Stone Binder

DESCRIPTION
DriveStone Stone Binder is a two component, 100% solids aliphatic polyurethane system specially formulated for aggregate binding application.
When cured DriveStone Stone Binder has excellent adhesion to bituminous and concrete surfaces and to most aggregates, aggregate chippings or pebbles. DriveStone Stone Binder produces a completely clear non-yellowing film using dust free aggregates.

USES
DriveStone Stone Binder is ideal for the use on driveways, walkways and cycle paths etc. This system provides a decorative, hardwearing, low maintenance surface using a wide range of natural or coloured aggregates which is trowel applied onto the surface.

TYPICAL APPLICATIONS
DriveStone Stone Binder is particularly suited for the use in aggregate binding applications where the product is mixed with the aggregate, which is then applied by trowel to the prepared surface. A clear polymer results allowing the colour of the aggregate to show through. A wet look is imparted to the stone leaving a glossy finish. It is vitally important that the aggregates are free from dust as this will mask the colour of the stone if dispersed into the binder and will obscure the natural colour of the stone.

SURFACE PREPARATION
DriveStone recommends the application of DriveStone Stone Binder onto a compacted MoT type one, concrete or ashpalt substrates.

AGGREGATES
Specially washed, screened and dried aggregates for resin bonded use must be used in conjunction with DriveStone Stone Binder. The aggregate supplier should be informed of the end use. Dust-free aggregates of up to 10mm (ideally 6mm) should be used. DriveStone Stone Binder should only be used with dry aggregate. The bond strength of the binder will be reduced if damp aggregate is used and excessive foaming will result. Aggregate which has become damp should be dried before use.

PACKAGING
DriveStone Stone Binder is available in two pre measured 1 litre tins suitable for 50kg aggregates (6mm).

MIXING
Components A+B should be mixed with the aggregate in a forced action mixer. The required amount of aggregate should be added to the mixer following by DriveStone Stone Binder. Whilst coating the aggregate care should be taken not to over mix, since certain aggregates can be ground to dust by the action of the mixer causing the binder film to become cloudy. Mixing is complete when a uniform coating covers all the aggregate (usually 30 seconds to one minute).

APPLICATION
The mixed aggregate is applied to the surface by trowel. A lightweight whacker plate or beam screeder can be used for larger areas. Unless coating a solid substrate (e.g. concrete), depths of less than 25mm should not be used if the surface is to be subject to pedestrian traffic and 40mm for vehicular traffic. In general, five times the size of the largest aggregate within the mix should be considered as a minimum.
The mixed material remains in a mobile form for approximately 30 to 40 minutes depending on the ambient temperature. Equipment should be cleaned using DriveStone Stone Binder Cleaner. The material is fit for foot traffic after approximately 4 hours and for vehicular traffic overnight. Full properties will develop in four to five days.

COVERAGE
The recommended addition rate for DriveStone Stone Binder is 4% (1 x 2kg kit per 50kg bag of aggregate) but is dependent on the surface area, particle size, shape and density of the aggregate chosen. The smaller or the more angular the aggregate, then more binder will be required; typically a 1-3mm aggregate may need up to 10% if binder to sufficiently coat it. Consult the chart below for approximate coverage and usage of aggregate and binder. If excess binder is used, run-through will occur and this may be detrimental if porous layer is required (tree bases for example).
DriveStone Stone Binder can be mixed before adding to the aggregates in the ratio of 100g (DriveStone Stone Binder - Part A) to 85g (DriveStone Bonded Stone - Part B).

HANDLING AND STORAGE
DriveStone Stone Binder - Part B component contains isocyanates and should be store in a covered area above 5°. It is classified as harmful by inhalation. Good standards of industrial hygiene should be observed during use. Protective gloves and goggles should be worn. The recommendations made in the Health and Safety data sheet for this product should be observed at all times. DriveStone Stone Binder - Part B contains isocyanates and the advice contained in the DriveStone Health and Safety Data Sheet for this component is of particular importance.

TECHNICAL DATA

	PartA	Part B
Viscosity at 25°C	4800	7500
Specific Gravity	1.01	1.14
Colour	Pale Straw	Water White

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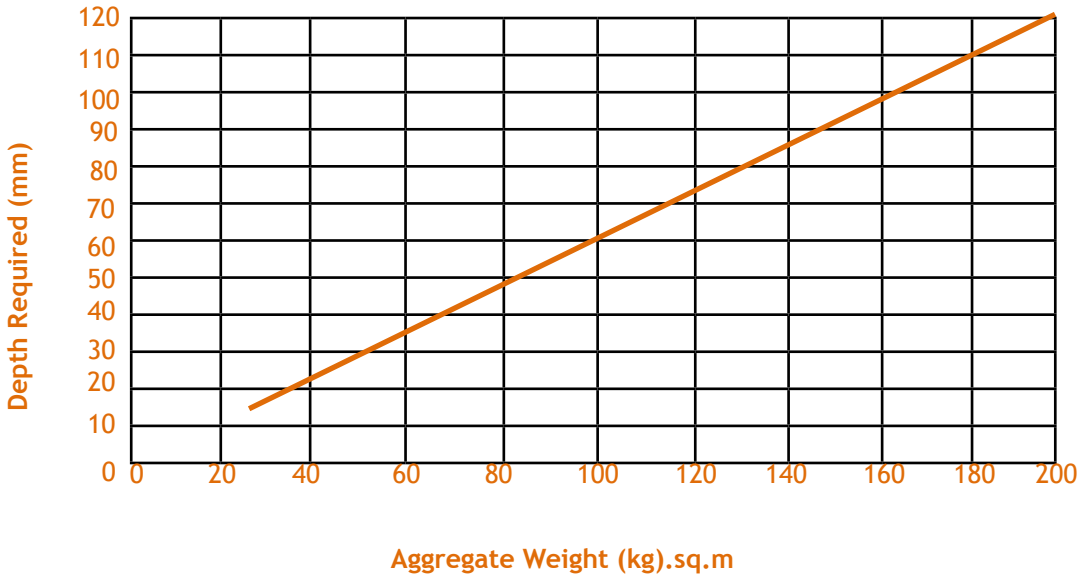
Stone Binder

Aggregates Required v Depth



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Stone Binder

COMPONENT A

IDENTIFICATION OF SUBSTANCE
1) Product Details - Component A
Trade Names - DriveStone Stone Binder
Supplier - DriveStone - (Tel : 01268 495 730)
Information - Technical Department

2) HAZARD IDENTIFICATION
Main Hazards - No Significant Hazard

3) FIRST AID MEASURES
Skin Contact - Wash off immediately with plenty of soap and water.

Eye Contact - Rinse immediately with plenty of water for 15 minutes holding the eyelids open. Seek medical attention.

Ingestion - Do not induce vomiting. If conscious, give half a litre to drink immediately. Seek medical attention.

General Information - Remove contaminated clothing. Wash all contaminated clothing before use.

4) FIRE FIGHTING MEASURES
Extinguishing Media - Carbon dioxide (CO2) Foam. Sand.

Protective Equipment - Wear self contained breathing apparatus and protective clothing.

5) ACCIDENTAL RELEASE MEASURES
Personal Precautions - Ensure adequate ventilation of the working area. Refer to Section 9 of this MSDS for personal protection details. Surfaces contaminated with the product will become slippery

Environmental Precautions - Do no allow product to enter the drains. Do not flush into surface water.
Clean up Methods - Absorb with inert, absorbent material. Transfer to suitable, labelled container.

6) HANDLING AND STORAGE
Handling - Avoid contact with eyes and skin. Use in a well ventilated area. Wear suitable protective equipment.

Storage - Keep away from water. Keep containers tightly closed. Keep in a cool, dry, well ventilated area.

7) EXPOSURE CONTROLS/PERSONAL PROTECTION
Engineering Measures -Ensure there is sufficient ventilation of the working area.

Occupational Exposure Controls - Keep away from food, drink and animal feeding stuffs.

Hand Protection - Chemical resistant gloves (plastic). Wash hands after handling the product.

Eye Protection - In case of splashing, wear: Safety glasses.

Protective Equipment - Protect clothing from contact with the product. Wash all contaminated clothing before reuse.

8) PHYSICAL AND CHEMICAL PROPERTIES

Description	Liquid
Colour	Yellow
Odour	Slight
Relative Density	1.01
Water Solubility	Insoluble in Water
Viscosity	Kinematic Viscosity in 10-6m²/s at 40°C(ISO 3104/3105 - 3

9) STABILITY AND REACTIVITY
Stability - Stable under normal conditions. Will not decompose if stored and used as recommended.

Conditions to Avoid - Heat, Moisture.

Materials to Avoid - Will not decompose if stored and used as recommended.

Hazardous Decomposition - No hazardous decomposition products when stored and handled correctly.

10) TOXICOLOGICAL INFORMATION
Phenyl mercuric neodecanoate -
Oral Mouse MD50 = 50-200mg/kg

11) ECOLOGICAL INFORMATION

12) DISPOSAL CONSIDERATIONS
General Information - Dispose of as special waste in compliance with local and national regulations.

Disposal Methods - For disposal within the EC, the appropriate code according to the European Waste Catalogue (EWC) should be used.

Disposal of Packaging - After final product withdrawl, all residues must be removed from containers (drip-free, powder-free or paste-free). Empty containers can be sent to landfill after cleaning, if in compliance with local and national regulations.

13) TANSPORT INFORMATION

ADR/RID	Not classified as hazardous under transport regulations.

14) REGULATORY INFORMATION

Labelling	The product is classified as non hazardous.
Risk Phrases	NSH - No Significant Hazard

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15) OTHER INFORMATION

Text of Risk Phrases in Section 17

R25	Toxic if swallowed
R48/24	Toxic: danger of serious damage to health by prolonged exposure in contact with skin.
R48/25	Toxic: danger of serious damage to health by prolonged exposure if swallowed.
R50/53	Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Further Information

The information supplied in this Safety Data Sheet is designed only as guidance for the safe use, storage and handling of the product. This information is correct to the best of our knowledge and belief at the date of publication however no guarantee is made to its accuracy. This information relates only to the specific material designated any may not be valid for such material used in combination with any other materials or in any other process.

17) COMPONENT COMPOSITION INFORMATION

Hazardous Components:

INGREDIENT NAME	Conc.	CAS	EINECS	Symbols/Risk Phrases
PHENYL MERCURIC NEODACANOATE	0-0.5%	2645-49-3	247-783-7	T;R25 C;R34/41 T;R48/24 T;R48/25 N;R50/53

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COMPONENT B

IDENTIFICATION OF SUBSTANCE
1) Product Details - Component B
Trade Names - DriveStone Stone Binder
Supplier - DriveStone Ltd - (Tel : 0870 2405158)
Information - Technical Department

2) HAZARD IDENTIFICATION
Main Hazards - Harmful by inhalation. May cause sensitisation by inhalation and skin contact. May cause sensitisation by skin contact. Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

3) FIRST AID MEASURES
Skin Contact - May cause sensitisation by skin contact. Wipe off mechanically and wash affected areas thoroughly with soap and plenty of water.

Eye Contact - Rinse immediately with plenty of water for 15 minutes holding the eyelids open. Transfer to hospital for specialist examination.

Inhalation - Inhalation of vapour may cause shortness of breath. Move the exposed person to fresh air. Seek medical attention if irritation or symptoms persists.

Ingestion - Do not induce vomiting. If swallowed, seek medical advice immediately and show the container or label.

4) FIRE FIGHTING MEASURES
Extinguishing Media - Carbon dioxide (CO2) Foam. Sand. For large fires: Water spray.

Fire Hazards - Burning produces irritating, toxic and obnoxious fumes.

Protective Equipment - In case of fire and/or explosion do not breathe fumes. Wear self contained breathing apparatus and protective clothing.

5) ACCIDENTAL RELEASE MEASURES
Personal Precautions - Ensure adequate ventilation of the working area. Refer to Section 9 of this MSDS for personal protection details.

Environmental Precautions - Do no allow product to enter the drains.

Clean up Methods - Remove mechanically; cover the remainder with wet, absorbent material (e.g. sawdust, chemical binder based on calcium silicate hydrate, sand). After approximately one hour transfer to waste container and do not seal (CO2 gas will be evolvoed therefore pressure risk). Keep damp in a safe well ventilated area for several days.

6) HANDLING AND STORAGE
Handling - Avoid contact with eyes and skin. Ensure adequate ventilation of the working areas.

Storage - Keep containers tightly closed. Keep in a cool, dry, well ventilated area.

7) EXPOSURE CONTROLS/PERSONAL PROTECTION
Exposure Limits - DriveStone Stone Binder - Component B

WEL 8-hr limit ppm:	WEL 8-hr limit mg/m3: 002
WEL 15 min limit ppm:	WEL 15min limit mg/m3: 0.07

Engineering Measures -Ensure adequate ventilation of the working area.

Occupational Exposure Controls - Keep away from food, drink and animal feeding stuffs.

Respiratory Protection - Respiratory protection is required in insufficiently ventilated working areas. An air-fed mask, or for short periods of work, a combination of charcoal filter and particulate filter is recommended. In case of hypersensitivity of the respiratory tract (e.g. asthmatics and those who suffer from chronic bronchitis) it is unadvisable to work the product.

Hand Protection - Protective gloves. Butyl rubber - IIR, Fluorinated rubber - FKM. Wash hands after handling the product.

Eye Protection - Approved safety goggles.

Protective Equipment - Wear suitable protective equipment. Remove contaminated clothing.

8) PHYSICAL AND CHEMICAL PROPERTIES

Description	Liquid
Colour	Yellow
Odour	Slight
Flash Point	181°C
Vapour Pressure	0.0001 mbar @ 25°C
Relative Density	1.14 g/cm^3 @ 20°C
Water Solubility	Insoluble in Water
Viscosity	10000
Autoignition Temperature	480°C

9) STABILITY AND REACTIVITY
Stability - Stable under normal conditions.

Conditions to Avoid - Moisture.

Materials to Avoid - Alcohols. Amines. Ammonia. Keep away from water.

Hazardous Decomposition Products - No hazardous decomposition products when store and handled correctly.

Hazardous Reactions - Exothermic reaction with amines and alcohols; reacts with water forming carbon dioxide gas; in closed containers, risk of bursting due to increase of pressure.

10) TOXICOLOGICAL INFORMATION

Stone Binder

11) ECOLOGICAL INFORMATION

Degradeability - Not readily biodegradable.

Further Information - No known adverse environmental effects. The product reacts with water at the interface forming CO2 and a solid insoluble product with high melting point (polyurea). this reaction is accelerated by surfactants (e.g. detergents) or by water-soluble solvents.

12) DISPOSAL CONSIDERATIONS

General Information - The relevant EC Directives and local, regional and national regulations must be complied with. It is among the tasks of the polluter to assign the waste to waste code as specific to industrial sectors and processes according to the European Waste Catalogue. It is recommended that the details be worked out with the waste disposal company responsible.

Disposal Methods - Contact a licensed waste disposal company. Can be incinerated if in compliance with local and national regulations. For disposal within the EC, the appropriate code according to the European Waste Catalogue (EWC) should be used.

Disposal of Packaging - Once the product residues adhering to the walls of the containers have been rendered harmless, the product and hazard labels must be invalidated.

13) TRANSPORT INFORMATION

ADR/RID	Not classified as hazardous under transport regulations.
Further Information	The product is not classified as dangerous for carriage

14) REGULATORY INFORMATION

Symbols - Xn - Harmful

Risk Phrases

R20	Harmful by inhalation
R42/43	May cause sensitisation by inhalation and skin contact.
R43	May cause sensitisation by skin contact
R52/53	Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Safety Phrases:

P4	Contains isocyanates. See information supplied by manufacturer.
S22	Do not breathe dust
S23	Do not breathe gas/fumes/vapour/spray
S24	Avoid contact with skin.
S37	Wear suitable gloves.
S45	In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).
S63	In case of accident by inhalation: remove casualty to fresh air and keep at rest.

15) OTHER INFORMATION

Text of Risk Phrases in Section 17

R23	Toxic by inhalation
R36 R37 R38	Irritating to eyes, respiratory system and skim.
R42/43	May cause sensitisation by inhalation and skin contact.
R43	May cause sensitisation by skin contact.
R52/53	Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Further Information - The information supplied in this Safety Data Sheet is designed only as guidance for the safe use, storage and handling of the product. This information is correct to the best of our knowledge and belief at the date of publication however no guarantee is made to its accuracy. This information relates only to the specific material designated and my not be valid for such material used in combination with any other materials or in any other process.

16) COMPONENT COMPOSITION INFORMATION

Hazardous Components:

INGREDIENT NAME	Conc.	CAS	EINECS	Symbols/ Risk Phrases
HEXAMETHYLENE-DI-ISOCYANATE	0.5-1%	822-06-0	212-485-8	T;R23 Xi; R36/37/38 R42/43
HEXAMETHYLENE-1,6-DISOCYANATE HOMOPOLYMER	90-100%	28182-81-2		Xi; R43 R52/53

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