

Nemasol™ soil fumigants

A proven soil-care solution for healthy, fertile farms

- **Effective and economic**

Residue-free control of weeds, soilborne diseases, and pests in a single application

- **Versatile in application, consistent in result**

A broad-spectrum solution for integrated soil management

- **Improved yield with faster turnover rate of land**

Rebalances soil, so crops can establish themselves faster and more vigorously

- **A trusted solution from a global innovator**

Security of supply, shared expertise, and steadfast stewardship

It doesn't matter who you are or where you live—every successful harvest starts with fertile, healthy soil. When applied appropriately, soil fumigants can help maintain optimized soil conditions.

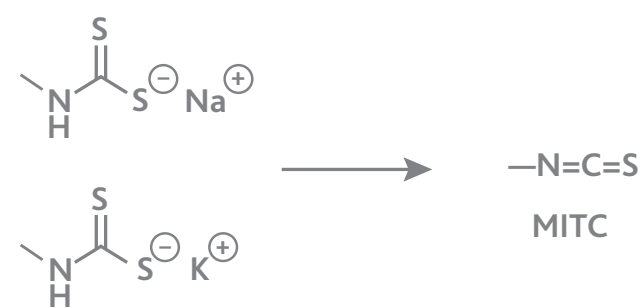
A mainstay of Eastman's soil care solutions, Nemasol™ offers a broad-spectrum solution for integrated soil management. As a residue-free solution, it's an effective way to control weeds, soilborne diseases, and pests compatible with biological control—all without interfering with pollinators such as honeybees.

Advantages of using Nemasol in your cultivation program include:

- Residue-free applications**
Nemasol is a residue-free solution to replace some of the commonly used herbicides, fungicides, nematicides, and insecticides that can persist in soil and crops. Because it degrades into simple organic compounds, no pesticide residue remains in subsequent cultivated crops. This allows growers to reduce the overall use of other crop protection products, reducing risks of residues.
- One-step control of weeds, soilborne diseases, and pests**
By acting on many pathogenic organisms, a single application of Nemasol can decrease or even replace crop protection sprays, reducing labor and application costs.
- Improved yield and faster turnover rate of land**
By rebalancing the soil's biotope and avoiding the post-plant stress of agrochemicals, Nemasol helps your crops establish themselves faster and more vigorously, resulting in a faster turnover of fields in year-round cultivating systems.

Chemistry inspired by nature

Nemasol consists of two grades: metam sodium and metam potassium, both *n*-methylthiocarbamate salts. Both are commercially available in aqueous solutions.



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MITC

Once applied, Nemasol decomposes into methyl isothiocyanate (MITC), the major gaseous active metam metabolite known to act as a broad-spectrum soil disinfectant.

Isothiocyanates occur in our natural environments. They originate from glucosinolates that can be found in *Brassica* species such as broccoli, cabbage, cauliflower, rapeseed, and mustard.

Biological activity

Nemasol provides protection against a vast catalog of soil-inhabiting plant pathogenic organisms such as nematodes, fungi, and insects. It also allows the control of weeds and their seeds.

Nematodes	Fungi	Weeds
Root-knot nematodes <i>Meloidogyne</i> spp.	<i>Fusarium</i> spp. <i>Phialophora</i> spp. <i>Phoma</i> spp. <i>Phytophthora</i> spp.	<i>Amaranthus</i> spp. <i>Galium aparine</i> <i>Malva</i> spp. <i>Matricaria</i> spp.
Cyst nematodes <i>Globodera</i> spp. <i>Heterodera</i> spp.	<i>Pythium</i> spp. <i>Sclerotinia</i> spp. <i>Verticillium</i> spp.	<i>Mercurialis annua</i> <i>Poa annua</i> <i>Senecio</i> spp.
Free-living nematodes <i>Paratylenchus</i> spp. <i>Pratylenchus</i> spp. <i>Rotylenchulus</i> spp. <i>Trichodorus</i> spp.	<i>Aphanomyces</i> spp. <i>Macrophomina</i> spp. <i>Sclerotium</i> spp. <i>Monosporascus</i> spp. <i>Thielaviopsis</i> spp.	<i>Solanum</i> spp. <i>Sorghum halepense</i> <i>Stellaria</i> spp. <i>Taraxacum officinale</i> <i>Portulaca</i> spp.
Free-living nematodes <i>Paratylenchus</i> spp. <i>Pratylenchus</i> spp.		<i>Orobancha</i> spp. <i>Cuscuta</i> spp. <i>Echinochloa</i> spp. <i>Polygonum</i> spp. <i>Chenopodium</i> spp. <i>Cirsium</i> spp.

Metam and MITC are also known to control certain stages of soilborne threats such as wireworms (*Agriotes*), larvae of common European crane fly in lettuce (*Tipula paludosa*), larvae of marsh crane fly in cabbage (*Tipula oleracea*), bacteria causing common scab in potatoes (*Streptomyces scabies*), bacterial black spot in lambs lettuce (*Acidovorax valerianellae*), and Moko bacterial disease in bananas (*Ralstonia solanacearum*).

Crops

Nemasol is used primarily in connection with growing high-value fruit and vegetable crops such as carrot, tomato, lettuce, melon, strawberry, potato, cucumber, sweet pepper, pineapple, and green bean. It is also widely used for growing ornamentals and tree nurseries.

Pollinators

Nemasol is incorporated into the soil at pre-plant stage and does not interfere with pollinators such as honeybees.





Process for using Nemasol



1. Soil preparation
Remove old crop debris, and moisten the soil if necessary.



2. Nemasol application
Apply the product into the soil and seal the surface



3. Waiting period
2–6 weeks



4. Seeding or planting

Application methods

Nemasol offers a broad spectrum of control over a very wide range of climatic zones through different application methods, including:



Chemigation



Soil injection



Soil incorporation

Grower practices vary strongly, depending on factors such as target, crop type, geography, farm size, level of mechanization, climate, open field, or protected area.

Reference your stewardship manual for more information on application methods, or contact your local Eastman representative. Application guidelines can vary depending on your country's registration. Always consult the label before use and your authorities' website.

Grade	Packaging	Pack size	Pallet
Metam sodium 510 g/L NEMASOL™ soil fumigant	HDPE cans	25-L can 60-L can	32 cans (CP1) 9 cans (CP1)
	HDPE drums	210-L drum	4 drums (CP3)
	IBC	1000-L IBC	
	Stainless steel road tankers		
Metam potassium 690 g/L NEMASOL™ K soil fumigant	HDPE cans	25-L can 60-L can	32 cans (CP1) 9 cans (CP1)
	HDPE drums	210-L drum	4 drums (CP3)
	IBC	1000-L IBC	
	Stainless steel road tankers		

Together, we feed the world.

Few industries are as steeped in potential and hope as agriculture. Across the globe, farmers trust their prospects to the soil, weather, and a myriad of other unknowns. Like them, your business starts with a seed of an idea. Challenged by the prospect of feeding an increasing population, you must comply with emerging regulations and develop formulations that are expected to work.

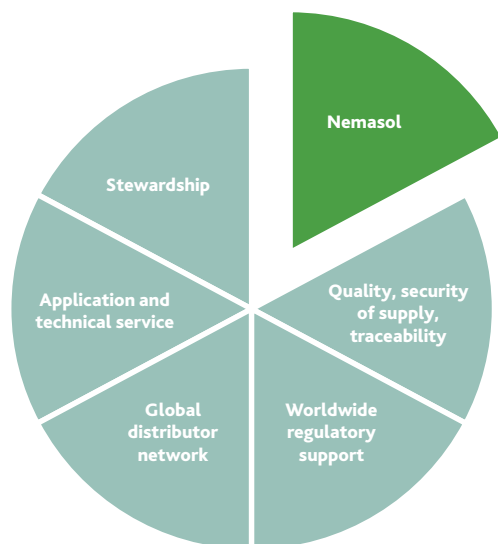
When you partner with Eastman, you can expect a reliable supply of critical materials bolstered by steadfast global production. Moreover, you can expect to get the insight, technical support, and personal attention you need to grow high-quality, fresh produce.

For generations of growers, Eastman soil care solutions have helped farms all over the world. With presence in more than 50 countries worldwide, we provide the necessary solutions you need to maximize yields while minimizing your labor and costs. Together, we contribute to the challenge of feeding an increasing population.





Serving people and planet



Eastman is one of the world's largest producers of metam sodium and metam potassium. Like you, we are committed to ensuring these solutions are used to their fullest potential in the safest possible manner. That's why, in addition to manufacturing, we also provide global regulatory support.

Global supply. Local service.

Success in agriculture takes more than chemicals. It takes commitment and collaboration. As one of the world's largest producers of methylamines and derivatives, Eastman offers a secure supply of key raw materials for manufacturing dithiocarbamates. The central location of our manufacturing site in Belgium near the Port of Antwerp—Europe's second largest port—makes Eastman an agile global supplier of Nemasol with full traceability.

Eastman fosters advanced application techniques through partnerships with farm equipment manufacturers, greenhouse specialists, and professional applicators. We remain committed to providing comprehensive local service, listening carefully to your needs and working together on solutions—including providing assistance with:

- Application method
- Soil preparation
- Design of injection equipment
- Establishing a distribution network to facilitate an on-time supply

Sustainability—never growing complacent

At Eastman, we're committed to environmental stewardship. Leverage our dedicated crop protection team to get information and documentation on the correct and safe application of our products.

We also provide comprehensive safety training, teaching farmers how to use our crop protection products to effectively and safely increase their yields and quality of harvested goods. Because safety is an integral part of the way we operate, most of our training takes place at customer events and meetings. Additional courses are conducted in cooperation with local, regional, and international associations, authorities, and partners.

In countries with no statutory requirements for certification, Eastman focuses on training end users on the safe handling of our products. With our regional organizations and local distributors, we establish prioritized action plans that can be implemented locally. On-site safety checks and safe application training are also available on request.

It's time to expect more—from your fields and from your partners. Together, let's explore the possibilities to increase yields, reduce your costs, and protect the environment.

Learn more at eastman.com/nemasol.

EASTMAN
The results of insight™

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