SAFETY DATA SHEET

Standard Bitumen

SECTION 1: Identification Of The Substance And Supplier

Product Name:	Standard Bitumen
Other Names:	PG64S, PG64H, PG58S, PG58H, PG58V, PG52S, PG52H, PG52V, PG52E, 15/25, EME2 Bind, 40/50, 60/70, 80/100, 130/150, 180/200, Resista Bind
Recommended Use:	Product is predominantly used in road making
Company Details:	Road Science
Address:	9 Owens Place, Mt Maunganui
Telephone Number:	07 575 1150
Emergency Telephone Number:	07 575 1150 24hr / 7 days or National Poisons Centre 0800 POISON (0800 764 766)

SECTION 2: Hazards Identification

	DANGEROUS GOODS. NON-HAZARDOUS SUBSTANCE. Classified as a Dangerous Good according to NZS 5433; 2007. Not classified as hazardous according to criteria in the Hazardous Substances (Minimum Degrees of Hazard) Regulations 2001.
GHS Classification:	NOT HAZARDOUS
GHS Label Elements Signal Words:	No signal word

GHS Hazard Statements:	PHYSICAL HAZARDS: Not classified as a physical hazard under GHS criteria. HEALTH HAZARDS: Not classified as a health hazard under GHS criteria. ENVIRONMENTAL HAZARDS: Not classified as an environmental hazard under GHS criteria.
GHS Precautionary Statements:	PREVENTION: No precautionary phrases. RESPONSE: No precautionary phrases. STORAGE: No precautionary phrases. DISPOSAL: No precautionary phrases.
Symbol(s) :	No symbol
Other Hazards which do not result in Classification	No other hazards apply.

SECTION 4: First Aid Measures

General Information: DO NOT DELAY. Keep victim calm. Obtain medical treatment immediately.

FIRST AID INSTRUCTIONS:

Inhalation: If inhalation of mists, fumes or vapour causes irritation to the nose or throat, remove to fresh air. If rapid recovery does not occur, obtain medical attention. Casualties suffering ill effects as a result of exposure to hydrogen sulphide should be removed 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 Cardiopulmonary Resuscitation (CPR) as required and transport to the nearest medical facility.

Skin Contact: If contact with hot product, cool the burn area by flushing with large amounts of water. Do not attempt to remove anything from the burn area or apply burn creams or ointments. Cover the burn area loosely with a sterile dressing, if available. Transport to the nearest medical facility for additional treatment. It should be noted this product contracts on cooling.

Where a limb is encased, care should be taken to avoid the development of a tourniquet effect. In the event of this occurring the adhering product must be softened and/or split to prevent restriction of blood flow. All burns should receive medical attention.

Eye Contact: Hot product - If contact with hot product, cool the burn area by flushing with large amounts of water. Do not attempt to remove anything from the burn area or apply burn creams or ointments.

Cover the burn area loosely with a sterile dressing, if available.

Transport to the nearest medical facility for additional treatment. All burns should receive medical attention. Cold product - Flush eye with copious quantities of water. If persistent irritation occurs, obtain medical attention.

Ingestion: Under normal conditions of use, this is not expected to be a primary route of exposure.

Most Important Symptoms/Effects, Acute & Delayed:
H2S has a broad range of effects dependent on the airborne concentration and length of exposure: 0.02 ppm odour threshold, smell of rotten eggs;10 ppm eye and respiratory tract irritation; 100 ppm coughing, headache, dizziness, nausea, eye irritation, loss of sense of smell in minutes; 200 ppm potential for pulmonary oedema after >20-30 minutes; 500 ppm loss of consciousness after short exposures, potential for respiratory arrest; >1000ppm immediate loss of consciousness, may lead rapidly to death, prompt cardiopulmonary resuscitation may be required. Do not depend on sense of smell for warning. H2S causes rapid olfactory fatigue (deadens sense of smell). There is no evidence that H2S will accumulate in the body tissue after repeated exposure.

Medical Attention/Special Treatment: Do not attempt to remove the product from the skin as it provides an airtight sterile covering, which will eventually fall away with the scab as the burn heals. If removal is attempted, mineral oil (not mineral spirits) or a mineral oil based ointment may be applied to help soften the product to facilitate removal.

Hydrogen sulphide (H2S) - CNS asphyxiant. May cause rhinitis, bronchitis and occassionally pulmonary oedema after severe exposure. CONSIDER: Oxygen therapy. Consult a Poison Control Centre for guidance.

SECTION 5: Fire-Fighting Measures

Clear fire area of all non-emergency personnel.

Suitable Extinguishing Media: Foam, water spray or fog. Dry chemical powder, carbon dioxide, sand or earth may be used for small fires only.

Unsuitable Extinguishing Media: Do not use water in a jet.

Specific hazards arising from Chemicals: Hazardous combustion products may include: A complex mixture of airborne solid and liquid particulates and gases (smoke). Carbon monoxide. Unidentified organic and inorganic compounds. Boil-over of tanks and violent eruptions may occur in the presence of water.

Protective Equipment & Precautions for Fire Fighters: Proper protective equipment including breathing apparatus must be worn when approaching a fire in a confined space.

SECTION 6: Accidental Release Measures

Avoid contact with spilled or released material. For guidance on selection of personal protective equipment see Chapter 8 of this Material Safety Data Sheet. See Chapter 13 for information on disposal.

Personal Precautions, Protective Equipment and Emergency Procedures: Avoid contact with skin, eyes and clothing. Hot product should be handled so that there is no risk of burns. Use compressed air or fresh air respiratory equipment in confined spaces.

Environmental Precautions: Prevent from spreading or entering into drains, ditches or rivers by using sand, earth, or other appropriate barriers.

Methods and Material for Containment and Clean Up: Small spillage: Allow product to cool and solidify. Shovel into a suitable clearly marked container for disposal or reclamation in accordance with local regulations. Large spillage:

Prevent from spreading by making a barrier with sand, earth or other containment material. Treat residues as for small spillage.

Additional Advice: Local authorities should be advised if significant spillages cannot be contained.

SECTION 7: Handling and Storage

General Precautions: Avoid contact with hot liquid to prevent thermal burns.

Precautions for Safe Handling: For quality, health and safety reasons do not exceed the recommended storage and handling temperature. Clean, dry and heat resistant hoses (free of twists, etc.) should be used.

Do not use steam to empty pipelines and hoses. Use compressed air to blow product from the system or apply a vacuum to suck the product from the system. Do not use solvents to clear obstructions of pipelines.

Conditions for Safe: Keep dry. Keep container in a well-ventilated place.

Storage: Prevent all contact with water and with moist atmosphere. In case of long-term storage, deposits may develop on walls and roofs of storage tanks. These deposits, (carbonaceous materials and iron sulphides), may be pyrophoric and self-ignite when brought into contact with air (opening of tank). Hydrogen

sulphide may accumulate in tanks during long term storage at high temperatures. For this reason, tank vapour spaces should be regarded as hazardous. Storage Temperature: Temperature should be kept at least 30°C below flash point and should never exceed the industry recommended maximum safe working temperature of 200°C.

Recommended Materials: For containers or container linings, use stainless steel.

Unsuitable Materials: For containers or container linings avoid PVC, polyethylene or high density polyethylene.

Precautions During Discharge from Bitumen Tanks: Tanks may be heated by hot oil, steam, electricity or flame tubes. When pumping product from a storage or road tank, care should be taken to avoid the risk of fire or explosion as a result

of exposing hot heater tubes. The tubes should be covered by a minimum of 150mm of hot product, unless the heat has been switched off for a period of sufficient cooling.

Bulk temperature should be kept as low as possible, to enable efficient discharge. A check should be made to ensure that the receiving tank has sufficient ullage space to accommodate the load.

Other Advice: Not applicable.

SECTION 8: Exposure Control/Personal Protection

1) Workplace Exposure Guidelines: Product has a low volatility and at ambient temperature fume formation will be low. Avoid vapours from heated materials to prevent exposure to potentially toxic/irritating fumes.

NZ Workplace Exposure Standards (WES):	TWA mg/m^3	STEL mg/m^3
Hydrogen Sulphide	14	21
Asphalt (Bitumen) Fumes	5	Not set

2) Engineering Controls: 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: Adequate ventilation to control airborne concentrations below the exposure guidelines/limits. Where material is heated, sprayed or mist formed, there is greater potential for airborne concentrations to be generated. Eye washes and showers for emergency use.

3) Personal Protective Equipment (PPE)

Individual Protection Measures Personal protective equipment (PPE) should meet recommended national standards. Check with PPE suppliers.

Respiratory Protection: No respiratory protection is ordinarily required under normal conditions of use. Use self contained breathing apparatus in places where hydrogen sulphide vapours may accumulate.

Hand Protection: When handling heated product wear heat resistant gloves. Suitability and durability of a glove is dependent on usage, e.g. frequency and duration of contact. Always seek advice from glove suppliers.

Eye Protection: For normal operations with hot material wear safety hat with visor.

Protective Clothing: For normal operations with hot material wear heat resistant coveralls, (with cuffs over gloves and legs over boots), and heavy-duty boots, e.g. leather for heat resistance. The use of a neck apron is recommended.

Environmental Exposure Controls: Minimise release to the environment. An environmental assessment must be made to ensure compliance with local environmental legislation.

SECTION 9: Physical and Chemical Properties

Appearance:	Brown to black. Liquid at high temperatures.	Water Solubility:	Negligible
Odour & Odour Threshold:	Characteristic	Solubility in other solvents:	Soluble
pH:	N/A	n-octanol/water partition coefficient (log Pow):	N/A
Initial Boiling Point and Boiling Range	N/A	Dynamic Viscosity:	N/A
Softening Point:	N/A	Kinematic Viscosity:	140 - 350 mm2/s at 135 °C / 275 °F
Flash Point:	> 215 °C / 419 °F (Cleveland Open Cup)	Vapour density (air=1:	N/A

Upper / lower Flammability or Explosion limits:	N/A	Penetration:	180 - 200 dmm
Auto-ignition Temperature:	> 300 °C / 572 °F	Evaporation rate (nBuAc=1)	N/A
Vapour Pressure:	N/A	Hygroscopicity:	Negligible
Relative Density:	N/A	Decomposition Temperature:	N/A
Density:	ca. 0.990 - 1.300 g/cm3 at 25 °C / 77 °F	Flammability	N/A

SECTION 10: Stability and Reactivity

Chemical Stability: Stable under normal conditions of use.

Possibility of Hazardous Reactions: N/A

Conditions to Avoid: Heating above the maximum recommended storage and handling temperature, will cause degradation and evolution of flammable vapours.

Incompatible Materials: Do not allow molten material to contact water or liquids as this can cause violent eruptions, splatter hot material, or ignite flammable material. Reacts with strong oxidising agents. Avoid contamination of thermal insulation near hot surfaces by oil and bitumen and replace lagging where necessary, with a nonabsorbent type of insulation. Self-heating, leading to autoignition at the surfaces of porous or fibrous materials impregnated with bitumen or condensates from bituminous fumes, can occur at temperatures below 100°C.

Hazardous Decomposition Products: Hydrogen sulphide.

SECTION 11: Toxicological Information

Basis for Assessment: Toxicological data have not been determined specifically for this product. Information given is based on data on the components and the toxicology of similar products.

Likely Routes of Exposure: Inhalation is not expected to be a relevant route of exposure except under conditions where exposure to vapours, aerosols or mists is possible.

Acute Oral Toxicity: Expected to be of low toxicity: LD50 > 5000 mg/kg , Rat

Acute Dermal Toxicity: Expected to be of low toxicity: LD50 > 5000 mg/kg , Rabbit

Acute Inhalation Toxicity: Not considered to be an inhalation hazard under normal conditions of use. Avoid vapours from heated materials to prevent exposure to potentially toxic/ irritating fumes.

Skin Corrosion/Irritation: Expected to be slightly irritating. Contact with hot material can cause thermal burns which may result in permanent skin damage.

Serious Eye Damage/Irritation: Expected to be slightly irritating. Hot product may cause severe eye burns and/or blindness.

Respiratory Irritation: Inhalation of vapours or mists may cause irritation to the respiratory system.

Respiratory or Skin Sensitisation: Not expected to be a skin sensitiser.

Aspiration Hazard: Not considered an aspiration hazard.

Repeated Dose Toxicity: Not expected to be a hazard.

Germ Cell Mutagenicity: Not considered a mutagenic hazard.

Carcinogenicity: Bitumens are not classified as dangerous under GHS criteria. Bitumens contain low concentrations of Polycyclic Aromatic

Compounds (PACs). In undiluted bitumens these PACs are not considered to be bio-available. However, if bitumens are mixed with diluents to obtain a low viscosity at ambient temperatures, it is believed that such materials may become bio-available.

Despite the known presence of PACs there is no evidence that exposure to undiluted bitumens or their fumes is harmful.

Reproductive and Developmental Toxicity: Data not available

SECTION 12: Ecological 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.

Acute Toxicity: Poorly soluble mixture. May cause physical fouling of aquatic organisms. Expected to be practically non toxic: LL/EL/IL50 > 100 mg/l (to aquatic organisms) (LL/EL50 expressed as the nominal amount of product required to prepare aqueous test extract).

Mobility: Adsorbs to soil and has low mobility. In water will either float or sink, showing little tendency to disperse, the product will adsorb to the sediment.

Persistence/degradability: Expected to be not inherently biodegradable.

Bioaccumulative Potential: Has the potential to bioaccumulate. In practice, the very low water solubilities and high molecular weights of these substances are such that their bioavailability to aquatic organisms is limited and therefore bioaccumulation is unlikely.

Other Adverse Effects: Not expected to have ozone depletion potential, photochemical ozone creation potential or global warming potential.

SECTION 13: Disposal Considerations

Material Disposal: Recover or recycle if possible. 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. Do not dispose into the environment, in drains or in watercourses.

Container Disposal: Dispose in accordance with prevailing regulations, preferably to a recognised collector or contractor. The competence of the collector or contractor should be established beforehand.

Local Legislation: Disposal should be in accordance with the New Zealand Hazardous Substances Disposal Regulations 2001. Treat the substance using a method that changes the characteristics or composition of the substance so that the substance is no longer a hazardous substance.

SECTION 14: Transport Information

NZS 5433:2007	
UN Number:	3257
UN Proper Shipping Name:	ELEVATED TEMPERATURE LIQUID, N.O.S. (Bitumen)
Class:	9
Packing Group:	III
Hazchem Code:	2Y
IMDG	
Identification number:	UN 3257
Proper shipping name:	ELEVATED TEMPERATURE LIQUID, N.O.S.
Technical name:	(Bitumen)
Class / Division:	9
Packing group:	III
Environmental Hazard:	No
Additional Information:	IATA - Forbidden for transport on passenger and cargo aircraft in molten state. Not dangerous for conveyance under UN, IMO, ADR/RID, IATA codes if transported at ambient temperature.

SECTION 15: Regulatory Information

The regulatory information is not intended to be comprehensive. Other regulations may apply to this material. Other Information : New Zealand Workplace Exposure Limits 2002 (WES). New Zealand Standard 5433:2007 Transport of Dangerous Goods on Land. Not classified as Dangerous Goods for transport, according to New Zealand Standard 5433:2007 Transport of Dangerous Goods on Land.

SECTION 16: Other Information

Revision Indicator:	Issued:	1 October 2015	
	Revised:	14 May 2021	14 May 2021
SDS Version Number :	1.1		

SDS Regulation:	The content and format of this SDS is in accordance with HSNO Approved Code of Practice (No. HSNO CoP 8-1 09-06): Preparation of Safety Data Sheets.
Uses and Restrictions:	This product must not be used in applications other than those recommended in Section 1, without first seeking the advice of the supplier.
SDS Distribution:	The information in this document should be made available to all who may handle the product.