



# R.E.D. FACTS

## Methyl Nonyl Ketone

### **Pesticide Reregistration**

All pesticides sold or used in the United States must be registered by EPA, based on scientific studies showing that they can be used without posing unreasonable risks to people or the environment. Because of advances in scientific knowledge, the law requires that pesticides which were first registered prior to 1984 be reregistered to ensure that they meet today's more stringent standards.

In evaluating pesticides for reregistration, EPA obtains and reviews a complete set of studies from pesticide producers, describing the human health and environmental effects of each pesticide. The Agency imposes any regulatory controls that are needed to effectively manage each pesticide's risks. EPA then reregisters pesticides that can be used without posing undue hazards to human health or the environment.

When a pesticide is eligible for reregistration, EPA explains its basis for its decision in a Reregistration Eligibility Decision document, or RED. This fact sheet summarizes the information in the RED for methyl nonyl ketone, reregistration case 3094.

### **Use Profile**

Methyl nonyl ketone is a dog and cat repellent/training aid and iris borer deterrent. The pesticide is used in households, paths, patios, solid waste containers and on ornamental plants. Methyl nonyl ketone is formulated as a pressurized liquid, granular, liquid ready-to-use (pump/sprayer), solid (crystalline), and liquid for reformulating use only. EPA assumes that the volume of use of this pesticide is relatively low.

### **Regulatory History**

Methyl nonyl ketone was first registered in the United States in 1966 for use as a dog and cat repellent. Currently, there are 48 products registered to 65 companies. The Agency issued a Data Call-In for methyl nonyl ketone requiring the submission of additional product chemistry data.

### **Human Health Assessment**

#### **Toxicity**

In studies using laboratory animals, methyl nonyl ketone exhibited no toxicity via the oral and inhalation routes and was placed in Toxicity

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Category IV (the lowest of four categories) for these effects. Methyl nonyl ketone was slightly toxic (Toxicity Category III) for dermal toxicity, eye irritation and dermal irritation and was a weak dermal sensitizer. The systemic No Observed Effect Level (NOEL) was equal to or greater than 300 mg/kg/day with the Lowest Observed Effect Level (LOEL) being greater than 300 mg/kg/day. The NOEL for dermal irritation was 100 mg/kg/day with the LOEL being 300 mg/kg/day based on moderate to severe dermal irritation.

No evidence of maternal toxicity, developmental toxicity, or mutagenicity is associated with methyl nonyl ketone. Based on available information, no toxicological endpoints of concern (including short term or intermediate term) were identified.

### **Dietary Exposure**

Based on the current use patterns and exposure profiles for methyl nonyl ketone, residues in/on food and/or feed are not expected to occur. Therefore, a dietary risk characterization was not required.

### **Occupational and Residential Exposure**

Based on the current use patterns, there is a potential for exposure to mixers/loaders/applicators from use of methyl nonyl ketone, specifically from applying granulars by hand and lawn spreaders, and from applying liquid sprays to ornamentals, furniture, and rugs. In addition, there is a potential for exposure to persons entering treated sites after application of methyl nonyl ketone is complete, specifically from re-entering treated lawns, gardens, and residences. While the potential for exposure to handlers as well as post-application exposure exists, an occupational and/or residential exposure assessment is not required because there are no toxicological endpoints of concern.

### **Human Risk Assessment**

Based on the current use patterns and exposure profiles for methyl nonyl ketone, no dietary or occupational risk characterizations are required since residues in or on food/feed are not expected to occur and no toxicological endpoints of concern for either short or intermediated terms were identified.

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**Environmental Assessment****Environmental Fate**

The degradation of methyl nonyl ketone in soil appears to be microbiologically mediated under aerobic conditions with a half-life of 0.5 day. The pesticide was observed to be relatively immobile in soil and has a low potential to leach into ground water or move offsite into surface water. Methyl nonyl ketone was determined to be relatively immobile in sodium azide-sterilized sandy loam, clay loam, sand, and silt loam soils and does not hydrolyze.

**Ecological Effects**

Methyl nonyl ketone was observed to be practically nontoxic to avian species on an acute oral and subacute dietary basis, moderately toxic to both cold and warmwater fish and highly toxic to aquatic invertebrates.

**Environmental Fate and Ecological Effects Risk Assessment**

Due to the repellant nature of the product, risks to non-target terrestrial species is not likely. In addition, non-target aquatic species exposure is unlikely because this chemical is neither persistent nor mobile in the environment and associated use patterns.

**Additional Data Requirements**

EPA is requiring product-specific data including product chemistry, revised Confidential Statement of Formulas and revised product chemistry labeling for the reregistration of products containing methyl nonyl ketone.

**Product Labeling Changes Required**

All methyl nonyl ketone end-use products must comply with EPA's current pesticide product labeling requirements and with the following conditions as described below.

**Entry Restrictions**

The Agency is establishing the following entry restrictions for all homeowner uses of methyl nonyl ketone end-use products.

For liquid applications:

"Do not allow persons or pets to enter the treated area until sprays have dried."

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For dry applications:

"Do not allow persons or pets to enter the treated area until dusts have settled."

**Application Requirements:**

EPA is requiring the following application requirements on all end-use products containing methyl nonyl ketone:

"Do not apply this product in a way that will contact any person or pet, either directly or through drift. Keep people and pets out of the area during application."

**User Safety Requirements:**

EPA is requiring the following user safety requirements on all end-use products containing methyl nonyl ketone:

"Follow manufacturer's instructions for cleaning/maintaining personal protective equipment. If no such instructions for washables, use detergent and hot water. Keep and wash personal protective equipment separately from other laundry."

**User Safety Recommendations:**

EPA is requiring the following user safety recommendations on all end-use products containing methyl nonyl ketone:

"Users should wash hands before eating, drinking, chewing gum, using tobacco, or using the toilet."

"Users should remove clothing immediately if pesticide gets on or inside clothing. Then wash thoroughly with detergent and hot water separately from other laundry and put on clean clothing."

"Users should remove personal protective equipment immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing."

**Regulatory  
Conclusion**

EPA has determined that all products containing methyl nonyl ketone are eligible for reregistration. The use of methyl nonyl ketone products in

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accordance with labeling measures specified in this RED will not pose unreasonable adverse effects to humans or the environment. These products will be reregistered once the required confirmatory generic data, product specific data, Confidential Statement of Formulas and revised labeling are received and accepted by EPA.

**For More  
Information**

Upon publication of the Fact Sheet, EPA is requesting public comments on the Reregistration Eligibility Decision Document (RED) for methyl nonyl ketone during a 60-day time period, as announced in a Notice of Availability published in the Federal Register. To obtain a copy of the RED or to submit written comments, please contact the Pesticide Docket, Public Response and Program Resources Branch, Field Operations Division (H-7506C), Office of Pesticide Programs (OPP), US EPA, Washington, DC 20460, telephone 703-305-5805.

Following the comment period, the methyl nonyl ketone RED will be available from the National Technical Information Service (NTIS), 5285 Port Royal Road, Springfield, VA 22161, telephone 703-487-4650.

For more information about methyl nonyl ketone or about EPA's pesticide reregistration program, please contact the Special Review and Reregistration Division (H-7508W), OPP, US EPA, Washington, DC 20460, telephone 703-308-8000. For information about reregistration of individual products containing methyl nonyl ketone, please contact Robert Forrest, Product Manager, Registration Division (H-7505C), OPP, US EPA, Washington, DC 20460, telephone (703) 305-6600.