

# NATURAL GAS

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## Synonyms

LNG (liquefied natural gas), CNG (compressed natural gas)

Natural gas contains methane (synonyms for methane include marsh gas, fire damp, methyl hydride, swamp gas).

## Description

Mixture of low molecular weight aliphatic hydrocarbons. Occurs abundantly in earth's crust, extracted from geological deposits. Formed by anaerobic decay of organic matter (e.g. sewage, manure, bogs). Used as fuel.

## Contains:

methane	approximately 85%
ethane	approximately 10%
propane, nitrogen, butane	small amounts
mercaptans (additive)	trace

Gas is colourless, flammable, and lighter than air. Liquefied at -120 to -170 degrees C. Mercaptans (smell like rotten eggs) are added in low concentrations to assist leak detection.

## Toxicity

### Mechanism of Toxicity

Uncombusted gas is a simple asphyxiant which displaces oxygen from inspired air, resulting in hypoxia. Incomplete combustion (e.g. malfunctioning gas furnace) results in production of carbon monoxide. **See** CARBON MONOXIDE.

### Toxic Dose

Symptoms of hypoxia may occur if oxygen concentration in inspired air is reduced to 15-16%; loss of consciousness will occur at oxygen concentration of 8%.

### Clinical Effects

- **Topical:** Exposure may result in frostbite. Wound initially may look superficial but injury to fat and muscle may be more severe.
- **Inhalation:** Inhalation of uncombusted gas may result in hypoxia. Symptoms include fatigue, air hunger, impaired vision, headache, confusion, poor coordination, impaired judgment, seizures, cyanosis, coma and death from anoxia. Rapid loss of consciousness at high concentrations.

## Treatment

1. **Topical:** In case of frostbite, immediately place affected area in lukewarm water until circulation returns. Change water often to maintain temperature. Partial re-warming may lead to refreezing of thawed tissue and increased tissue damage. Dermal freezing may not respond to rewarming procedures used for ordinary frostbite due to extremely rapid freezing caused by pressurized gas.
2. Dress as for thermal burn. Monitor distal perfusion if injury occurs in an extremity. Monitor for infection. Reconstructive surgery may be required.
3. **Inhalation:** Remove from exposure. Administer oxygen. Provide ventilatory support as required.
4. If incomplete gas combustion, **see** CARBON MONOXIDE.
5. If natural gas leak is suspected, shut off gas supply (if possible), leave area and contact local gas supply company immediately.