



Root Control Fact Sheet

Information on Root Control Services and Materials

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EPA Regulates Metam Sodium Sewer Use

THIS FACT SHEET CONTAINS...

- New EPA Restrictions on Metam Sodium
- What Municipalities Need to Know
- Overview of EPA Determinations
- Frequently Asked Questions

“Metam sodium is likely to be carcinogenic in humans.”

-U.S. EPA



New EPA Restrictions on Metam Sodium

This fact sheet will inform municipalities of the changes being implemented by the U.S. Environmental Protection Agency (EPA) for sewer root control products containing metam sodium.

The EPA recently completed a re-registration review of metam sodium – one of three major chemicals used in root control. This thorough evaluation highlights scientific concerns arising from both laboratory research and field use. EPA has concluded that metam sodium is likely to be carcinogenic in humans and can be acutely toxic to bystanders through drift of the off-gas MITC. Research also revealed that applying metam sodium in sewers can disrupt nitrification in wastewater treatment plants. EPA is requiring substantial restrictions on metam sodium products* while additional studies are currently being conducted to further assess their risk.

**Not all chemical root control products contain metam sodium.*

What Municipalities Need to Know

Municipal purchasing officers and operators of wastewater treatment plants need to know the hazards associated with chemicals they authorize for use in their collection system. Only then can they make informed decisions about risks to their employees and residents, and manage any harmful effects to the operation of the sewage treatment plant.

The EPA recognizes the public’s “right to know” about hazardous chemicals, and publishes all EPA scientific reviews and decisions in the Federal electronic docket. This Fact Sheet, along with the RootControlFacts.com website, is an aggregation of those primary EPA decisions relevant to the chemical root control industry. For full EPA documentation, please visit the FAQs and Resource Library at www.RootControlFacts.com.



Overview of EPA Determinations

“Whether the chemical that causes nitrification inhibition is metam sodium or MITC, each of these chemicals inhibits nitrification in activated sludge at relatively low concentrations....”

-U.S. EPA

Issue	EPA Determination
Cancer Risk	Classified as “Likely to be carcinogenic* in humans” <i>*A carcinogen is a cancer causing substance.</i>
Usage Guideline	Restricted Use, due to high acute toxicity
Applicator Protective Equipment	Full Body Coverall Required Over: <ul style="list-style-type: none"> • Full-Face Respirator • Chemical Resistant Gloves • Long Sleeve Shirt • Long Pants • Chemical Resistant Shoes
Application Protocol	<ul style="list-style-type: none"> • Product must be mixed and applied in a closed, drip-free system to diminish exposure to applicators
Application Limitations	<ul style="list-style-type: none"> • Product cannot be pumped within 50 feet of an access manhole
Additional Testing Required by EPA	<ul style="list-style-type: none"> • Measure amount of metam sodium applicators encounter on skin • Measure amount of MITC in applicator breathing zone • Reproductive effects of breathing MITC: two-generation rat study • Carcinogenicity studies testing MITC (both rat and mouse) • Acute toxicity product analysis • Product chemistry analysis for N-nitrosodimethylamine (NDMA) – a probable human carcinogen
Wastewater Treatment Plant (WWTP) Effects	<ul style="list-style-type: none"> • Evidence exists of WWTP upsets caused by product • Applicators must inform WWTP of application and warn of potential adverse effects to biological sewage breakdown process
Other Concerns	<ul style="list-style-type: none"> • NDMA found in wastewater effluent attributed to product containing metam sodium. EPA is investigating.



Frequently Asked Questions



OVERVIEW

What are the new restrictions for metam sodium sewer use?

The restrictions fall into two categories: those designed to protect people from exposure to metam sodium, and those ensuring wastewater treatment plants are aware of potential harmful effects to the plant's treatment process.

To protect people from exposure, EPA is requiring applicators to:

- Wear coveralls over one layer of clothing;
- Wear a full-face respirator;
- Use closed mixing and loading application equipment;
- Not treat within 50 feet of an access manhole;
- Continually rinse the application hose with water.

To alert wastewater treatment plant operators of the potential for adverse effects, EPA is requiring applicators to:

- Notify the treatment plant prior to an application;
- Inform them of the amount of product to be applied; and
- Warn that high concentrations may adversely affect the sewage breakdown process.

When do the restrictions go into effect?

EPA restrictions will go into effect by January 1, 2010.

Why is EPA changing its regulations regarding sewer use of metam sodium?

EPA's multi-year review of metam sodium makes clear that exposure to metam sodium poses a variety of risks. First, the MITC gas is acutely toxic, and people need to be protected from any single high-level exposure. Second, repeated lower levels of exposure to metam sodium may cause cancer, as EPA classifies the chemical "likely to be carcinogenic in humans." And third, the use of metam sodium in sewers has the potential to cause harmful effects at wastewater treatment plants. EPA is requiring label changes for metam sodium products in an effort to minimize human exposure and properly alert treatment plants to potential harmful effects.

PROTECTING PEOPLE FROM METAM SODIUM

What specific requirements affect applicators?

To minimize any chance for chemical exposure, applicators will have to wear:

Coveralls over a long-sleeved shirt, long pants, chemical resistant shoes and gloves, and a full-face or helmet/hood style respirator. Furthermore, all support personnel must have available the same protective equipment in the event of a chemical spill or other emergency.

What are the new treatment restrictions?

In order to mitigate exposure through drippage and inhalation, the products must be applied through a closed system. A clean water rinse hose must be used to continuously rinse off the application hose as it is extracted from the pipe. Application must be shut off 50 feet before the nozzle reaches an access manhole.

What impact does this have on public inspectors in the vicinity of the work site?

Municipal inspectors and other support personnel in the vicinity of an application must have the full protective clothing (coveralls, chemical resistant gloves and shoes, and full-face respirator) available to protect them from any accidental exposure to metam sodium or the off-gas, MITC.

Can metam sodium harm bystanders not involved in the application?

Yes. EPA determined "Metam sodium poses a hazard to bystanders exposed to relatively low levels from off-site drift. The effects of drift are usually minor to moderate leading primarily to irritant effects to eyes, throat, and skin, headache, nausea, and shortness of breath....The potential for metam sodium to drift and cause health effects at distances above one-quarter mile and many hours after application is well documented."

TOXICITY INFORMATION

Does EPA classify metam sodium as a carcinogen (i.e., cancer-causing substance)?

Yes. EPA evaluated animal laboratory studies and determined metam sodium was a "probable human carcinogen" in 1995. This year, the EPA affirmed its conclusion, stating metam sodium is "likely to be carcinogenic in humans."

What is the relationship between metam sodium and the toxic gas, MITC?

Metam sodium chemically converts to the gas MITC when mixed with water. MITC is very toxic and as a gas, there is significant possibility for people to breathe it either during application or as a result of off-site drift. Because MITC is so hazardous, EPA regulates these products as "restricted use, due to acute toxicity."

Is the MITC gas classified as a carcinogen?

EPA does not have adequate research to determine whether the off-gas, MITC, is carcinogenic. In the

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Frequently Asked Questions (continued)

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2009 re-registration review, the EPA is requiring cancer studies in laboratory animals to determine whether breathing MITC can cause cancer.

WASTEWATER TREATMENT PLANT EFFECTS

What does the presence of metam sodium mean for the WWTP operator?

EPA's review of published literature concluded that metam sodium and/or the gas MITC "...inhibits nitrification in activated sludge at relatively low concentrations...."

Because of this concern, applicators must notify downstream treatment facilities prior to the application, inform them of the amount to be applied, and warn that high levels may adversely affect the biological sewage breakdown process. This will allow a treatment operator to make a decision whether to accept that treatment.

How can a WWTP operator decide whether metam sodium will impact the operator's facility?

EPA has provided guidance regarding circumstances that could contribute to harmful effects (i.e. inhibition of the nitrification process) occurring at wastewater treatment plants, due to applying metam sodium in sewers. These circumstances include:

- 1) application in close proximity directly upstream of wastewater treatment plants;
- 2) application upstream of wastewater treatment plants that have a relatively low influent volume capacity or during periods of relatively low influent flow;
- 3) multiple concurrent applications upstream of wastewater treatment plants;
- 4) dumping of excess concentrate or mixed solution into sewer lines following application; and
- 5) application under circumstances in which nitrifying bacteria have also been exposed previously and/or are exposed concurrently to other chemical and/or environmental stressors that adversely affect them.

What is NDMA, and how is it associated with metam sodium products?

NDMA is considered a "probable carcinogen" by EPA and has been found in wastewater treatment plant effluent. It is extremely difficult to remove, so research was undertaken in California to determine the point sources of contamination. Metam sodium sewer use products were identified as the highest single point source. EPA is requiring product chemistry testing in 2010 to identify the level of NDMA contamination in root control products.

FUTURE EPA EVALUATIONS

Why is EPA still requiring lab studies to evaluate sewer use of metam sodium?

EPA documented a need for real-world data measuring the amount of metam sodium and MITC applicators get on their skin or breathe. EPA is requiring these studies in 2010, and a final risk assessment will be performed once the studies are completed.

Can EPA cancel metam sodium sewer use in the future?

Yes. EPA is requiring real-world exposure data to confirm or refute whether these restrictions are adequate to address the risks. If studies show continuing risks from metam sodium, EPA can move to cancel the sewer use of metam sodium entirely.

FALSE ADVERTISING

I've seen literature describing metam sodium as "safe" and "non-carcinogenic." What is EPA's response?

EPA recently issued a "Notice of Warning" that using the words "safe" and "non-carcinogenic" to market metam sodium sewer products was false and misleading, a violation of Federal law, and must cease immediately.

Is it true that "no other method of control approaches the effectiveness found in the four major agencies using Vaporooter"?

No. EPA recently warned registrants that this statement, which is based on an Agency report over 30 years old, is false and misleading and that making the claim in product marketing is a violation of Federal law. EPA has required the statement be removed from all advertising of metam sodium products.

ALTERNATIVES

Are there alternatives to metam sodium?

Yes. In its alternatives assessment, EPA identified several other products for sewer root control that do not contain metam sodium. EPA's report states "Risks involved on the use of metam sodium and its harmful effects on denitrifying bacteria, is a concern for the Agency....[S]everal efficacious registered herbicides are available as alternatives to metam sodium. On the basis of available information, diquat dibromide seems to be the likely alternative to metam sodium for the control of plant roots in sewer lines."

Visit www.RootControlFacts.com to view EPA scientific and regulatory documentation regarding restricted sewer use of metam sodium.