



Material Safety Data Sheet (MSDS / SDS)

Quicklime (Calcium Oxide, CaO)

Product Name: Quicklime

Chemical Name: Calcium Oxide

Chemical Formula: CaO

CAS Number: 1305-78-8

EC Number: 215-138-9

UN Number: Not regulated for transport (in most jurisdictions)

HS Code: 2522.10 (Quicklime)

SECTION 1 – Identification

Product Identifier

- Product Name: Quick Lime
- Synonyms:
 - Burnt Lime
 - Unslaked Lime
 - Caustic Lime
 - Lump Lime
 - Reactive Lime

Recommended Uses

- Water treatment
- Steel industry
- Sugar industry
- Construction
- Mining
- Glass manufacturing
- Chemical manufacturing
- Flue gas treatment
- Soil stabilization
- Wastewater treatment



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SECTION 2: Physical and Chemical Properties

Property	Value
Appearance	White to light grey lumps or powder
Odor	Odorless
pH	~12.4 (saturated solution)
Melting Point	2,572°C
Boiling Point	2,850°C (approx.)
Density	3.30–3.37 g/cm ³
Solubility	Slightly soluble; reacts with water
Flash Point	Not applicable
Auto Ignition	Not applicable
Explosive Properties	None

SECTION 3: Hazard Identification

GHS Classification

- Skin Corrosion – Category 1
- Serious Eye Damage – Category 1
- Specific Target Organ Toxicity (Single Exposure) – Category 3 (Respiratory irritation)

DANGER

Hazard Statements

- H314: Causes severe skin burns and eye damage.
- H318: Causes serious eye damage.
- H335: May cause respiratory irritation.

Precautionary Statements

- Avoid breathing dust.
 - Wear protective gloves.
 - Wear eye and face protection.
 - Wash thoroughly after handling.
 - Use only outdoors or in well-ventilated areas.
 - Keep away from moisture and acids.
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SECTION 4: First Aid Measures

Eye Contact

- Flush immediately with clean water for at least **15–20 minutes**.
- Remove contact lenses if present.
- Seek immediate medical attention.

Skin Contact

- Remove contaminated clothing.
- Wash affected area with plenty of water.
- Do not rub the skin.
- Obtain medical attention if irritation or burns occur.

Inhalation

- Move person to fresh air.
- Keep comfortable for breathing.
- Seek medical attention if coughing or breathing difficulty persists.

Ingestion

- Rinse mouth thoroughly.
- Do NOT induce vomiting.
- Give water if the person is conscious.
- Obtain immediate medical attention.

SECTION 5: Fire Fighting Measures

Quicklime is:

- Non-combustible
- Non-flammable

Suitable extinguishing media:

- Water spray (for surrounding fire only)
- Dry chemical
- Foam
- Carbon dioxide



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Special hazards:

Quicklime reacts vigorously with water producing heat.

Firefighters should wear:

- Self-contained breathing apparatus (SCBA)
- Full protective clothing

SECTION 6: Accidental Release Measures

Personal Precautions

- Avoid dust formation.
- Wear PPE.
- Avoid breathing dust.

Environmental Precautions

Prevent entry into:

- Drains
- Surface water
- Sewers

Cleanup

- Sweep carefully.
- Use vacuum designed for alkaline dust.
- Store in dry containers.
- Avoid adding water directly.

SECTION 7: Handling and Storage

Handling

- Handle in dry conditions.
- Avoid dust generation.
- Avoid contact with moisture.
- Do not eat, drink or smoke while using.

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Storage

Store in:

- Cool
- Dry
- Well-ventilated area

Protect from:

- Water
- Humidity
- Acids

Keep away from:

- Food products
- Animal feed

SECTION 8: Exposure Controls / Personal Protection

Exposure Limits

Organization	Limit
OSHA PEL	5 mg/m ³ (Respirable fraction)
ACGIH TLV	2 mg/m ³

Engineering Controls

- Local exhaust ventilation
- Dust collection system

Personal Protective Equipment (PPE)

Eyes

- Chemical splash goggles
- Face shield

Hands

- Chemical-resistant gloves
- Nitrile or PVC gloves

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Body

- Protective clothing
- Long sleeves

Respiratory

If dust exceeds exposure limits:

- N95
- P2/P3 respirator
- Approved dust mask

SECTION 9: Stability and Reactivity

Stable under normal dry storage conditions.

Avoid:

- Water
- Moisture
- Acids

Hazardous reaction: $\text{CaO} + \text{H}_2\text{O} \rightarrow \text{Ca(OH)}_2 + \text{Heat}$

- Reaction with water is strongly exothermic.
- Hazardous decomposition:
- None under normal conditions.

SECTION 10: Toxicological Information

Routes of Exposure

- Skin
- Eyes
- Inhalation
- Ingestion



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Effects

Eyes

- Severe burns
- Permanent eye damage
- Blindness possible

Skin

- Severe irritation
- Chemical burns

Inhalation

- Nose irritation
- Throat irritation
- Coughing
- Difficulty breathing

Ingestion

- Burns mouth and digestive tract
- Stomach pain
- Vomiting

SECTION 11: Ecological Information

Quicklime increases water pH.

Large releases may harm Fishes and Aquatic organisms

Not persistent.

Not bio-accumulative.

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SECTION 12: Disposal Considerations

Dispose according to local regulations.

Do not discharge into:

- Rivers
- Lakes
- Sewers

Waste should be handled by licensed disposal contractors.

SECTION 13: Transport Information

Item	Information
UN Number	Generally not regulated
Proper Shipping Name	Calcium Oxide
Hazard Class	Not regulated
Packing Group	Not applicable

Protect from moisture during transportation.

SECTION 14: Regulatory Information

Typical applicable standards include:

- OSHA Hazard Communication Standard
 - GHS (Globally Harmonized System)
 - REACH (EU, where applicable)
 - Local occupational health and safety regulations
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