CONDITION

Mineral spirits poisoning

Mineral spirits poisoning is harmful exposure to petroleum-based solvents commonly used in paint thinners and cleaning products.

WHAT IT IS
Harmful exposure to petroleum-based paint-thinning solvents

BODY SYSTEM
Lungs, brain, digestive tract, skin, and eyes

MAIN SYMPTOMS
Coughing, vomiting, dizziness, breathing difficulty

WHAT CAUSES IT
Swallowing, breathing, or prolonged contact with mineral spirits

HOW IT IS DIAGNOSED
Exposure history, examination, and chest X-ray for breathing symptoms

MAIN TREATMENT
Supportive care, especially breathing support

CAN IT BE CURED?
Sometimes - severe aspiration can cause lasting damage

IS IT AN EMERGENCY?
Sometimes - trouble breathing or reduced alertness needs emergency care

LONG-TERM OUTLOOK
Most recover; severe aspiration may leave lung damage

Overview

Mineral spirits are petroleum-based liquids used to thin paint, clean brushes, degrease surfaces, and make some household or industrial products. They may also be called white spirits or Stoddard solvent. Paint thinner can contain mineral spirits, although some paint thinners contain other chemicals.

Poisoning can happen after mineral spirits are swallowed, breathed in as vapor, or left on the skin. Eye splashes can also cause injury.

The greatest immediate concern after swallowing mineral spirits is aspiration . This means some of the liquid enters the lungs instead of going down to the stomach. Aspiration can happen while swallowing, coughing, choking, or vomiting. Even a relatively small amount in the lungs can cause chemical inflammation called aspiration pneumonitis .

Breathing concentrated vapor, especially in an enclosed space, can affect the brain and lungs. Skin contact usually causes irritation rather than whole-body poisoning, but repeated contact can damage the skin.

There is no specific antidote. Treatment focuses on preventing further exposure and supporting breathing and other body functions while the chemical is cleared.

Symptoms

Symptoms depend on how the exposure happened, how concentrated the product was, and whether liquid entered the lungs.

After swallowing, symptoms may include:

Coughing or choking soon after swallowing may suggest aspiration. Lung symptoms can develop or become worse over the next several hours. These can include rapid breathing, wheezing, chest discomfort, fever, and shortness of breath.

Breathing mineral spirits vapor may cause headache, nausea, dizziness, confusion, or unusual sleepiness. High concentrations can lead to poor coordination, fainting, seizures, or severely slowed breathing.

Skin exposure removes natural oils from the skin. This can cause redness, dryness, cracking, itching, or a rash. Repeated exposure may cause dermatitis, meaning ongoing skin inflammation.

An eye splash can cause burning, redness, pain, and tearing. Vision may become temporarily blurred because of irritation.

- Coughing, choking, or gagging
- Nausea, vomiting, or stomach discomfort
- Burning or irritation in the mouth and throat
- Drowsiness, dizziness, or poor coordination

Causes and risk factors

Mineral spirits poisoning is caused by exposure to a mixture of hydrocarbons. Hydrocarbons are chemicals made mainly from hydrogen and carbon and are found in petroleum products.

Common exposure situations include accidentally drinking mineral spirits stored in an unlabelled container, inhaling vapor while painting or cleaning in a poorly ventilated room, and

using the liquid to siphon or remove another substance. Children may be exposed when products are left within reach.

Risk is higher when:

"Odorless" mineral spirits still contain hydrocarbons. The reduced smell does not mean that the product is harmless.

People who regularly work with solvents may have repeated low-level exposure. This is more likely when skin protection, ventilation, or workplace controls are inadequate.

- The product is stored in a drink bottle or cup
- Work takes place in a small or enclosed space
- Ventilation is poor
- Contaminated clothing remains against the skin
- Someone intentionally inhales the vapor
- Swallowing is followed by coughing or vomiting

Diagnosis

Mineral spirits poisoning is usually diagnosed from the exposure history, symptoms, and physical examination. If possible, the product container or label can help identify the ingredients. Do not bring a leaking or contaminated container into a vehicle or healthcare building.

There is no routine blood test that specifically confirms mineral spirits poisoning.

A clinician may measure blood oxygen with a finger sensor and listen to the lungs. A chest X-ray may be used when there is coughing, choking, low oxygen, fever, or breathing difficulty. Lung changes may not appear immediately, so an early normal X-ray does not always exclude aspiration injury.

More serious exposures may require an electrocardiogram, or ECG, to check the heart rhythm. Blood tests can assess oxygen levels, acid balance, electrolytes, and organ function when symptoms are severe.

Treatment and management

First, move away from the source without entering an unsafe or heavily contaminated space. Avoid flames and sparks because many mineral spirits products are flammable.

For skin exposure, remove contaminated clothing and wash the skin thoroughly with soap and water. For an eye splash, rinse the eye gently with clean, lukewarm water. Remove contact lenses if they come out easily.

After swallowing mineral spirits, do not make yourself or another person vomit . Vomiting increases the chance that liquid will enter the lungs. Do not use home remedies or give activated charcoal unless a poison specialist specifically directs it. Rinse the mouth and contact a poison centre promptly for advice based on the product and exposure.

In a healthcare setting, treatment may include observation, oxygen monitoring, supplemental oxygen, and medicine to ease wheezing. Severe breathing problems may require a breathing tube and mechanical ventilation.

Activated charcoal generally does not absorb hydrocarbons well and may increase aspiration risk. Antibiotics like amoxicillin or doxycycline do not treat the initial chemical lung inflammation, although they may be used if there is evidence of a later bacterial infection. Corticosteroids like prednisone or hydrocortisone are not routinely used for uncomplicated hydrocarbon aspiration.

Someone without symptoms may still be monitored for several hours because breathing problems can be delayed. The required observation period is based on symptoms, examination findings, and poison-centre guidance.

Complications

The main complication is aspiration pneumonitis. Inflamed lungs may have trouble moving oxygen into the blood. Severe cases can progress to respiratory failure or acute respiratory distress syndrome, a widespread form of lung injury.

Other possible complications include:

Severe complications are not expected after every exposure. Risk is greater when there is ongoing coughing, reduced alertness, low oxygen, or concentrated exposure in an enclosed area.

- A later bacterial lung infection
- Abnormal heart rhythms after a major exposure
- Seizures, coma, or brain injury from severe oxygen loss
- Persistent skin inflammation after repeated contact
- Lasting breathing limitations after serious lung damage

Prevention

Many accidental exposures can be prevented, although no safety step removes every risk.

Keep mineral spirits in their original, clearly labelled container. Never pour them into water bottles, soft-drink bottles, cups, or food containers. Store them closed, upright, and out of children's reach.

Use the product only with the ventilation and protective equipment described on its label or safety data sheet. An ordinary dust mask does not filter solvent vapor. Workplace respiratory protection requires the correct equipment, fit, and training.

Wear suitable gloves when prolonged skin contact is possible. Replace contaminated clothing and wash exposed skin rather than allowing the product to dry on it.

Do not siphon mineral spirits by mouth. Avoid using them near flames, cigarettes, heaters, or other ignition sources. Dispose of leftover product through an appropriate household or workplace hazardous-waste service.

Living with it and what to expect

Many mild vapor, skin, or eye exposures improve after the chemical is removed and the affected area is cleaned or ventilated. Headache and dizziness should improve away from the vapor, but continuing symptoms need assessment.

After aspiration, symptoms may become more noticeable over several hours. Mild chemical pneumonitis may settle with monitoring and supportive care. More substantial lung inflammation can take days or weeks to improve. Severe injury may require hospital treatment and can leave reduced exercise tolerance or other lasting breathing problems.

Follow-up may be needed if cough, wheezing, breathlessness, fever, or chest discomfort continues after the initial assessment. A clinician may check oxygen levels, examine the lungs, or arrange repeat imaging based on the symptoms. Routine repeat X-rays are not needed for everyone.

Repeated workplace exposure can cause recurring skin problems and symptoms such as headache or dizziness. These may continue if exposure controls are not improved. An occupational health assessment can help identify the product, exposure route, and practical changes needed at work.

When to get medical help

Contact a poison centre promptly after mineral spirits have been swallowed, even if there are no symptoms yet. In the United States, Poison Control is available at 1-800-222-1222 . Elsewhere, use the local poison information service.

Call emergency services now if the exposed person has:

Move someone exposed to vapor into fresh air only if this can be done safely. Do not enter a contaminated enclosed space without proper protective equipment. Do not give food or drink to someone who is very drowsy, vomiting repeatedly, or having difficulty swallowing.

Arrange non-emergency medical follow-up for a cough that does not settle, continuing shortness of breath, a persistent skin rash, or repeated headaches and dizziness linked to solvent use.

- Trouble breathing, severe wheezing, or blue or grey lips
- Persistent coughing or choking after swallowing the liquid
- Severe confusion, unusual drowsiness, or difficulty waking
- A seizure, collapse, or loss of consciousness
- Exposure to concentrated vapor in an enclosed space with significant symptoms

Common questions

Is mineral spirits poisoning the same as paint thinner poisoning?

Mineral spirits are a common ingredient in paint thinner, but paint thinners can contain different solvent mixtures. Treatment decisions are based on the exact product, its label, and how the exposure occurred.

What happens if I swallow only a small amount?

The amount swallowed is not the only concern. A small amount entering the lungs can cause more harm than a larger amount that stays in the stomach. Do not induce vomiting. Contact a poison centre for case-specific advice.

Can mineral spirits fumes poison me?

Yes. Concentrated vapor can cause headache, nausea, dizziness, drowsiness, and breathing irritation. Risk is higher in poorly ventilated or enclosed spaces. Leave the area if it is safe to do so and seek help if symptoms are significant or do not improve in fresh air.

How long do symptoms last?

Mild irritation or dizziness may improve within hours after exposure ends. Lung inflammation from aspiration can worsen over several hours and may take days or weeks to resolve. The course is longer when lung injury is severe.

Should I drink milk or water after swallowing mineral spirits?

Do not rely on milk, water, or another home remedy to treat the exposure. Rinse the mouth, do not cause vomiting, and follow instructions from a poison centre. Giving liquid may be unsafe if the person is drowsy, coughing, or having trouble swallowing.

Will a chest X-ray show mineral spirits in the lungs?

An X-ray does not show the liquid itself. It may show inflammation caused by aspiration, but those changes can take time to appear. Symptoms, oxygen levels, examination findings, and the exposure history are also important.

Sources

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