

METHYL ETHYL KETONE (MEK) EXPOSURE IN NAVY AVIATION:

SHORT- AND LONG-TERM HEALTH EFFECTS

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Methyl Ethyl Ketone (MEK), also known as 2-butanone, is a fast-evaporating industrial solvent widely used in U.S. Navy aviation maintenance. MEK is commonly used for:

- Cleaning aircraft parts
- Preparing metal surfaces for painting or bonding
- Degreasing fuel system components
- Wiping sealant surfaces

Its strong solvent action and rapid evaporation increase inhalation and skin exposure risks, especially in confined workspaces such as hangars, fuel bays, and maintenance shops.

SHORT-TERM (ACUTE) EFFECTS OF MEK EXPOSURE

1. Respiratory and Airway Irritation:

- Burning throat and nose
- Coughing
- Shortness of breath
- Chest tightness

These symptoms are more severe in poorly ventilated areas.

2. Neurological Symptoms (very common with MEK):

MEK is a central nervous system depressant.

Symptoms may include:

- Headaches
- Dizziness or lightheadedness
- Confusion or disorientation
- Fatigue
- Impaired coordination

High-level inhalation can cause temporary loss of consciousness.

3. Eye and Skin Irritation:

- Red, watery eyes
- Burning sensations
- Skin redness, dryness, cracking

MEK removes natural skin oils and can worsen dermatitis with frequent contact.

4. Nausea and Gastrointestinal Effects:

- Nausea or vomiting from vapor exposure
- Metallic or chemical taste in the mouth

5. Fire and Explosion Hazard Exposure:

MEK is highly flammable. Sailors working with it may have been exposed to secondary hazards such as smoke or fumes during accidental ignition events.

LONG-TERM (CHRONIC) EFFECTS OF MEK EXPOSURE

1. Chronic Neurological Effects:

Repeated exposure over months or years may cause:

- Memory problems
- Difficulty concentrating
- Chronic headaches
- Sleep disturbances
- Mood changes (irritability, anxiety)

2. Peripheral Neuropathy (long-term, repeated high exposure):

- Numbness or tingling in hands or feet
- Burning sensations
- Reduced coordination

3. Chronic Respiratory Conditions:

Prolonged exposure may lead to:

- Chronic cough
- Airway hypersensitivity
- Worsening asthma
- Decreased lung function

MEK alone is irritating, but combined with other aviation chemicals (JP-5, hydraulic fluids, sealants) it increases airway damage risk.

4. Dermatological Conditions:

Frequent skin contact can lead to:

- Chronic dermatitis
- Sensitization to solvents
- Cracking, bleeding skin

5. Organ Stress (Liver and Kidneys):

MEK is metabolized in the liver and eliminated through the kidneys.

Long-term exposure may cause:

- Elevated liver enzymes
- Kidney irritation

While serious organ damage is uncommon, chronic mild dysfunction has been documented in high-exposure occupations.

6. Synergistic Toxicity with Other Aviation Chemicals:

MEK is known to *increase* the toxicity of:

- Toluene
- Xylene
- Jet fuel vapor

This means sailors exposed to multiple chemicals may face amplified health effects.

NAVY AVIATION ROLES AT HIGHEST RISK

- Aviation Structural Mechanics (AM)
- Aviation Electronics Technicians (AT)
- Aviation Machinist's Mates (AD)
- Corrosion control technicians
- Fuel cell/line maintenance personnel
- Airframe repair and sealant workers
- Depot-level artisans and painters

Closed maintenance bays and fuel-cell entry work create especially high exposure risk.

VA DISABILITY CLAIM WRITEUP EXAMPLE

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****Statement in Support of Claim: MEK Exposure – Navy Aviation****

I am submitting this statement in support of my claim for service-connected disability due to chronic exposure to Methyl Ethyl Ketone (MEK) during my service in the United States Navy.

From [YEAR] to [YEAR], I served as an Aviation [RATE/MOS] assigned to the USS [SHIP] and to naval air stations where I performed routine and corrective maintenance on aircraft components. MEK was used daily for cleaning, degreasing, corrosion control, and preparing surfaces for sealants and painting. My duties required repeated direct contact with MEK through wiping parts, cleaning sealant residue, and working with open containers in areas with limited ventilation.

Personal protective equipment was not consistently available or enforced during my service. As a result, I frequently inhaled MEK vapors and experienced immediate symptoms including headaches, dizziness, burning eyes, throat irritation, nausea, and episodes of disorientation while working in maintenance bays and confined fuel cell environments.

Since leaving the Navy, I have continued to experience chronic symptoms consistent with long-term solvent exposure, including persistent headaches, memory and concentration difficulty, chronic respiratory irritation, and ongoing skin irritation on my hands and forearms. Medical evaluations have documented [NEUROPATHY / CHRONIC DERMATITIS / CHRONIC RESPIRATORY CONDITION / OTHER], which are known long-term effects associated with MEK exposure.

Given my rate, repeated exposure to MEK in daily aviation maintenance operations, the lack of adequate protective equipment, and the continuation of symptoms after service, I believe my current

medical conditions are directly related to my military occupational exposure. I request that the VA consider this disability as service-connected.

Signed,

[Veteran Name]

[Date]