fertility or development. This study did not show any effect on the end-point from
part of the bitumen, so the substance is not classified as dangerous according to European standards.

Metodo	Risultato	Commenti	Fonte
RATTO M/F Studio di tossicità ripetuta combinato con tossicità per la riproduzione/sviluppo Dosi: 30, 100, o 300 mg/m3 Somministrazione per via inalatoria (naso soltanto) Esposizione: maschi: 28 giorni	NOAEC (P): 30 mg/m³ aria (peso degli organi) (NOAEC (P): 300 mg/m³ aria (parametri specifici della riproduzione) NOAEC (F1): 300 mg/m³ aria (nominale) (tutti gli effetti)	Studio chiave Read-across Con condensati di fumi di asfalto ossidato (CAS 64742-93-4)	Fraunhofer Institute (2009a)

femmine: 50 giorni 6ore al giorno per 7 giorni a settimana OECD Guideline 422 (Combined Repeated Dose Toxicity Study with the Reproduction / Developmental Toxicity Screening Test)			

Specific target organ toxicity (STOT) - single exposure:

Studies in rats demonstrate that exposure to smoke condensates of bitumen does not induce lung inflammation.
In a study of 170 workers exposed to fumes of bitumen (with concentrations up to 1.3 mg/m3) was not found an association between acute effects on lung function, respiratory irritation or other symptoms and exposure to bitumen fumes.

Specific target organ toxicity (STOT) - repeated exposure:

Repeated dose toxicity studies by the oral bitumen are not appropriate as the main routes of exposure for man are the inhalation and the skin. In all studies conducted via inhalation and dermal exposure was detected absence of adverse systemic effects even at higher doses administered, therefore the bitumen is not classified dangerous for the end-point according to the regulations on dangerous substances.

Metodo	Risultato	Commenti	Fonte
Inalazione			
RATTO (M/F) Studio combinato di tossicità dose ripetuta (cronica) e carcinogenicità Dosi: 4, 20, o 100 mg/m3 Esposizione: 2 anni (6 ore al giorno per 5 giorni a settimana (eccetto durante le vacanze) OECD 451	NOAEC (effetti locali): 10,4 mg/m³ aria (analitico) (Valore aggiustato sulla base dell'istopatologia 17,2 mg/m³) NOAEC (effetti sistemici): 103,9 mg/L aria (analitico) (valore aggiustato 172,5 mg/m³) LOAEC (effetti locali): 20,7 mg/m³ aria (analitico) (Valore aggiustato sulla base dell'istopatologia 34,4 mg/m³)	Studio chiave Read-across Aerosol of fumi condensati di bitume ossidato	Fraunhofer Institute (2006)
Cutanea			
RATTO (Maschi/femmine) Subacuto 28 giorni (3 volte a settimana per 6 ore a volta) Dosi: 200, 1000, o 2000 mg/kg/giorno OECD Guideline 410	NOAEL (effetti topici): 200 mg/kg/giorno (sulla base di assenza di risultati istopatologici significativi) NOAEL (effetti sistemici): 2000 mg/kg/giorno (sulla base di dati sul peso corporeo in assenza di risultati istopatologici significativi)	Studio chiave CAS 64741-56-6	American Petroleum Institute (API) 1983a

OTHER HEALTH EFFECTS FROM SHORT AND LONG TERM EXPOSURE

Anticipated health effects from sub-chronic, chronic, respiratory or skin sensitization, mutagenicity, reproductive toxicity, carcinogenicity, target organ toxicity (single exposure or repeated exposure), aspiration toxicity and other effects based on human experience and/or experimental data.

CHRONIC/OTHER EFFECTS

Asphalt: May contain low levels of polycyclic aromatic compounds (PACs), some of which are suspected of causing cancer under conditions of poor industrial hygiene and prolonged repeated contact. These PACs may also be inhaled. Inhalation studies at high concentrations of fumes resulted in bronchitis, pneumonitis, fibrosis and cell damage. Avoid contact with the asphalt and inhalation of vapour or aerosol from it.

CONTAINS

HYDROGEN SULPHIDE: Chronic health effects due to repeated exposures to low levels of H2S have not been established. High level (700 ppm) acute exposure can result in sudden death. High concentrations will lead to cardiopulmonary arrest due to nervous system toxicity and pulmonary edema. Lower levels (150 ppm) may overwhelm sense of smell, eliminating warning of exposure. Symptoms of overexposure to H2S include headache, fatigue, insomnia, irritability, and gastrointestinal problems. Repeated exposures to approximately 25 ppm will irritate mucous membranes and the respiratory system and have been implicated in some eye damage.

Additional information is available by request.

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 -- Not expected to be harmful to aquatic organisms.

MOBILITY

Majority of components -- Low water solubility, expected to sink and migrate into the sediment. Expected to partition to sediment and wastewater solids.
Material -- Low potential to migrate through soil.

PERSISTENCE AND DEGRADABILITY
Biodegradation:

Material -- Expected to be persistent.

BIOACCUMULATION POTENTIAL

Material -- Has the potential to bioaccumulate, however metabolism or physical properties may reduce the bioconcentration or limit bioavailability.

SECTION 13 - DISPOSAL CONSIDERATIONS

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

Dispose of waste at an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal.

REGULATORY DISPOSAL INFORMATION European Waste Code: 05 01 17

NOTE: These codes are assigned based upon the most common uses for this material and may not reflect contaminants resulting from actual use. Waste producers need to assess the actual process used when generating the waste and its contaminants in order to assign the proper waste disposal code(s).

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

Transport rules are different if the product is hot or cold.

HOT TRANSPORT

LAND (ADR/RID)
Proper Shipping Name: ELEVATED TEMPERATURE LIQUID, N.O.S. (Bitumen)
Hazard Class: 9
Classification Code: M9
UN Number: 3257
Packing Group: III Label(s) / Mark(s): 9 (ET) Hazard ID Number: 99
Hazchem EAC: 2Y
Transport Document Name: UN3257, ELEVATED TEMPERATURE LIQUID, N.O.S.(Bitumen), 9, PG III

INLAND WATERWAYS (ADNR/ADN)
Proper Shipping Name: ELEVATED TEMPERATURE LIQUID, N.O.S. (Bitumen)
Hazard Class: 9
Hazard ID Number: 99
UN or ID Number: 3257
Packing Group: III
Label(s) / Mark(s): 9 (ET)
Transport Document Name: UN3257, ELEVATED TEMPERATURE LIQUID, N.O.S.(Bitumen), 9, PG III

SEA (IMDG)
Proper Shipping Name: ELEVATED TEMPERATURE LIQUID, N.O.S. (Bitumen)
Hazard Class & Division: 9
UN Number: 3257
Packing Group: III Label(s): 9 (ET) EMS Number: F-A, S-P
Transport Document Name: UN3257, ELEVATED TEMPERATURE LIQUID, N.O.S.(Bitumen), 9, PG III

AIR (IATA)
Proper Shipping Name: NOT STANDARD PRACTICE
Hazard Class & Division: NA UN Number: NA Packing Group: NA Label(s) / Mark(s): NA
Transport Document Name: NA

COLD TRANSPORT

Footnote: Product classified as UN 3257 is forbidden by air transport but the product may be transported by air if its temperature is less than 100 deg. C (212 deg. F).

If the product is offered for transport at less than 100 deg. C (212 deg. F), the transport classification is Not Regulated.

It is not classified dangerous for the transport (ADR, RID, UN, IATA /ICAO)

SECTION 15 - REGULATORY INFORMATION

REACH Information: A Chemical Safety Assessment has not been carried out for the substance(s) that make up this material or for the material itself.

Material is not dangerous as defined by the EU Dangerous Substances/Preparations Directives. EU LABELING: Not regulated according to EC Directives
REGULATORY STATUS AND APPLICABLE LAWS AND REGULATIONS

Complies with the following national/regional chemical inventory requirements: KECI, ENCS, IECSC, PICCS, EINECS, AICS, TSCA, DSL

EU Directive:
1907/2006 [... on the Registration, Evaluation, Authorisation and Restriction of Chemicals ... and amendments thereto]
98/24/EC [... on the protection of workers from the risk related to chemical agents at work ...]. Refer to Directive for details of requirements.

SECTION 16 - OTHER INFORMATION

N/D = Not determined, N/A = Not applicable, NE = Not established

THIS SAFETY DATA SHEET CONTAINS THE FOLLOWING REVISIONS:

Safety Data Sheet updated in accordance with the provisions of REACH (EC) No

1907/2006. Third issue in English language on May 2015.

REFERENCES: Sources of information used in preparing this SDS included one or more of the following: results from in house or supplier toxicology studies, CONCAWE Product Dossiers, publications from other trade associations, such as the EU Hydrocarbon Solvents REACH Consortium, the EU IUCLID Data Base, and other sources, as appropriate

List of abbreviations and acronyms that could be (but not necessarily are) used in this safety data sheet:

Acronym	Full text
N/A	Not applicable
N/D	Not determined
NE	Not established
AIHA WEEL	American Industrial Hygiene Association Workplace Environmental Exposure Limits
ASTM	ASTM International, originally known as the American Society for Testing and Materials (ASTM)
EINECS	European Inventory of Existing Commercial Substances
ELINCS	European List of Notified Chemical Substances
TLV	Threshold Limit Value (American Conference of Governmental Industrial Hygienists)
TSCA	Toxic Substances Control Act (U.S. inventory)
UVCB	Substances of Unknown or Variable composition, Complex reaction products or Biological materials
vPvB	Substances very persistent and very bio cumulative
LC	Lethal Concentration
LD	Lethal Dose
LL	Lethal Loading
EC	Effective Concentration
EL	Effective Loading
NOEC	No Observable Effect Concentration
NOELR	No Observable Effect Loading Rate

The information and recommendations contained herein are, to the best of Adriatica Bitumi SpA knowledge and belief, accurate and reliable as of the date issued.
You can contact Adriatica Bitumi SpA to insure that this document is the most current available from api. The information and recommendations are offered for the user's consideration and examination.

It is the user's responsibility to satisfy itself that the product is suitable for the intended use. If buyer repackages this product, it is the user's responsibility to insure proper health, safety and other necessary information is included with and/or on the container. Appropriate warnings and safe-handling procedures should be provided to handlers and users.

ANNEX
SCENARIOS OF EXPOSURE

CATEGORY	Name of Use identified	sector	Sector of use **SU**	Process categories **PROC**	Environmental release categories **ERC**	Specific environmental release categories **ERC**
BITUME OSSIDATO – OXIDIZED ASPHALT	01- Manufacture of the substance (GEST1_I)	Industrial (G26)	3, 8, 9	1, 2, 3, 4, 8a, 8b. 15	1,4	ESVOC SpERC 1.1.v1
BITUME OSSIDATO – OXIDIZED ASPHALT	01b- Use as an intermediate GEST1B_I)	Industrial (G26)	3, 8, 9	1, 2, 3, 4, 8° , 8b. 15	6a	ESVOC SpERC 6.1a.v1
BITUME OSSIDATO – OXIDIZED ASPHALT	01a- Distribution of substance (GEST1A_I)	Industrial (G26)	3	1, 2, 3., 8a, 8b, 9,15	1, 2, 3, 4, 5, 6a, 6b, 6c,6d, 7	ESVOC SpERC 1.1b.v1
BITUME OSSIDATO – OXIDIZED ASPHALT	02- Formulation & (re) packing of substances and mixtures (GEST2_I)	Industrial (G26)	3,10	1, 2, 3, 4, 8a, 8b. 15	2	ESVOC SpERC 2.2.v1
BITUME OSSIDATO – OXIDIZED ASPHALT	03° Use in Coatings (GEST3_I)	Industrial (G26)	3	1, 2, 3, 4, 8a, 8b, 15	4	ESVOC SpERC 4.3a.v1
BITUME OSSIDATO – OXIDIZED ASPHALT	05a- Use in drilling activity and production wells for the extraction of oil and natural gas (GEST5_I)	Industrial (G26)	3	1, 2, 3, 4, 8a, 8b	4	Valutazione qualitativa per l'ambiente
BITUME OSSIDATO – OXIDIZED ASPHALT	19-Production and Rubber Processing (GEST19_I	Industrial (G26)	3, 10, 11	1, 2, 3, 4, 5, 6, 7,8a, 8b, 9, 13, 14,15, 21	1, 4, 6d	ESVOC SpERC 4.19.v1
BITUME OSSIDATO – OXIDIZED ASPHALT	12a- Use as a fuel (GEST12_I):	Industrial (G26)	3	1, 2, 3., 8a, 8b. 16	7	ESVOC SpERC 7.12a.v1
BITUME OSSIDATO – OXIDIZED ASPHALT	06a- lubricants (GEST6_I)	Industrial (G26)	3	1, 2, 3., 4, 7, 8a, 8b,9, 10, 13, 17, 18	4,7	ESVOC SpERC 4.6a.v1

CATEGORY	Name of Use identified	sector	Sector of use **SU**	Process categories **PROC**	Environmental release categories **ERC**	Specific environmental release categories **ERC**
BITUME OSSIDATO – OXIDIZED ASPHALT	03b- Use in coatings (GEST3_I)	Professional (G27)	22	1, 2, 3., 4, 5, 8a, 8b,10, 11, 13,15, 19	8a, 8d	ESVOC Sp ERC8.3b.v1
BITUME OSSIDATO – OXIDIZED ASPHALT	05a- Use in drilling activity and production wells for the extraction of oil and natural gas (GEST5_I)	Professional)	3	1, 2, 3., 4, 8a, 8b	4	Valutazione qualitativa per l'ambiente
BITUME OSSIDATO – OXIDIZED ASPHALT	15- Road and construction applications (GEST15-P),	Professional (G27)	22	8a, 8b, 9, 10, 11,13	8d, 8f	ESVOC Sp ERC8.15.v1
BITUME OSSIDATO – OXIDIZED ASPHALT	06b- Lubricants. Low release (GEST6_I)	Professional (G27)	22	1, 2, 3., 4, 8a, 8b, 910, 11, 13, 17, 18,20	9a, 9b	ESVOC Sp ERC9.6b.v1
BITUME OSSIDATO – OXIDIZED ASPHALT	06c-- Lubricants. high release (GEST6_I)	Professional (G27)	22	1, 2, 3., 4, 8a, 8b, 910, 11, 13, 17, 18,20	8a, 8d	ESVOC Sp ERC8.6c.v1
BITUME OSSIDATO – OXIDIZED ASPHALT	03c- Use in coatings (GEST3_I)	Consumer (G28)	21	n.a.	8a, 8d	ESVOC Sp ERC8.3c.v1

Because the* OXIDIZED ASPHALT *is not a substance classified as hazardous is not required exposure assessment or risk characterization.

Therefore It is not necessary to develop exposure scenarios

N.B. use not provided for this product