Testimony to Vermont House Ways & Means Committee, March 18, 2004
by Annette Smith, Vermonters for a Clean Environment

Rocks or Rocket Science

My name is Annette Smith. I wish to thank the Chair and the Committee for the opportunity to testify today. I am executive director of Vermonters for a Clean Environment, a grassroots organization. I am testifying on behalf of our members who live in Florence, a village of Pittsford, Vermont, whose interests are affected by the waste of Omya, Inc., which operates a calcium carbonate processing factory in their neighborhood.

The issue today is legislation that would affect the application fees, the state Solid Waste franchise tax, and Regional Solid Waste District fees associated with the finding that Omya's waste may pose a threat to human health or safety, the environment or create a nuisance, and is subject to the solid waste rules. Additionally, the legislation as introduced would eliminate the Regional Solid Waste District's ability to require a financial instrument to be posted by the corporation to assure that the funds are in place for clean-up of the site or closure.

I want to make it clear from the outset that members of Vermonters for a Clean Environment have no interest in hurting the mining industry. Our interest is entirely in assuring that public health and the environment are protected, and that the public does not pay the costs associated with the industry's operations. We want to assure that the mining industry does not hurt us.

I have titled my testimony "Rocks or Rocket Science." Most of us have been under the impression that what the mining industry does is just rocks. That belief is fueled by the industry's statements. In October, 2000, Jim Reddy, the North American President of Omya, Inc. told the Rutland Herald in an interview:

"Calcium carbonate is probably the most environmentally benign mineral you can put into anything. And the process of making it is just grinding. There's no chemical reactions we're doing, it's a benign process in the manufacturing."
-- *James Reddy, President of Omya, Inc., Rutland Herald interview, October 9, 2000*

Therefore it has come as some surprise to learn that Omya uses a large number and large quantities of chemicals at its processing plant in Vermont. Understanding this subject is more like rocket science.

This pie chart shows the statewide commercial pesticide usage for the years 1995 through 1999. The yellow represents Rutland County, which accounts for 61% of the total. Shown another way, this bar chart shows the annual and 5-year total pounds of active ingredients used by county. This chart shows the total for Rutland County in light purple and Omya's usage in maroon. As you can see, Omya accounts for the majority of Rutland County's and the state of Vermont's commercial pesticide usage.

These graphs represent only about 5 of the approximately 15 chemicals approved for use by Omya in the NPDES permit.* Here are the quantities of those chemicals that were used from 1999 through 2002.**

Test results in these reports by Heindel & Noyes done on Omya's site show approximately 60 chemical compounds in liquids and solids on Omya's site, which is built on fractured bedrock.*** Omya uses old quarries in fractured bedrock as settling ponds. Adding to neighborhood concern about Omya's operations is the record of spills of chemicals [hand out], about a dozen since Nov. of 2000 when 20 tons of a biocide entered these onsite quarries.****

The legislation before us today seeks to apply the Solid Waste fees and taxes only to the contaminated portion of the waste, if at all. At the current rate, as I understand it, the application fee on Omya's 100,000 annual tons of waste would generate $75,000 (75 cents per ton x 100,000 tons), the state franchise tax would generate $600,000 annually ($6 per ton x 100,000 tons), and the district fee would generate approximately $1.9 million annually.

Two of Omya's neighbors have calculated, independently, that after 10 years, which is the reported life of the 32 acre, 80 foot tall waste pile that Omya is building, the waste will contain approximately 15,000 tons or 30 million pounds of chemicals if we accept Omya's assertion that the contaminants comprise approximately five tenths of one percent (.5%) of the total weight. Omya is aware of and has not disputed those estimates.

If the application fee is applied to the total contaminants generated over 10 years, this legislation seeks to have the application fee reduced to about $11,250 (75 cents per ton x 15,000 tons). Similarly, the state franchise tax would be reduced to $90,000 over 10 years ($6 per ton x 15,000 tons), and the district fee would not apply at all if the waste is determined to be "categorical" waste. No bond would be posted for clean-up or closure of the site.

For the last 17 months, Omya, its neighbors, and the Solid Waste Division have been engaged in what everyone involved would probably agree has been and continues to be a tortured process without rules over whether or not Omya's waste pile requires permits. Hours of Agency of Natural Resources staff time have been spent evaluating Omya's technical and legal documents. Not one penny has been paid by Omya to the state. Under the circumstances, it is relevant to ask how much Omya's waste pile proposal is costing the state and who is paying those costs?

The $75,000 application fee that would apply under the existing system would seem to be appropriate and perhaps even insufficient. The revised fee of $11,250 would require that someone other than the applicant must absorb the costs of processing Omya's application.

The state franchise tax pays for recycling and reuse programs, the solid waste

management assistance program, salaries for the program, and subsidizes shared enforcement by solid waste districts throughout the state. The district fee is used to encourage recycling and reuse. The district also has the authority to require a financial instrument be put in place to cover the costs of clean-up of the site or closing of the landfill. This legislation proposes to reduce those fees to a total of perhaps as little as $9,000 a year (state tax of $90,000/10 years).

In filings asserting its right to an exemption from permitting, Omya has repeatedly argued that "the tailings product is not waste, [but] is stockpiled on site for future use." Omya has been piling its waste on site for two decades, and for the last 4 years has been dumping the waste into groundwater. There is no evidence that Omya intends to reuse its waste. However, research shows that technologies exist to clean up the waste so it can be reused, or to use it as is to manufacture concrete block, for instance. It is appropriate to apply the current fee structure to Omya's total waste in order to provide the necessary incentive to encourage recycling and reuse.

Furthering the argument that it is appropriate to apply the current fee structure to Omya's total waste are the legitimate concerns of the neighbors of Omya's site that the waste poses a threat to their health or safety and the environment and may create a nuisance.

Omya admits in its filings that "the new tailings product will contain fewer contaminants than the old tailings." This raises the question of exactly what is in the old waste piles, which have gone unregulated, without permits, for two decades, and who will pay to clean them up?

Omya has provided test results and analysis in the form of reports by Heindel & Noyes containing laboratory work by Endyne. A close examination of the data in these reports raises even more questions about the science that is being presented by Omya which is, to date, the only evidence we have about the contaminant levels in Omya's waste and throughout its site.

I offer you some sample pages from the tests. Note that virtually all of the data are reported as < or "less than". Sometimes there are check marks next to the numbers. Occasionally there are actual numbers, but that is rare.

Recently I showed this report to a licensed professional geologist. He confirmed what several other experienced environmental experts have suggested – that the data contained in these reports is essentially irrelevant. Test results normally show "ND, or non-detect", or they show the level detected. It is not acceptable practice to show test results as "less than." Do the check marks mean something was detected, but below the level shown? Why are different tests for the same substances done at different minimum levels? (look at benzene, for instance) Why are most of the results shown as "less than?" It is the opinion of this licensed geologist, who is available to testify to this committee, that these data are unacceptable and would be rejected by the environmental agency in the state in which he conducts his business.

We are now at the point of asking why the state of Vermont has accepted data that are essentially meaningless, and we are seeking the way and the means to assure that human health and the environment are protected by conducting independent testing. In the more than a dozen meetings that have occurred throughout the Act 250 hearing on the waste pile, in local zoning, and the Agency's reconsideration, the neighbors of Omya's operations have asked for independent testing. Those requests, along with requests for air and dust data, have never been responded to and have been totally ignored.

We find that the means to require and pay for independent testing do exist through the very legislation that Omya is now seeking to change. Through assessment of taxes and fees, those moneys could be designated for independent testing of Omya's site and for incentives for recycling and reuse that may make the long-term storage of chemically-contaminated waste unnecessary, or at least ensure that the storage does not allow for the contaminated waste to enter the groundwater.

In November of 2003, Environmental Commissioner Jeffrey Wennberg determined that Omya's waste "may pose a threat to human health or safety, the environment, or create a nuisance… [and] are subject to the solid waste rules." Even though Omya has appealed that ruling and the Secretary has remanded the Commissioner's decision back to him for reconsideration, the fact remains that the Commissioner's decision stands and Omya is required to seek Solid Waste certification. Omya did not seek a stay of the Commissioner's decision.

Four months after the Commissioner's ruling, Omya has not applied for Solid Waste certification.

At what point does the state of Vermont exercise its duty to assure that human health and the environment are safe? Omya is operating an illegal solid waste facility, is dumping contaminated waste into groundwater, has provided the state of Vermont with data that are irrelevant, and is seeking to change laws that would enable the district and the state to recoup the costs of Omya's operations.

On behalf of the residents of Florence who are members of Vermonters for a Clean Environment, I am asking you to require that the state of Vermont and the Solid Waste District assess the fees necessary to pay for the program that is evaluating Omya's request to construct a 32-acre, 80 foot tall waste pile, to provide the funding for independent testing of Omya's site and to cover the costs of clean-up and eventual closure of the site, which is normal industry practice in other states.

The current fee structure is estimated to generate approximately $2 million annually. The estimate to do a thorough environmental evaluation of Omya's site is as much as $1 million.

The Town of Florence public water supply and the Otter Creek are located less than 3000 feet from Omya's site [point to poster]. Private water supplies are located even closer. Please put yourself in the position of the residents of the neighborhood. How would you

feel knowing that 15,000 tons of chemicals were being deposited in and on top of your aquifer? Would you drink the water? Would you breathe the air? Would you raise your children there? Would you be worried?

Please take the appropriate action to assure the neighbors of Omya's processing plant that they are safe.

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*Chemicals approved for use by Omya in Florence, Vermont
NPDES Discharge Permit NO. 3-0395

Anionic polyacrylate
Anionic polyacrylamide
Acrylic polymer partially neutralized with sodium hydroxide
Acrylate polymer and phosphoric acid
Polycarboxylic acid
Tall Oil Hydroxyethyl Imidazoline, Amine Acetate, Aminoethylethanolamine
Tetrahydro-3,5-dimethyl-2H-1,3,5 thiadiazine-2-thione
Formaldehyde
Methyl isothiocyanate
Magnesium Nitrate
5-chloro-2-methyl-4-isothiazoline-3-one
Magnesium Chloride
2-methyl-4-isothiazoline-3-one
Cupric Nitrate
Sodium orthophenylphenol: (1,1'-Biphenyl)-2-ol,sodium salt anionic polyacrylate
Phosphoric Acid
Sodium Hypochlorite and/or Bleach
Stearic Acid -- Saturated straight chain aliphatic monocarboxylic acids mainly palmitic and stearic acid.
Fuel oil: Kerosene, hydrotreated
Kerosene, hydrodesulfurized
Distillate, straight run, middle
Distillate, hydrodesulfirized, middle
Distillate, hydrotreated, middle

**Commercial Pesticide Usage, Rutland County, Vermont
http://www.vermontagriculture.com/pid.htm

Cooling Tower Usage for Year 2002
Pounds of Active Ingredient

Sodium Hypochlorite 377,891
Dazomet 107,281
Sodium O-phenylphenate 91,703
5-Chloro-2-methyl-4-isothiazolin-3-one 11,723
2-Methyl-4-isothiazolin-3-one 4,730

Cooling Tower Usage for Year 2001
Pounds of Active Ingredient

Sodium Hypochlorite 629,149
Dazomet 97,560
Sodium O-phenylphenate 87,558
5-Chloro-2-methyl-4-isothiazolin-3-one 2,406
2-Methyl-4-isothiazolin-3-one 652

Cooling Tower Usage for Year 2000
Pounds of Active Ingredient

Sodium Hypochlorite 162,877
Dazomet 108,443
Sodium O-phenylphenate 73,155
5-Chloro-2-methyl-4-isothiazolin-3-one 1,630
2-Methyl-4-isothiazolin-3-one 519

Cooling Towers for Year 1999
Pounds of Active Ingredient

Dazomet 484,175
Sodium O-phenylphenate 33,236
Sodium hypochlorite 9,343
5-Chloro-2-methyl-4-isothiazolin-3-one 2,028
2-Methyl-4-isothiazolin-3-one 22

***Primary Chemicals in the Waste
Acetone
Tall oil hydroxyethyl imidazoline
Sodium Ortho Phenyl-phenol
Toluene
Barium
Stearic acid -- octadecanoic and hexadecanoic acids

Chemicals identified in Omya waste tests:
Thione
MITC (methyl isothiocyanate)
Methylamine

Polyacrylate
Polyacrylamide
Acrylamide
Isopropyl alcohol
Carbon disulfide
Bromodichloromethane
Chloroform
Isopropylbenzene
Xylenes
Bis (2-ethylhexyl) phthalate
Octadecanoic Acid
Hexadecanoic Acid
Alkylated cyclic hydrocarbons
Benzothiozoles
Carboxylic acids
2-methyl-3-buten-2-ol
Dimethyl-1,4-dioxane
Alkylamines
Aliphatic/Alkylated cyclic hydrocarbons
Dimethyldioxane
1-phenyl ethanone
crotonic acid 2-heptanone 2-piperidinone Zinc
2-dibenzofuranol Lead
3-amino phenol Copper
2-butanone Arsenic
Dibenzofuranol Nitrogen
Phenol Sulfur

In groundwater at the Omya East tailings site in 2002:
n-butylbenzene
sec-butylbenzene
isopropylbenzene
p-isopropyltoluene
xylenes
BTEX
n-propylbenzene
1,3,5-Trimethylbenzene
1,2,4-Trimethylbenzene
Naphthalene
Etheylbenzene
Toluene
1-methylnaphthalene
2-methylnaphthalene
carbon disulfide

In groundwater from a 2001 oil spill:

TPH, DRO
Ethylbenzene
Xylenes
BTEX
1,3,5-Trimethylbenzene
1,2,4-Trimethylbenzene
Naphthalene
1-methylnaphthalene
2-methylnaphthalene

Spilled -- 10/01 and 1/04
Propylene Glycol

******OMYA recent spills**

11/18/00 – 20 tons/4500 gallons Sodium ortho-phenylphenate pumped to onsite quarries
4/13/01 – 10 - 15 gallons of diesel fuel leaked into ground
5/25/01 -- above spill estimated to be approximately 200 gallons of diesel fuel
8/17/01 – 10,000 gallons of "white slurry" released to "quarry where their manufacturing waste water goes"
8/17/01 – 15 gallons of hydraulic fluid into a pile of ground rock, contained in the ground rock.
8/21/01 – 18 gallons of lightweight gear oil into Dogleg Quarry (was this number verified?)
9/27/01 – 4 - 5 gallons of N-521D (thione) into Dogleg Quarry
10/3/01 – 300 gallons propylene glycol into Dogleg quarry
10/5/01 – diesel fuel leakage on east side of railcar wash building
11/2/01 – 300 gallons of railcar rinse water into storm water management system.
2/15/02 – 8 gallons of lubricating oil into Dogleg Quarry
2/18/02 – 5 gallons lubricating oil into Dogleg Quarry
6/30/02 – oil sheen on Smith Pond
1/6/03 – 250 gallons of N521D (thione) into Dogleg Quarry
1/13/04 – 41 gallons propylene glycol leaked to ground

*compiled by Annette Smith of Vermonters for a Clean Environment from public records.

Information about some of the chemicals used by Omya or in Omya's waste

Acetone
http://www.eco-usa.net/toxics/acetone.shtml

One effect of acetone seen in animals is an increase in the amount of certain enzymes (chemicals in the body that help break down natural substances in the body and chemicals that enter the body). The increase in these enzymes caused by acetone exposure can make some chemicals more harmful. This is one reason that people should be concerned about

being exposed to acetone; exposure to mixtures of chemicals in the environment, near hazardous waste sites, or in the workplace is very likely.

http://www.atsdr.cdc.gov/tfacts21.html

What happens to acetone when it enters the environment?
* A large percentage (97%) of the acetone released during its manufacture or use goes into the air.
* In air, about one-half of the total amount breaks down from sunlight or other chemicals every 22 days.
* It moves from the atmosphere into the water and soil by rain and snow. It also moves quickly from soil and water back to air.
* Acetone doesn't bind to soil or build up in animals.
* It's broken down by microorganisms in soil and water.
* It can move into groundwater from spills or landfills.
• Acetone is broken down in water and soil, but the time required for this to happen varies.

Thione or Dazomet

FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS
http://www.fao.org/WAICENT/FAOINFO/AGRICULT/AGP/AGPP/Pesticid/Specs/pdf/dazomet.pdf.

FAO SPECIFICATIONS AND EVALUATIONS FOR PLANT PROTECTION PRODUCTS
DAZOMET
Tetrahydro-3,5-dimethyl-1,3,5-thiadiazine-2-thione
2001

DAZOMET EVALUATION REPORT 146/2001
Explanation
The data for dazomet were evaluated in support of new FAO specifications. Dazomet is under patent in many countries in Europe until 2012. Dazomet was evaluated by the BBA (Germany) in 1971 and reviewed in 1993. It is currently under re-evaluation by the European Commission according to Commission Regulation (EC) No. 451/2000 (List 3). The draft specification and supporting data were provided by BASF AG in 2001. Uses -- Dazomet is applied before the planting of crops by soil incorporation, thereby causing it to act as a soil fumigant and disinfectant by decomposing to methyl isothiocyanate. It controls soil fungi (i.e. Fusarium, Pythium, Rhizoctonia, Sclerotinia, Verticillium and Colletotrichum coccodes (atramentarium), nematodes, germinating weed seeds and soil-dwelling insects (Pesticide Manual 2000).

Non-sensitizing
Dazomet is of moderate acute oral toxicity but of low dermal and inhalation toxicity. It was not irritating to skin and eyes and showed no skin-sensitizing properties.

Animal studies have shown that dazomet can cause damage to the liver when it is administered repeatedly and in high doses. Clear thresholds of effect could be determined. In long-term studies, no carcinogenicity was found. Animal studies did not show any indication of developmental toxicity or impairment of fertility.

Not clastogenic
No effect on the mitotic process
Dazomet did not show any mutagenic properties in various tests (in vivo and in vitro)

The ecotoxicological effects of dazomet were investigated using various organisms from major ecotoxicological groups. The results demonstrated that dazomet is very toxic to aquatic organisms like fish, crustaceans and algae, and moderately toxic to birds. Due to the mode of application, which prevents exposure to bees, the product was rated as harmless to bees. Dazomet has not been evaluated by the FAO/WHO JMPR or in the Environmental Health Criteria series, but has been classified by IPCS by hazard as slightly hazardous, class III, and noted as being irritant to skin and eyes (WHO 2002; ICSC 786).

The production of dazomet is under patent in many countries in Europe, until 2012. Dazomet was evaluated by the BBA (Germany) in 1971 and reviewed in 1993. It is currently under re-evaluation by the European Commission, according to Commission Regulation (EC) No. 451/2000 (List 3). Dazomet is an off-white to yellowish solid of sulphurous odour. It melts in the range 103 to 105°C and is of low water solubility (3.5 g/l). It is formulated as microgranules (MG) known as “Basamid Granular”. Dazomet rapidly hydrolyses in water, the rate increasing with increasing pH, and is relatively prone to photodegradation.

Particular consideration must be given to the rapid decomposition of dazomet when it comes in contact with water or humid air, generating gaseous methyl isothiocyanate (MITC). However, the proposer has indicated that the determination of the physico-chemical properties of pure dazomet (Table 1) such as solubility in water, the octanol/water partition coefficient (Pow), and photolysis charactersitics, could be clearly attributed to only dazomet and not to both dazomet and MITC.

Concerning the toxicology and ecotoxicology data (Table 3-6), the proposer has indicated that these data were attributed to dazomet irrespective of whether MITC was generated or not. However, this evaluation must identify the fact that certain conflicting assessments may have arisen from the difficulty of assessing dazomet characteristics when methyl isothiocyanate is almost inevitably generated under the conditions of test. In other words, the toxicology/ecotoxicology data refer to dosing with dazomet, and the observed effects may have been caused by dazomet, MITC or both. The Meeting recognised that apart from conducting parallel studies with dazomet and MITC, there is no way to distinguish between their effects. For instance, the Proposer’s assessment is that dazomet technical material is not irritating to the skin and eyes, and shows no skin-sensitising properties (Table 3). This conflicts with the WHO/PCS hazard classification, based on earlier, published studies, which indicates that dazomet is an irritant to skin and eyes. Recent

case reports also indicate that dazomet may have low sensitizing potential to skin in humans.

The irritancy of methyl isothiocyanate is well known and it may have been responsible for the effects observed. Nonetheless, the generation of methyl isothiocyanate from dazomet cannot be avoided under the conditions. Thus there is an underlying difficulty in separating 'dazomet data' from 'methyl isothiocyanate data'. This difficulty is due to the differing and potentially unpredictable degrees of dazomet decomposition that occurs in different aqueous environments. Thus, wherever water is present during any particular test, some doubt must remain as to whether the measurement recorded was due to the presence of dazomet and/or to its daughter compound methyl isothiocyanate. Taking into account this problem of data interpretation, the meeting accepted the data presented by the proposer. Dazomet is toxic to aquatic organisms like fish, crustaceans and algae, and is moderately toxic to birds.

P. 42-43
There is little information regarding the fate of dazomet in water. Sczerzenie et al. (1987) summarized several studies regarding dazomet's persistence in water. In contrast with its fate in soil, pH appears to be the key factor affecting the decomposition of dazomet in water. In aqueous solution at pH levels of 5, 7 and 9, dazomet decomposed with half-lives of 8.6, 2.6, and 1.46 hours, respectively. No temperatures were given. The half- life of dazomet in aqueous solution at pH 5 under irradiation was four hours, in comparison to a dark control, which had a half- life of 11 hours. Again, no temperatures were reported; however, MITC and carbon disulfide were identified as the decomposition products. Another study indicated that increased temperature or the presence of acid in water increased hydrolysis and yielded one molecule of carbon disulfide, two molecules of formaldehyde, and two molecules of monomethylamine per molecule of dazomet, and suggests that decomposition in water gives rise to different products than those formed during the decomposition in the soil (Figure III-3). An aqueous photolysis half- life of 0.584 day (at pH 5 and 25°C) and a hydrolysis half- life of 0.146 day (at pH 7 and 25°C) were reported by the registrant (DPR, 1999a).

Methyl Isothiocyanate as a Toxic Air Contaminant August 2002

I. Summary and Conclusions
In the environment, metam-sodium decomposes rapidly to form MITC. The transformation rate of metam-sodium to MITC depends strongly on soil temperature, soil moisture, and soil composition. Warm soil temperatures, increased concentrations of organic material or clay, small soil particle size, and low soil moisture facilitate metam-sodium's rapid conversion. Nearly complete conversion can occur in less than 30 minutes.

MITC is highly volatile. Its high vapor pressure allows it to readily volatilize from the soil and enter the atmosphere. Warm, dry soil conditions coupled with clay and sandyloam soils favor the volatilization of MITC from soil. Once in the air, MITC transforms by gas-phase photolysis, with a photolytic half- life between 3 to 4 days. The

primary photodecomposition products include MIC, H2S, and CS2, all of which are volatile. MIC may be photochemically stable in the atmosphere. However, H2S and CS2 both react with OH radicals in the atmosphere, with calculated half- lives of 2.5 days and approximately 2 weeks, respectively. In nine studies conducted in California, MITC was detected in the air at the application-site following soil- injection or sprinkler applications of metam-sodium, and in ambient air near locations where applications were occurring. During one application study, MITC and H2S were detected within an hour after the application began, indicating that metam-sodium was rapidly breaking down. This high rate of decomposition is expected, especially during the monitoring studies conducted in Kern County, where clay soils with small particle size are common, and in the summer, warm soils with low moisture content prevail. During the most recent ambient study (Seiber et al., 1999), MITC was detected in areas near where applications of metam-sodium were occurring. Detectable concentrations were measured in both indoor (residential) and outdoor air, with the highest concentrations occurring during the summer months, when warm, dry temperatures, and the increased use of metam-sodium contribute to MITC's presence in ambient air. During the most recent application-site study (Merricks, 1999), the highest MITC levels were detected during the late night and early morning. MITC may move offsite in all directions during periods of low wind and inversion.

Isothiazolinone or Kathon
http://www.dermnetnz.org/dna.acd/kathon.html

Contact allergy to isothiazolinone mix
Isothiazolinone mix allergy

What is isothiazolinone mix and where is it found?

Isothiazolinone mix includes the compounds 2-methyl-4-isothiazolin-3-one and 5-chloro-2-methyl-4-isothiazolin-3-one. They are used together as a preservative in cosmetics and commercial household products such as shampoos, cleaners and washing materials. It also has wide industrial uses. Isothiazolinone mix is more commonly known as the preservative product with the commercial name Kathon.

What are the reactions to isothiazolinone mix?

Localised allergic contact dermatitis may occur in sensitive individuals. The risk of sensitization is greater when the skin barrier is damaged, e.g when eczema is already present. A sensitivity reaction is also dependent on how contact with the product occurs and the concentration of isothiazolinone mix present. Preservatives with high corrosive concentrations of isothiazolinone mix may cause chemical burns in sensitized individuals.

Am I allergic to isothiazolinone mix?

Isothiazolinone mix allergy is diagnosed from the clinical history and by performing

special allergy tests, i.e. patch tests, using a solution of isothiazolinone mix 0.01% in aqueous solution.

Self-testing a product for isothiazolinone mix is possible but should be done only after first talking with your dermatologist. This should be done only with products that are designed to stay on the skin such as cosmetics (not including eyeliners or mascaras) and lotions. Apply a small amount of the product to a small tender area of skin such as the bend of your arm twice a day for one week. Examine the area each day and if no reaction occurs, the product is most probably suitable for you to use. Even so, you should still be cautious if you are intending to use it over large areas. Products such as shampoos, soaps and cleansers should not be tested in this way as they may cause an irritant dermatitis on tender areas of skin, which is not an allergic reaction.

Treatment of contact dermatitis due to isothiazolinone mix exposure

If you are diagnosed with isothiazolinone mix allergy then avoid exposure to isothiazolinone mix-containing products.

Once the dermatitis appears on the skin, treatment is as for any acute dermatitis/eczema, i.e. topical corticosteroids (those not containing isothiazolinone preservatives), emollients, treatment of any secondary bacterial infection (Staphylococcus aureus), etc.

What should I do to avoid isothiazolinone mix allergy?

Once isothiazolinone mix sensitivity is confirmed you should try to avoid exposure to any products containing isothiazolinone mix. Read product labels and avoid products that contain isothiazolinone mix or any of its alternative names. If unsure, ask your pharmacist for advice or a suitable alternative.

Inform your employer about your allergy. In the workplace try to avoid exposure to isothiazolinone mix, however if this is not practicable use measures such as protecting your skin with gloves to minimize exposure. Identify potential sources of exposure using Material Safety Data Sheets; these are required for all chemicals and substances that you may come into contact with in the workplace.

Alert your doctor to the fact that you have an allergy to isothiazolinone mix. Your dermatologist may have further specific advice, particularly if you are highly sensitive.

Alternative names of isothiazolinone mix
* Kathon®, Kathon CG®, Kathon 886®
* Methylchloroisothiazolinone (MCI)
* Methylisothiazolinone (MI)

Further information
Cass number:
* Kathon (55965-84-9)

* 2-methyl-4-isothiazolin-3-one (2682-20-4)
* 5-chloro-2-methyl-4-isothiazolin-3-one (26172-55-4)

Sensitizer:
* 2-methyl-4-isothiazolin-3-one (weak sensitiser)
* 5-chloro-2-methyl-4-isothiazolin-3-one (strong sensitiser)
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http://193.51.164.11/htdocs/monographs/vol73/73-16.html

ortho-PHENYLPHENOL AND ITS SODIUM SALT ortho-PHENYLPHENOL (Group 3)
SODIUM ortho-PHENYLPHENATE (Group 2B)

5. Summary of Data Reported and Evaluation
5.1 Exposure data
Exposure to ortho-phenylphenol and its sodium salt may occur during their production and use as industrial and agricultural fungicides, germicides and disinfectants, and as chemical intermediates. ortho-Phenylphenol has been detected in some groundwater and drinking-water samples as well as in some fruits and juices.

5.2 Human carcinogenicity data
No data were available to the Working Group.

5.3 Animal carcinogenicity data
ortho-Phenylphenol was tested for carcinogenicity in one experiment in mice and two experiments in rats by administration in the diet. Benign and malignant bladder tumours were induced at significant incidence in male rats in one study. Sodium ortho-phenylphenate was tested in mice in one study and in rats in two studies. It induced tumours of the bladder and renal pelvis in male rats in both studies and a marginal increase in the incidence of bladder tumours in female rats in one of the studies. There was no evidence of carcinogenicity in mice.

Bladder carcinogenesis induced in male rats by administration of N-nitrosobutyl(4-hydroxybutyl)amine was enhanced by sodium ortho-phenylphenate but not by ortho-phenylphenol. In one study, dermal application of sodium ortho-phenylphenate enhanced skin tumorigenesis in mice given 7,12-dimethylbenz[a]anthracene.

5.4 Other relevant data
The major urinary metabolites of sodium ortho-phenylphenate are the glucuronide and sulfate conjugates of ortho-phenylphenol and phenylhydroquinone. The capacity of male rats to metabolize sodium ortho-phenylphenate is several times greater than that of females.

Urothelial toxic effects and increased regenerative cell proliferation in the bladder epithelium are induced in rats. Although the mechanism of toxicity is unknown, the higher pH induced by the sodium salt may enhance the toxic effect of sodium ortho-

phenylphenate in comparison with that of ortho-phenylphenol.

In a study of rats exposed to ortho-phenylphenol by oral gavage during gestation, the high dose resulted in delayed skeletal maturation of pups but had no effect on their viability, growth or morphological appearance.

No data were available on the genetic and related effects of ortho-phenylphenol and its sodium salt in humans. Mixed results were found in assays with ortho-phenylphenol for genotoxicity in rodents in vivo and in cultured mammalian cells in vitro. It induced gene mutation in mammalian cells in vitro. It was not mutagenic to bacteria or Drosophila but induced aneuploidy in fungi.

5.5 Evaluation
There is inadequate evidence in humans for the carcinogenicity of ortho-phenylphenol and sodium ortho-phenylphenate.

There is limited evidence in experimental animals for the carcinogenicity of ortho-phenylphenol.

There is sufficient evidence in experimental animals for the carcinogenicity of sodium ortho-phenylphenate.

Overall evaluation
ortho-Phenylphenol is not classifiable as to its carcinogenicity to humans (Group 3).

Sodium ortho-phenylphenate is possibly carcinogenic to humans (Group 2B).
For definition of the italicized terms, see Preamble Evaluation.

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