

# Safety Data Sheet



**Item Code:** SILICA REFRACTORIES  
**Revision Date:** 03 December 2018  
**Revision Number:** 1  
**Replaces:** None

## SILICA REFRACTORIES

### 1. Identification

**Product identifier used on the label:** SILICA REFRACTORIES

**Other means of identification:**

**Synonyms:** None

**Recommended use of the chemical and restrictions on use:**

**Recommended use:** Refractory insulation

**Restrictions on use:** Uses other than recommended use.

**Name, address, and telephone number of the chemical manufacturer, importer, or other responsible party:**

Allied Mineral Products, Inc.

2700 Scioto Parkway

Columbus, OH 43221

Telephone: (614)-876-0244

E-Mail of person responsible for SDS:

sdsinfo@alliedmin.com

Allied Mineral Products (Tianjin) Co., Ltd.

Address: No.2 Yanshan Road, TMHT Development Area,

Tianjin, 300459, China

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Allied Mineral Products Europe B.V.

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Allied Mineral Products South Africa (Pty) Ltd.

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Germinston, 1407

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Allied Refractory Products India Pvt. Ltd.

SM-5 Bol, G.I.D.C.

b/h Tata Nano, Tal.: Sanand

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Fabricados no Brasil para Allied Mineral Products, Inc.

De Togni S/A Materiais Refratarios

Telephone: +55-35-2101-2222

Allied Mineral Products Rus LLC

423601, Russia, Republic of Tatarstan,

Yelabuga Region, City of Yelabuga,

Territory of SEZ "Alabuga",

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Phone: +7(85557)5-26-07;

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Fabricado en Chile para Allied Mineral Products, Inc.

Por Refratarios lunge Ltda.

Telephone: (56-2) 2745-3613

**Emergency phone number:**

CHEMTREC: (800) 424-9300

### 2. Hazard(s) identification

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Classification of the chemical in accordance with paragraph (d) of §1910.1200:

GHS Hazard  
Symbols:



GHS Classification:

Carcinogenicity Category 1A

Specific Target Organ Systemic Toxicity (STOT) - Single Exposure Category 1

Specific Target Organ Systemic Toxicity (STOT) - Repeated Exposure Category 1

Signal Word:

Danger

Hazard Statements:

H350 - May cause cancer

H370 - Causes damage to organs

H372 - Causes damage to organs through prolonged or repeated exposure

Precautionary Statements:

Prevention:

P201 - Obtain special instructions before use.

P202 - Do not handle until all safety precautions have been read and understood.

P260 - Do not breathe dust/fume/gas/mist/vapours/spray.

P264 - Wash thoroughly after handling.

P270 - Do not eat, drink or smoke when using this product.

P280 - Wear protective gloves/protective clothing/eye protection/face protection.

Response:

P307+P311 - IF exposed: Call a POISON CENTER or doctor/physician.

P308+P313 - IF exposed or concerned: Get medical advice/ attention.

P314 - Get medical advice/attention if you feel unwell.

P321 - Specific treatment (see Sections 4 to 8 on this SDS and any additional information on this label).

Disposal:

P501 - Dispose of contents/container to a suitable disposal site in

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accordance with local/national/international regulations.

### Hazards not otherwise classified:

This product also contains nuisance dust. Although the nuisance dust contains no additional hazards, appropriate PPE should be used.

### Cancer Statement:

Crystalline silica exists in several forms, the most common of which is quartz. If crystalline silica (quartz) is heated to more than 870°C (1600°F) it can change to a form of crystalline silica known as tridymite, and if crystalline silica (quartz) is heated to more than 1470°C (2680°F), it can change to a form of crystalline silica known as cristobalite. Crystalline silica as tridymite and cristobalite are more fibrogenic than crystalline silica as quartz. IARC has listed crystalline silica from occupational sources as a Group I carcinogen. A Group I carcinogen is one in which there is sufficient evidence for carcinogenicity in humans. NTP has listed crystalline silica as reasonably anticipated to be a carcinogen.

### 3. Composition/information on ingredients

Chemical Name	Common name and synonyms	CAS #	%
Silica, Crystalline quartz (non-respirable)	None	14808-60-7	90 - 99
Silica, Crystalline quartz (respirable)	None	14808-60-7	5 - 10

\* The non hazardous ingredients percentage includes the components that are classified but below the GHS threshold limits.

One or more hazardous ingredient(s) is claimed as a trade secret under the OSHA Hazard Communication Standard. The hazards of this (these) ingredient(s) are given on this SDS.

### 4. First-aid measures

Description of necessary measures, subdivided according to the different routes of exposure, i.e., inhalation, skin and eye contact, and ingestion:

#### Inhalation:

Remove to fresh air. If not breathing, give artificial respiration or give oxygen by trained personnel. Seek immediate medical attention.

#### Eye Contact:

Immediately flush eyes with plenty of water for at least 15 minutes. Seek medical attention if irritation persists.

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<b>Skin Contact:</b>	Wash with soap and water. Seek medical attention if irritation develops or persists.
<b>Ingestion:</b>	No hazard expected under normal industrial use. If swallowed, seek medical attention.
<b>Most important symptoms/effects, acute and delayed:</b>	Causes damage to organs. Causes damage to organs through prolonged or repeated exposure.
<b>Indication of immediate medical attention and special treatment needed, if necessary:</b>	Get medical advice/attention if you feel unwell. If exposed or concerned: Get medical advice/ attention. If exposed: Call a poison center/doctor. Specific treatment (see Sections 4 to 8 on this SDS and any additional information on this label).

### 5. Fire-fighting measures

#### Suitable (and unsuitable) extinguishing media:

**Suitable extinguishing media:** Use methods suitable to fight surrounding fire.

**Unsuitable extinguishing media:** None Known

**Specific hazards arising from the chemical:** This product is noncombustible and will not ignite or contribute to the intensity of a fire.

**Hazardous combustion products:** Not applicable

**Special protective equipment and precautions for fire-fighters:** As in any fire, wear self-contained breathing apparatus pressure-demand, (MSHA/NIOSH approved or equivalent) and full protective gear.

### 6. Accidental release measures

**Personal precautions, protective equipment and emergency procedures:** Personal Protective Equipment should be worn as indicated in Section 8.

**Methods and materials for containment and cleaning up:** Vacuum or sweep up material and place in a disposal container. Avoid dust generation. Exhaust ventilation is recommended to maintain airborne dust concentrations below regulatory exposure levels. Consult individual operating permits for allowable air emissions. Dusts of as-manufactured refractory product have a low order of aquatic toxicity, are insoluble, and are not very mobile. Based upon this information, it is not believed to be a significant threat to the environment if accidentally

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released into water. Dusts of as-manufactured refractory product are not believed to be a significant threat to the environment if accidentally released on land. Dust and material generated during maintenance and tear-out operations may be contaminated with other hazardous substances (e.g., metals & alkaline materials). Evaluation of dust and material from specific processes should be performed to determine if an environmental threat exists in the case of a release. Clean up using methods which avoid dust generation. Compressed air should not be used to clean up spills. Wear appropriate personal protective equipment. Collect material in a compatible and appropriately labeled container. Dispose of material from processing, installation, maintenance, or tear-out operations in accordance with applicable regulations.

### 7. Handling and storage

**Precautions for safe handling:** Steam spalling, which can lead to personal injury, may result from improper drying and firing procedures. For safest use and optimum performance, proper practices must be followed.

**Conditions for safe storage, including any incompatibilities:**

**Safe storage conditions:** Store in a dry area.

**Materials to Avoid/Chemical Incompatibility:** Strong acids, bases, oxidizing agents.

### 8. Exposure controls/personal protection

OSHA permissible exposure limit (PEL), American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Value (TLV), and any other exposure limit used or recommended by the chemical manufacturer, importer, or employer preparing the safety data sheet, where available:

Chemical component	OSHA PEL	ACGIH TLV	ACGIH STEL	IDLH
Silica, Crystalline quartz (non- respirable)	0.05 mg/m <sup>3</sup>	0.025 MG/M <sup>3</sup> TWA	Not established	25 MG/M <sup>3</sup> IDLH; 50 MG/M <sup>3</sup> IDLH
Silica, Crystalline quartz (respirable)	0.05 mg/m <sup>3</sup>	0.025 MG/M <sup>3</sup> TWA	Not established	25 MG/M <sup>3</sup> IDLH; 50 MG/M <sup>3</sup> IDLH

**Appropriate engineering controls:** Local exhaust ventilation may be necessary to control any air contaminants to within their exposure limits during the use of this product.

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### Individual protection measures, such as personal protective equipment:

**Respiratory Protection:** Recommend chest X-rays and yearly vital capacity tests for employees regularly exposed to silica for early detection of silicosis. Comply with all guidelines for crystalline silica exposure.

### Respirator Type(s):

If it is not possible to reduce airborne exposure levels to below the exposure limits with ventilation, use the table below to assist you in selecting respirators that will reduce personal exposures to below the exposure limits.

The assigned protection factor (APF) is the minimum anticipated level of protection provided by each type of respirator worn in accordance with an adequate respiratory protection program. For example, an APF of 10 means that the respirator should reduce the airborne concentration of a particulate by a factor of 10, so that if the workplace concentration of a particulate was 150 ug/m<sup>3</sup>, then a respirator with an APF of 10 should reduce the concentration of particulate to 15 ug/m<sup>3</sup>.

Assigned Protection Factor	Type of Respirator
10	Any air-purifying elastomeric half-mask respirator equipped with appropriate type of particulate filter. Appropriate filtering facepiece respirator. Any air-purifying full facepiece respirator equipped with appropriate type of particulate filter. Any negative pressure (demand) supplied-air respirator equipped with a half-mask.
25	Any powered air-purifying respirator equipped with a hood or helmet and a high efficiency (HEPA) filter. Any continuous flow supplied-air respirator equipped with a hood or helmet.
50	Any air-purifying full facepiece respirator equipped with N-100, R-100, or P-100 filter(s). Any powered air-purifying respirator equipped with a tight-fitting facepiece (half or full facepiece) and a high-efficiency filter. Any negative pressure (demand) supplied-air respirator equipped with a full facepiece. Any continuous flow supplied-air respirator equipped with a tight-fitting facepiece (half or full facepiece). Any negative pressure (demand) self-contained respirator equipped with a full facepiece.
1000	Any pressure-demand supplied-air respirator equipped with a half-mask.

**Eye protection:** Wear safety glasses with side shields (or goggles) and a face shield.

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**Skin protection:** Wear clothing which minimizes skin contact or exposure.

**Gloves:** The correct choice of protective gloves depends upon the chemicals being handled, the conditions of work and type of use. Gloves should be chosen in consultation with the supplier/manufacturer and with a full assessment of the working conditions.

**Other protective equipment:** Wear clothing which minimizes skin contact or exposure.

**General hygiene conditions:** Wear protective gloves/protective clothing/eye protection/face protection. Do not eat, drink or smoke when using this product. Wash thoroughly after handling.

### 9. Physical and chemical properties

**Appearance (physical state, color etc.):**

Physical state:	Granular solid
Color:	Off-white to dark gray
Odor:	No Odor
Odor Threshold:	No data available
pH:	Not applicable
Melting point/freezing point (°C):	
Melting Point (°C):	> 2000 °F (> 1100 °C)
Freezing point (°C):	Not applicable
Initial boiling point and boiling range (°C):	Not applicable
Flash Point (°C):	Not applicable
Flammability (solid, gas):	Non-flammable
Upper/lower flammability or explosive limits:	
Upper flammability or explosive limits:	Not applicable
Lower flammability or explosive limits:	Not applicable
Vapor pressure:	Not applicable
Vapor density:	Not applicable

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Relative density:	2 to 3.5 g/cc
Solubility(ies):	< 3%
Partition coefficient: n-octanol/water:	Not applicable
Auto-ignition temperature (°C):	Not applicable
Decomposition temperature (°C):	Not applicable
Viscosity:	Not applicable
Volatile Organic Chemicals:	Not established

### 10. Stability and reactivity

Reactivity:	Not expected to be reactive
Chemical stability:	Stable under normal conditions.
Possibility of hazardous reactions:	None expected under standard conditions of storage
Conditions to avoid (e.g., static discharge, shock, or vibration):	Not applicable
Incompatible materials:	Strong acids, bases, oxidizing agents.
Hazardous decomposition products:	Not applicable

### 11. Toxicological information

**Description of the various toxicological (health) effects and the available data used to identify those effects:**

Information on the likely routes of exposure (inhalation, ingestion, skin and eye contact):	Inhalation, skin contact.
Symptoms related to the physical, chemical and toxicological characteristics:	Causes damage to organs. Causes damage to organs through prolonged or repeated exposure.
Additional Information:	SILICOSIS- The major concern is silicosis, caused by the inhalation and retention of respirable crystalline silica dust. Silicosis can exist in several forms, chronic (or ordinary), and accelerated (or acute). Chronic or Ordinary Silicosis is the most common form of silicosis, and can occur after many years of exposure to relatively low levels of airborne respirable crystalline silica dust. It is further defined as either simple or complicated silicosis. Simple Silicosis is characterized by lung lesions



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(shown as radiographic opacities) less than 1 centimeter in diameter, primarily in the upper lung zones. Often, simple silicosis is not associated with symptoms, detectable changes in lung function, or disability. Simple silicosis may be progressive and may develop into complicated silicosis or progressive massive fibrosis (PMF). Complicated Silicosis or PMF is characterized by lung lesions (shown as radiographic opacities) greater than 1 centimeter in diameter. Although there may be no symptoms associated with complicated silicosis or PMF, the symptoms, if present, are shortness of breath, wheezing, cough, and sputum production. Complicated silicosis or PMF may lead to death. Advanced complicated silicosis or PMF can result in heart disease secondary to the lung disease (cor pulmonale). Accelerated Silicosis can occur with exposure to high concentrations of respirable crystalline silica over a relatively short period; the lung lesions can appear within five (5) years of the initial exposure. The progression can be rapid. Accelerated Silicosis is similar to chronic or ordinary silicosis, except that the lung lesions appear earlier and the progression is more rapid. Acute Silicosis can occur with exposures to very high concentrations of respirable crystalline silica over a very short time period, sometimes as short as a few months. The symptoms of acute silicosis include progressive shortness of breath, fever, cough, and weight loss. Acute silicosis is fatal.

**SCLERODERMA-** There is evidence that exposure to respirable crystalline silica or that the disease silicosis is associated with the increased incidence of scleroderma, an immune system disorder manifested by a fibrosis (scarring) of the lungs, skin, and other internal organs. Recently, the American Thoracic Society noted that "there is persuasive evidence relating scleroderma to occupational silica exposures in settings where there is appreciable silicosis risk". The following may be consulted for additional information on silica, silicosis, and scleroderma (also known as progressive systemic sclerosis): Occupational Lung Disorders, Third Edition, Chapter 12, entitled "Silicosis and Related Diseases", Parkes, W. Raymond (1994). "Adverse Effects of Crystalline Silica Exposure", American Journal of Respiratory and Critical Care Medicine, Volume 155, pp. 761-765 (1997).

**TUBERCULOSIS-** Individuals with silicosis are at increased risk to develop tuberculosis, if exposed to persons with tuberculosis. The following may

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be consulted for further information: Occupational Lung Disorders, Third Edition, Chapter 12, entitled "Silicosis and Related Diseases", Parkes, W. Raymond (1994). "Adverse Effects of Crystalline Silica Exposure", American Journal of Respiratory and Critical Care Medicine, Volume 155, pp. 761-765 (1997).

NEPHROTOXICITY- There are several recent studies suggesting that exposure to respirable crystalline silica or that the disease silicosis is associated with the increased incidence of kidney disorders. The following may be consulted for additional information on silica, silicosis, and nephrotoxicity: Occupational Lung Disorders, Third Edition, Chapter 12, entitled "Silicosis and Related Diseases", Parkes, W. Ramond (1994). "Further evidence of human silica nephrotoxicity in occupationally exposed workers", British Journal of Industrial Medicine, Vol 50, No. 10, pp. 907-912 (1993). "Adverse Effects of Crystalline Silica Exposure", American Journal of Respiratory and Critical Care Medicine, Volume 155, pp. 761-765 (1997).

ARTHRITIS- There are recent studies suggesting that exposure to respirable crystalline silica or that the disease silicosis is associated with the increased incidence of arthritis. The following may be consulted for additional information on silica exposure and arthritis: American Journal of Industrial Medicine, Volume 35, pp. 375-381 "Connective Tissue Disease and Silicosis", Rosenman KD; Moore-Fuller M.; Reilly MJ. (1999). Environmental Health Perspective, Volume 107, pp. 793802 "Occupational Exposure to Crystalline Silica and Autoimmune Disease", Parks CG, Conrad K, Cooper GS. (1999).

### **Delayed and immediate effects and also chronic effects from short- and long-term exposure:**

<b>Ingestion Toxicity:</b>	Not a likely route of entry.
<b>Skin Contact:</b>	Cement dust and/or wet, unhardened product can dry the skin and cause alkali burns.
<b>Inhalation Toxicity:</b>	May include shortness of breath, wheezing, coughing, and sputum production.
<b>Eye Contact:</b>	Cement dust and/or wet, unhardened product can cause burns to the eyes.

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**Sensitization:** None Known  
**Reproductive and Developmental Toxicity:** No data available  
**Carcinogenicity:** Classification has been based on toxicological information of the components in Section 3.  
**STOT-single exposure:** Classification has been based on toxicological information of the components in Section 3.  
**STOT-repeated exposure:** Classification has been based on toxicological information of the components in Section 3.  
**Aspiration hazard:** Based on available data, the classification criteria are not met.

### Numerical measures of toxicity (such as acute toxicity estimates):

Chemical Name	LD50 Oral	LD50 Dermal	LC50 Inhalation
No data available			

Is the hazardous chemical listed in the National Toxicology Program (NTP) Report on Carcinogens (latest edition) or has been found to be a potential carcinogen in the International Agency for Research on Cancer (IARC) Monographs (latest edition), or by OSHA:

Chemical Name	OSHA Carcinogen	IARC Carcinogen	NTP Carcinogen
Silica, Crystalline quartz (non- respirable)	N	Y	Y
Silica, Crystalline quartz (respirable)	N	Y	Y

### 12. Ecological information

#### Ecotoxicity (aquatic and terrestrial, where available):

Dusts of as-manufactured refractory product have a low order of aquatic toxicity, are insoluble, and are not very mobile. Based upon this information, it is not believed to be a significant threat to the environment if accidentally released on land or into water. However, dust and material generated during maintenance and tear-out operations may be contaminated with other hazardous substances (e.g., metals, respirable crystalline silica, alkaline materials). Evaluation of dust and material from specific processes should be performed to determine if an

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environmental threat exists in the case of release.

### Ecological Toxicity Data:

Chemical Name	CAS #	Aquatic EC50 Crustacea	Aquatic ERC50 Algae	Aquatic LC50 Fish
No data available				

**Persistence and degradability:** Not applicable  
**Bioaccumulative potential:** Not applicable  
**Mobility in soil:** Not applicable  
**Other adverse effects (such as hazardous to the ozone layer):** None Known

### 13. Disposal considerations

#### Description of waste residues and information on their safe handling and methods of disposal, including the disposal of any contaminated packaging:

The as-manufactured refractory product or refractory dust is not considered a hazardous waste. Dust and material generated during use, maintenance and tear-out operations may be contaminated with other hazardous substances (e.g., metals, alkaline materials) from a particular application. Additionally, the spent refractory could contain reaction products not originally present in the supplied refractory material. Contaminants or reaction products have the potential to cause the refractory waste to exhibit hazardous waste characteristics. It is the responsibility of the user to consult applicable regulations prior to disposal of any industrial product to ensure waste disposal compliance. Waste analysis and characterization may be necessary to determine proper waste disposal. Waste Management: Dusts could contain respiratory hazards. To prevent waste materials becoming airborne during waste generation, storage, transportation, and disposal, proper dust control measures are recommended.

### 14. Transport information

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### Carriage of dangerous goods by road (DOT), rail or inland waterways:

UN number: Not Regulated for Transport  
UN Proper shipping name: Not applicable  
Transport hazard class(es): Not applicable  
Packing group, if applicable: Not applicable

### International carriage of dangerous goods by sea (IMDG/IMO):

UN number: Not Regulated for Transport  
UN Proper shipping name: Not applicable  
Transport hazard class(es): Not applicable  
Packing group, if applicable: Not applicable

### International carriage of dangerous goods by air (IATA):

UN number: Not Regulated for Transport  
UN Proper shipping name: Not applicable  
Transport hazard class(es): Not applicable  
Packing group, if applicable: Not applicable

Environmental hazards (e.g., Marine pollutant (Yes/No)): No

Transport in bulk (according to Annex II of MARPOL 73/78 and the IBC Code): No data available

Special precautions which a user needs to be aware of or needs to comply with in connection with transport or conveyance either within or outside their premises: No data available

## 15. Regulatory information

### Safety, health and environmental regulations specific for the product in question:

TSCA Status: All components in this product are on the TSCA Inventory.

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### Regulated Components:

Chemical Name	CAS #	CERCLA	Sara EHS	Sara 313	U.S. HAP
Silica, Crystalline quartz (non-respirable)	14808-60-7	N	N	N	N
Silica, Crystalline quartz (respirable)	14808-60-7	N	N	N	N

Chemical Name	CAS #	California Prop 65 - Cancer	California Prop 65 - Dev. Toxicity	California Prop 65 - Reprod fem	California Prop 65 - Reprod male
Silica, Crystalline quartz (non-respirable)	14808-60-7	Y	N	N	N
Silica, Crystalline quartz (respirable)	14808-60-7	Y	N	N	N

Chemical Name	CAS #	Massachusetts RTK List	New Jersey RTK List	Pennsylvania RTK List	Rhode Island RTK List	Minnesota Hazardous Substance List
Silica, Crystalline quartz (non-respirable)	14808-60-7	N	Y	Y	N	Y
Silica, Crystalline quartz (respirable)	14808-60-7	N	Y	Y	N	Y

### 16. Other information, including date of preparation or last revision.

SDS Prepared by: Environmental, Health & Safety Compliance  
 Revision Date: 03 December 2018  
 Revision Number: 1  
 Reason for revision: New GHS Format  
 Abbreviations and acronyms: CAS = Chemical Abstract Service  
 DNEL= Derivative No Effect Level  
 EC= European Community

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EINECS = European Inventory of Existing Chemical Substances  
MSHA = Mine Safety Health Administration  
NIOSH = National Institute of Occupational Safety & Health  
OEL = Occupational Exposure Limit  
PBT= Persistent, Bioaccumulative, Toxic  
PNEC= Predicted No Effect Concentration  
SCOEL= Scientific Committee on Occupational Exposure Limits  
TLV = Threshold Limit Value  
TWA= Time Weighted Average  
vPvB= Very Persistent, Very Bioaccumulative  
Wt.% = Weight Percent

### Disclaimer:

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