

GLASS WOOL

GHS Safety Data Sheet

Version No:2.0

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Section 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME

GLASS WOOL

OTHER NAMES

SMF, MMMF, glasswool, "synthetic fibre wool", "unbonded glass wool"

PRODUCT USE

Thermal and acoustic insulation.

SUPPLIER

Company: S D FINE- CHEM LIMITED

Address:

315- 317, T.V. INDUSTRIAL ESTATE,

248, WORLI,

MUMBAI- 400030.INDIA.

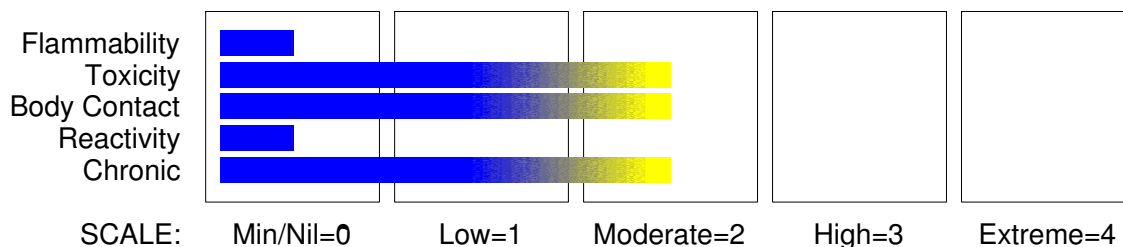
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Telephone: 91- 22- 24959898

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HAZARD RATINGS



Section 2 - HAZARDS IDENTIFICATION

GHS Classification

Eye Irritation Category 2B

Organ Damage Category 2

Respiratory Irritation Category 3

Skin Corrosion/Irritation Category 3

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Section 2 - HAZARDS IDENTIFICATION



EMERGENCY OVERVIEW

HAZARD

WARNING

Determined by using GHS criteria:

H335 H316 H320 H373

May cause respiratory irritation

Causes mild skin irritation

Causes eye irritation

May cause damage to organs through prolonged or repeated exposure by inhalation.

PRECAUTIONARY STATEMENTS

Prevention

Wash hands thoroughly after handling.

Do not breathe dust/fume/gas/mist/vapours/spray.

Response

If skin irritation occurs, seek medical advice/attention.

If eye irritation persists, get medical advice/attention.

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

Get medical advice/attention if you feel unwell.

Disposal

Dispose of contents and container in accordance with relevant legislation.

Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

NAME	CAS RN	%
glass wool	Not avail.	100

Section 4 - FIRST AID MEASURES

SWALLOWED

- If swallowed do NOT induce vomiting.
- If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain open airway and prevent aspiration.
- Observe the patient carefully.
- Never give liquid to a person showing signs of being sleepy or with reduced awareness; i.e. becoming unconscious.

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Section 4 - FIRST AID MEASURES

- Give water to rinse out mouth, then provide liquid slowly and as much as casualty can comfortably drink.
- Seek medical advice.

EYE

- If this product comes in contact with the eyes:
- Wash out immediately with fresh running water.
 - Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids.
 - If pain persists or recurs seek medical attention.
 - Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.

SKIN

- Gently brush or vacuum off adherent fibres.
- Wash affected areas thoroughly with water (and soap if available).
- Seek medical attention if irritation exists and persists.

INHALED

- If fumes or combustion products are inhaled remove from contaminated area.
- Lay patient down. Keep warm and rested.
- Prostheses such as false teeth, which may block airway, should be removed, where possible, prior to initiating first aid procedures.
- Apply artificial respiration if not breathing, preferably with a demand valve resuscitator, bag-valve mask device, or pocket mask as trained. Perform CPR if necessary.
- Transport to hospital, or doctor.

NOTES TO PHYSICIAN

Long term exposure to high dust concentrations may cause changes in lung function (i.e. pneumoconiosis) caused by particles less than 0.5 micron penetrating and remaining in the lung. A prime symptom is breathlessness. Lung shadows show on X-ray.

Section 5 - FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA

There is no restriction on the type of extinguisher which may be used.

FIRE FIGHTING

Alert Fire Brigade and tell them location and nature of hazard.

- Wear breathing apparatus plus protective gloves.
 - Prevent, by any means available, spillage from entering drains or water courses.
- Use fire fighting procedures suitable for surrounding area.

FIRE/EXPLOSION HAZARD

- Non combustible.
- Not considered a significant fire risk, however containers may burn.

FIRE INCOMPATIBILITY

Incompatible with hydrofluoric acid.

Personal Protective Equipment

Gloves, boots (chemical resistant).

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Section 5 - FIRE FIGHTING MEASURES

Breathing apparatus.

Section 6 - ACCIDENTAL RELEASE MEASURES

EMERGENCY PROCEDURES

MINOR SPILLS

- Clean up waste regularly and abnormal spills immediately.
- Avoid breathing dust and contact with skin and eyes.
- Wear protective clothing, gloves, safety glasses and dust respirator.
- Use dry clean up procedures and avoid generating dust.
- Vacuum up or sweep up. NOTE: Vacuum cleaner must be fitted with an exhaust micro filter (HEPA type) (consider explosion-proof machines designed to be grounded during storage and use).
- Dampen with water to prevent dusting before sweeping.
- Place in suitable containers for disposal.

MAJOR SPILLS

Clear area of personnel and move upwind.
Alert Fire Brigade and tell them location and nature of hazard.
Wear protective clothing, gloves, safety glasses and dust respirator.
Prevent, by any means available, spillage from entering drains or water courses. Wet with water to prevent dusting. Avoid generating dust.
Vacuum up. Collect residues and place in labelled polyethylene bag.
Note: Vacuum cleaner must be fitted with an exhaust micro filter (HEPA type).
Wash area down with large quantity of water and prevent runoff into drains.
After clean up operations, decontaminate and launder all protective clothing and equipment before storing and re-using.

SAFE STORAGE WITH OTHER CLASSIFIED CHEMICALS



+ X + X 0 +

+: May be stored together

O: May be stored together with specific preventions

X: Must not be stored together

Personal Protective Equipment advice is contained in Section 8 of the MSDS.

Section 7 - HANDLING AND STORAGE

PROCEDURE FOR HANDLING

Use good occupational work practice. Observe manufacturer's storing and handling recommendations.
Atmosphere should be regularly checked against established exposure standards to ensure safe working conditions are maintained.
Avoid all personal contact, including inhalation.

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Section 7 - HANDLING AND STORAGE

Wear protective clothing when risk of exposure occurs.
Use in a well-ventilated area.
Avoid contact with incompatible materials.
When handling, DO NOT eat, drink or smoke.
Keep containers securely sealed when not in use.
Avoid physical damage to containers.
Wash hands with soap and water after handling.
Work clothes should be laundered separately: NOT at home.

SUITABLE CONTAINER

Packaging as recommended by manufacturer.
· Check that containers are clearly labelled.
Plastic bag
NOTE: Bags should be stacked, blocked, interlocked, and limited in height so that they are stable and secure against sliding or collapse.

STORAGE INCOMPATIBILITY

Segregate from strong acids i.e. hydrofluoric acid.

STORAGE REQUIREMENTS

Observe manufacturer's storing and handling recommendations.
Store in original containers.
Store under cover.
Keep containers securely sealed.
Store away from foodstuff containers.
Store in a well-ventilated area.
Store away from incompatible materials.
Protect containers against physical damage.
Check regularly for spills and leaks.

Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE CONTROLS

MATERIAL DATA

TLV TWA: 1 fibre/cc, A3 (respirable fibres, length >5 µm, aspect ratio >= 3:1 as determined by the membrane filter method at 400-450X magnification (4 mm objective) phase contrast illumination).

CAUTION: This substance has been classified by the ACGIH as A3
Animal Carcinogen (at relatively high doses).

ES TWA: 0.5 fibres/ml
Australia]

[NOHSC,

Exposure Levels to be determined in accordance with NOHSC: 3006
Guidance Note on Membrane Filter Method for Estimating Airborne SMF

Earlier FARIMA/ACTU action plan recommends the following:

Action level 0.2 fibre/ml (respirable dust)

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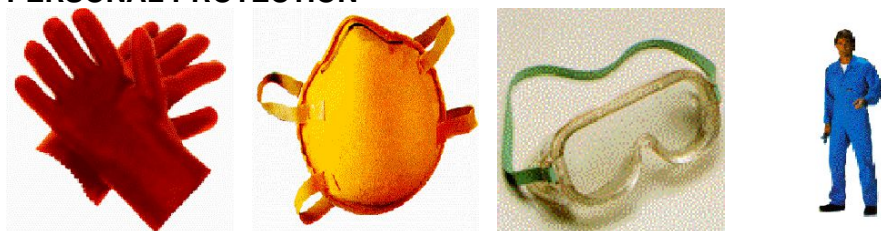
Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

<0.2 fibres/ml: Basic OH&S hygiene procedures
0.2-0.5 fibres/ml: Control strategies implemented and personal protection provided.
>0.5 fibres/ml: Immediate steps should be taken to reduce this level.

ES TWA: 2 mg/m³ inspirable dust (WORKSAFE proposal as a second level standard)
mineral wool fibre, containing no asbestos and < 1% free silica
TLV TWA: 10 mg/m³, total dust [ACGIH]

In a criteria document on fibrous glass NIOSH established a REL-TWA of 3 million fibres/m³ (fibres less than or equal to 3.5 µm in diameter and greater than or equal to 10 µm in length) and 5 mg/m³ (total mineral wool). It also stated that an exposure limit of 10 mg/m³ is highly unlikely to be protective for exposed employees.

PERSONAL PROTECTION



EYE

- Chemical goggles.
- Full face shield may be required for supplementary but never for primary protection of eyes
- Contact lenses may pose a special hazard; soft contact lenses may absorb and concentrate irritants. A written policy document, describing the wearing of lens or restrictions on use, should be created for each workplace or task. This should include a review of lens absorption and adsorption for the class of chemicals in use and an account of injury experience. Medical and first-aid personnel should be trained in their removal and suitable equipment should be readily available. In the event of chemical exposure, begin eye irrigation immediately and remove contact lens as soon as practicable. Lens should be removed at the first signs of eye redness or irritation - lens should be removed in a clean environment only after workers have washed hands thoroughly. [CDC NIOSH Current Intelligence Bulletin 59].

HANDS/FEET

Wear impervious gloves.
Safety footwear.

OTHER

- Loose fitting protective clothing, eg overalls/ long sleeve shirts.
- When working above head height, use head covering, dust mask and goggles.
- Minimise dust generation by using sharp hand cutting tools if possible.
- Powered tools (eg saws etc.) should only be used if fitted with dust extraction and containment equipment.
- Vacuum cleaners should be available for fibre/dust removal.

RESPIRATOR

Protection Factor	Half- Face Respirator	Full- Face Respirator	Powered Air Respirator
10 x ES	P1 Air- line*	- -	PAPR- P1 -
50 x ES	Air- line**	P2	PAPR- P2

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Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

100 x ES	-	P3	-
		Air- line*	-
100+ x ES	-	Air- line**	PAPR- P3

* - Negative pressure demand ** - Continuous flow.

The local concentration of material, quantity and conditions of use determine the type of personal protective equipment required.

For further information consult

your

Occupational Health and Safety Advisor.

ENGINEERING CONTROLS

Provide good ventilation (either forced or natural). If measured respirable fibre is less than ten times the recommended level, wear approved dust respirator Class P1 (half-face).

Use a Class P2 or P3 respirator (full-face), where exposure is above ten times the recommended limit. Correct respirator fit is essential to obtain adequate protection.

Even though the recommended level for respirable fibre is not exceeded in normal conditions, respiratory protection is advisable in dusty areas. In very dusty conditions and confined spaces greater comfort may be afforded by a full-face powered air-purifying respirator. Use an approved respirator if power tools without dust extraction or containment are used.

Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE

Off-white to pale yellow fibrous mass. No odour if unbound. Insoluble in water.

PHYSICAL PROPERTIES

Solid.

Does not mix with water.

Molecular Weight: Not applicable

Melting Range (°C): Not available

Solubility in water (g/L): Immiscible

pH (1% solution): Not applicable

Volatile Component (%vol): Negligible

Relative Vapour Density (air=1): Not applicable

Lower Explosive Limit (%): Not applicable

Autoignition Temp (°C): Not available

State: Divided solid

Boiling Range (°C): Not available

Specific Gravity (water=1): Not available

pH (as supplied): Not applicable

Vapour Pressure (kPa): Negligible

Evaporation Rate: Not applicable

Flash Point (°C): Not applicable

Upper Explosive Limit (%): Not applicable

Decomposition Temp (°C): Not available

Section 10 - CHEMICAL STABILITY AND REACTIVITY INFORMATION

CONDITIONS CONTRIBUTING TO INSTABILITY

Extremely high temperatures.

Product is considered stable.

Hazardous polymerisation will not occur.

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Section 11 - TOXICOLOGICAL INFORMATION

POTENTIAL HEALTH EFFECTS

ACUTE HEALTH EFFECTS

SWALLOWED

Although ingestion is not thought to produce harmful effects (as classified under EC Directives), the material may still be damaging to the health of the individual, following ingestion, especially where pre-existing organ (e.g liver, kidney) damage is evident. Present definitions of harmful or toxic substances are generally based on doses producing mortality rather than those producing morbidity (disease, ill-health).

Gastrointestinal tract discomfort may produce nausea and vomiting. In an occupational setting however, ingestion of insignificant quantities is not thought to be cause for concern.

Not normally a hazard due to the physical form of product. The material is a physical irritant to the gastro-intestinal tract.

EYE

Limited evidence exists, or practical experience suggests, that the material may cause eye irritation in a substantial number of individuals and/or is expected to produce significant ocular lesions which are present twenty-four hours or more after instillation into the eye(s) of experimental animals. Repeated or prolonged eye contact may cause inflammation characterised by temporary redness (similar to windburn) of the conjunctiva (conjunctivitis); temporary impairment of vision and/or other transient eye damage/ulceration may occur.

The dust may produce eye discomfort and abrasive eye inflammation.

SKIN

Limited evidence exists, or practical experience predicts, that the material either produces inflammation of the skin in a substantial number of individuals following direct contact, and/or produces significant inflammation when applied to the healthy intact skin of animals, for up to four hours, such inflammation being present twenty-four hours or more after the end of the exposure period. Skin irritation may also be present after prolonged or repeated exposure; this may result in a form of contact dermatitis (nonallergic). The dermatitis is often characterised by skin redness (erythema) and swelling (oedema) which may progress to blistering (vesiculation), scaling and thickening of the epidermis. At the microscopic level there may be intercellular oedema of the spongy layer of the skin (spongiosis) and intracellular oedema of the epidermis. Skin contact is not thought to have harmful health effects (as classified under EC Directives); the material may still produce health damage following entry through wounds, lesions or abrasions.

The material is mildly abrasive and may produce discomfort which results in a temporary skin rash. Discomfort is accentuated by fibre adhering to sweaty skin at higher temperatures.

INHALED

Limited evidence exists, or practical experience predicts, that the material produces irritation of the respiratory system in a significant number of individuals following inhalation.

The dust may produce upper respiratory tract discomfort. Nose and throat discomfort may be transitory. Cutting and trimming may result in fibre dislodgement and dust production.

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Section 11 - TOXICOLOGICAL INFORMATION

Loose and granular forms produce more dust than preforms (batts) but handling of batts results in fibre dislodgement and dusting. There is little evidence for acute toxicity after inhalation of mineral fibres. Rockwool/ glasswool administered by inhalation produce little fibrosis in experimental animals [IARC Monograph 43]. Effects on lungs are significantly enhanced in the presence of respirable particles. Overexposure to respirable dust may produce wheezing, coughing and breathing difficulties leading to or symptomatic of impaired respiratory function.

CHRONIC HEALTH EFFECTS

On the basis, primarily, of animal experiments, concern has been expressed by at least one classification body that the material may produce carcinogenic or mutagenic effects; in respect of the available information, however, there presently exists inadequate data for making a satisfactory assessment.

Principal routes of exposure are usually by skin contact and inhalation.

Loose and granular forms produce more dust than preforms (batts) but handling of batts results in fibre dislodgement and dusting. Repeated exposure results in immune response (toughening of skin) so that irritation (rash) often subsides in 2-3 weeks. The irritation and response recurs if exposure is intermittent. If irritation persists, worker exposure must be terminated and medical opinion sought. There is little evidence for acute toxicity after inhalation of man-made mineral fibres (MMMF). Chronic inhalation of respirable fibres lead to pulmonary fibrosis [GENIUM]. Rockwool contains a small proportion of respirable fibres. [CCINFO, ILO ENCYCLOPEDIA] Glasswool administered by inhalation produces little pulmonary fibrosis in experimental animals. No increase in the occurrence of mesothelioma has been observed in man-made mineral fibre / glass fibre production workers. [IARC Monograph 43].

Inhaled synthetic mineral fibres (SMFs) generally exhibit some level of biopersistence, resisting changes in number, dimension, surface chemistry, chemical composition, surface area and other characteristics, depending on their composition. Alteration to any of these parameters, in turn, alters a fibre's residence in the lung, and as a result, the lung's long-term response to the fibre. Fibres, of sufficiently small length, may undergo macrophage-mediated clearance in the lung. For fibres that are too long to be dealt with by alveolar macrophages, principal alternate clearance mechanisms include translocation to other thoracic compartments, dissolution and/or transverse breakage into shorter segments. In vitro fibre dissolution experiments show a broad range of dissolution rate constants ($K_{dis} = \text{ng/cm}^2/\text{hr}$) for the various synthetic vitreous (glass-like) fibres. For refractory ceramic fibres (RCF) the K_{dis} is 3 whilst for slag wool the K_{dis} is greater than 400. In vitro fibre-degradation studies demonstrate a direct relationship between the fibre's rate of leaching (some components dissolve more rapidly than others leaving a depleted silica matrix) and its tendency to undergo transverse fragmentation. Synthetic mineral fibres tend to break transversely in contrast to asbestos which tends to split longitudinally. This is significant for pathogenesis because over a long period of time in the lung, the actual numbers of long asbestos fibre in the lung can increase due to splitting along the long axis whilst the number of long SMFs decrease as a result of splitting along the short axis. Lung clearance by macrophages and the mucociliary escalator has been found, experimentally, to be more efficient for shorter segments.

Fibres which exhibit a rapid rate of leaching and fragmentation in the lung are less biopersistent, even though they may not dissolve completely. Fiber toxicology tends to be dominated by physical characteristics such as shape and length whilst nonfibrous dusts exhibit a chemical origin of toxicity. Early rodent studies found no tumourigenesis as a result of inhalation exposure to several types of fibreglass other than transient lung inflammation that resolved after a brief recovery period. However, hamsters exposed to a special application glass of high durability (475 glass) developed minimal lung fibrosis; one animal out of 125 developed mesothelioma. This is the first published report of permanent lung damage in laboratory animals following inhalation of glass fibre

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GLASS WOOL

Section 11 - TOXICOLOGICAL INFORMATION

compositions (albeit of a special type). Preliminary results from another study with another high durability glass (E glass) showed fibrosis and pulmonary tumours in rats exposed to high concentrations of inhaled microfibres. (E glass is now produced as a continuous filament that is too thick to be respirable and is no longer available as microfibres). Several studies have demonstrated that glass fibres, insulation glass in particular, clear the lung more rapidly than amosite asbestos. Early inhalation studies of the chronic toxicity of refractory ceramic fibre (RCF1) reported conflicting results. In more recent studies rodents were exposed to four types of RCF (RCF1-4) for 6 hours/day, 5 days/week, at a maximum dose of 30 mg/m³ (test fibres were selected to have dimensions close to 1 µm x 20 µm); in rats RCF1 induced lung fibrosis, lung tumours (13%) and pleural mesothelioma (1.6%). In hamsters RCF1 induced lung fibrosis, mesothelioma (38%) and no lung tumours. Species related differences also raise the issue of significance of these findings in humans. Early rodent inhalation studies reported no fibrosis or tumours with chronic exposure to mineral wool. More recent studies with two compositions of mineral wool, - rock wool (MMVF21) and slag wool (MMVF22), size selected to have average dimensions of 1 µm x 20 µm, showed that neither mineral wool was tumourigenic, in rats but that MMVF21 produced minimal lung fibrosis late in the inhalation period. Biopersistence, as represented by 90% clearance rate (T-90), has been shown, experimentally to agree well with toxicity; composition with long-fibre T-90s greater than 200 days were all fibrogenic and all but MMVF21 were associated with tumourigenesis. This relationship can be explained as follows; fibres too thick to be inhaled into the lower lung or short enough to be transported by alveolar macrophages, are quickly cleared from the respiratory tract and will probably produce no other response than transient pulmonary inflammation. Long fibres with diameters less than 3 µm are able to penetrate into the lower lung but will become innocuous if they dissolve rapidly, can break transversely into smaller segments that can be cleared by alveolar macrophages and ciliated epithelium. Long thin fibres that reach the lower lung in sufficient quantities will be pathogenic if they do not dissolve or fragment. Surface chemistry may also play a role; In recent rat inhalation studies, E glass fibres but not 475 glass fibres were pathogenic in rats although both appeared to clear from the rat lung at about the same time. However during a year of post-exposure recovery 475 glass fibres underwent significant changes in chemistry due to leaching.

TOXICITY AND IRRITATION

No data of toxicological significance identified in literature search.

The substance is classified by IARC as Group 3:

NOT classifiable as to its carcinogenicity to humans.

Evidence of carcinogenicity may be inadequate or limited in animal testing.

There is little evidence for acute toxicity after inhalation of MMMF.

Glasswool administered by inhalation produced little pulmonary fibrosis in experimental animals [IARC Monograph #43]

The dust has been associated with skin irritation due to the mechanical action of the fibres [CHEMINFO, Sax, ILO ENCYCLOPAEDIA].

MMMF are manufactured to definite fibre diameters and cannot split along their length rather they break across and form small particles not needles [FARIMA].

NOTE: Carcinogenic by RTECS criteria (rat inhalation studies)

Equivocal carcinogen or neoplastic agent by RTECS criteria (rat implantation studies)

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Section 12 - ECOLOGICAL INFORMATION

No data for glass wool.

Section 13 - DISPOSAL CONSIDERATIONS

Recycle wherever possible.
Consult State Land Waste Management Authority for disposal.
Bury residue in an authorised landfill.
Bury empty containers at an authorised landfill.

Section 14 - TRANSPORTATION INFORMATION

HAZCHEM: None

NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS:UN, IATA,
IMDG

Section 15 - REGULATORY INFORMATION

Section 16 - OTHER INFORMATION

The above information is believed to be accurate and represent the best information currently available to us, but does not represent any warranty expressed or implied of the properties of the product. User should make their own investigation to determine the suitability of the information for their particular purpose.

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