Petition to the National Organic Standards Board for Inclusion of (S, S)-Ethylenediaminedisuccinic Acid (free acid) as an Inert Ingredient on the National List of:

"Synthetic Substances Allowed for use in Organic Crop Production § 205.601"

Submitted by:

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Section A.

1. Introduction-Inclusion of EDDS on the National List

This petition is intended to provide sufficient evidence such that the synthetically-produced yet biodegradable chemical substance of low toxicity, (S, S)-Ethylenediaminedisuccinic Acid (free acid), is eligible to be included in section §205.601 of the National List:

"Synthetic substances allowed for use in organic crop production."

This chemical, Ethylenediaminedisuccinic Acid (EDDS), is: a) produced naturally by the Actinomycetes, *Amycolatopsis japonicum* sp. nov. and *Amycolatopsis orientalis*, both of which occur naturally in soil b) degrades rapidly and is completely mineralized and c) exhibits low mammalian toxicity.

The petitioner, W. Neudorff GmbH KG, intends to use EDDS as an inert ingredient in multiple (and varied) pesticide formulations. There are synthetic chelating agents currently approved as inert ingredients in organic pesticides. EDDS occurs naturally in the environment and has a better environmental fate and degradation profile than the chelating agents currently allowed in organic pesticides. The approval of EDDS for use in formulating organic pesticides would provide pesticide producers an opportunity to further reduce the impact their products have on the agricultural ecosystem.

Section B.

1. Nomenclature

Chemical name: (S, S)-Ethylenediaminedisuccinic Acid (free acid)

Common name: EDDS

2. Manufacturer/Producer Contact Information

Manufacturer name: Innospec Limited

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3. Current and Intended Chemical Usage

The proposed substance ([S, S]-EDDS free acid, CAS # 20846-91-7, trade name Enviomet C265), is intended to be used as an inert ingredient in multiple pesticide formulations. It is intended to be a substitute for other, less readily biodegradable synthetic chelating agents currently used in these pesticides. The pesticide formulations containing EDDS are intended to be sold to kill pests of many types. These pesticides are registered for use on and around nearly all crop types (fruits, vegetables, fruit trees, outdoor ornamentals, lawns, greenhouses, field crops, nurseries, etc.) in both the homeowner and commercial agricultural markets.

This chemical product is currently sold in the United States as a biodegradable chelating agent. The product is sold under two separate trade names (which have matching CAS numbers); Enviomet C265 and Natrlquest E30. These two trade names are recent

changes from an initial set of trade names (product formulation did not change) which were as follows, respectively: Octaquest A65 and Octaquest E30. The particular product supported in this petition is Enviomet C265 ([S, S]-EDDS, free acid). (S, S)-EDDS (free acid) has two close chemical relatives in particular which are also marketed under the Enviomet brand name as Enviomet C140 andC320 (formerly Octaquest E30 and FN respectively). These two chemicals have CAS numbers that are different than (S, S)-EDDS (free acid) as well as each other. See Section 8 for further information.

The "Enviomet" product group is targeted toward industrial applications while the "Natrlquest" product is used in the personal care product industry. As mentioned above, Enviomet C265 and Natrlquest E30 have the same CAS number.

These products are based upon EDDS which is a chelating agent of the transition metals such as iron, copper and manganese. Transition metal ions are responsible for many undesirable side reactions such as peroxide decomposition, oxidation, malodors and free radical generation, to name a few. The use of EDDS thus abolishes these unwanted reactions.

EDDS is also a selective chelating agent unlike other agents in that it binds transition metals even in the presence of the hardness ions calcium and magnesium. Hardness ions are responsible for scale formation and can interfere with surfactants to produce scum and unwanted deposits. EDDS will chelate these hardness ions, but binds to the transition metals in preference if both ion types are available in a particular solution.

The Enviomet products are used in both powder and liquid laundry applications. In liquid detergents, EDDS removes stains that contain metal ions such as grass and spinach by binding and lifting the metals from the fabric surface. EDDS eliminates hydroxyl radical formation in peroxide systems by trapping metals thus preventing decomposition of oxidative species which leads to radicals. Radicals are harmful in that they attack fibers in both pulp and cloth and have adverse reactions with dyes which cause fading. EDDS inhibits dulling of metal-sensitive dyes by binding the transition metals present in wash water. It also acts as a biocide potentiator; biocides and preservatives are added to formulas to kill unwanted bacteria that may be introduced during manufacture or end-usage. Chelating agents such as EDDS have been found to enhance the activity of biocides thus allowing significantly less biocide to be used. This is especially important in laundry formulations as biocides and preservatives can cause skin irritation and sensitization.

EDDS is also a key component in hair bleaching applications where it is used as a copper sequestrant.

In pulp processing, EDDS removes iron and manganese at the Q-stage and stabilizes peroxides at the P-stage. It also enhances brightness at the P-stage. All of these applications reduce or eliminate the usage of other chelating agents which are non-biodegradable.

Use of EDDS in personal care formulations provides benefits to the stability and efficacy of the formulation in manners similar to the more industrial-type usage described above.

The EDDS acts as an anti-oxidant by binding metal ions which can otherwise react with oxygen in the air to form radicals and other reactive species that lead to discoloration and odors. Even in trace concentrations, metal ions alone can cause unwanted side reactions. Metal ions such as iron and copper can be introduced into the formulation through raw materials such as water, air or equipment used in the manufacturing plant.

In peroxide formulations, radical formation is prevented by binding the hydroxyl ions. Preventing formation of radicals gives formulations greater stability thus longer shelf life.

Biocide potentiation is also an important benefit of utilizing EDDS in personal care products. The risk of bacterial contamination increases once consumers open the product, thus increasing the possibility of spoilage. Biocides are used to prevent spoilage. The enhancement by EDDS of biocides in these formulations means less biocides are used therefore decreasing the amount of chemicals that can cause skin irritation or sensitization.

Water hardness ions such as calcium and magnesium reduce the effectiveness of surfactants in cleansing products leading to poor cleansing and foam quality. EDDS binds these ions from tap water and enhances the performance of surfactants.

Intended usage is not expected to divert from the various usages and purposes described above.

4. Crop, Livestock and Handling Activities

As mentioned in section 3, the proposed substance, Enviomet C265 ([S, S]-EDDS free acid, CAS # 20846-91-7) is intended to be used as an inert ingredient in multiple pesticide formulations. It is intended to be a substitute for other, less biodegradable synthetic chelating agents currently used in these pesticides. The pesticide formulations containing EDDS are intended to be sold to kill pests of many types. These pesticides are registered for use on and around nearly all crop types (fruits, vegetables, fruit trees, outdoor ornamentals, lawns, greenhouses, field crops, nurseries, etc.) in both the homeowner and commercial agricultural markets.

The pesticide chemicals will be applied at the rates listed on the registered/approved labels.

a) Homeowner Usage-Intended Application Rates, Sites and Methods

HOW TO APPLY: The methods of application are intended to be as per label consumer directions. Examples (depending upon pesticide type) include utilizing sprayers, spreading by hand or with a granular spreader where pests are observed.

WHERE TO APPLY: Directions are specific to each individual product which will include EDDS. Examples (depending upon pesticide type) include spraying directly on the crop and/or pest.

b) Commercial Agriculture Usage-Intended Application Rates, Sites and Methods

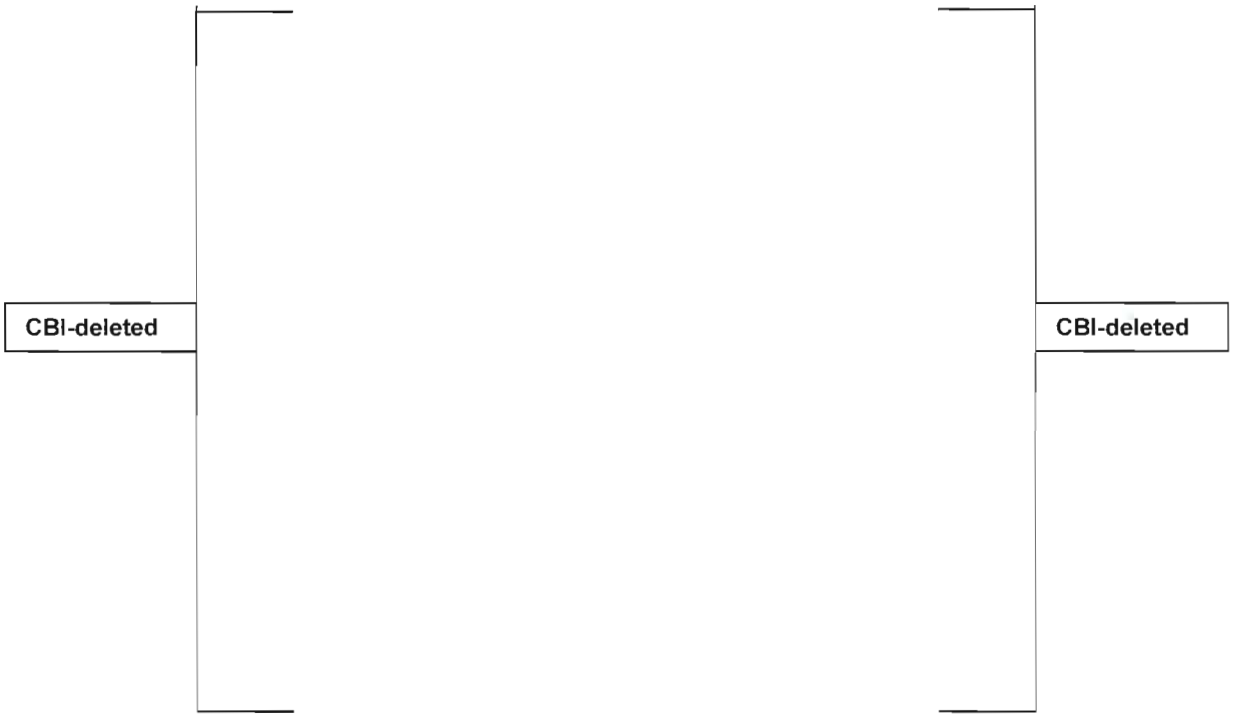
HOW TO APPLY: The methods of application are intended to be as per label consumer directions. Examples (depending upon pesticide type) include utilizing broadcast sprayers or granular spreaders where pests are observed.

WHERE TO APPLY: Directions are specific to each individual product which will include EDDS. Examples (depending upon pesticide type) include spraying directly on the crop and/or pest.

5. Substance Source and Manufacturing Procedure

CONFIDENTIAL

Ethylenediaminedisuccinic Acid (sold as Enviomet C265) is produced as follows:



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6. Prior Review Summary

On January 19, 2005, the EPA published a "Notice of Filing" for a pesticide tolerance petition submitted by the Associated Octel Company, Limited for the product (S,S)-Ethylenediaminedisuccinic acid (CAS Reg. No. 20846-91-7). The trade name for this product is Enviomet C265 (previous trade name was Octaquest A65; formula is identical). The purpose of the petition was to request an exemption from the requirement of a tolerance for residues of this chemical when used as an inert ingredient sequestrant or chelating agent in pesticide formulations applied to growing crops under 40 CFR 180.192.

Effective November 14, 2008, EPA granted the petitioned exemption from the requirement of a tolerance for residues of this chemical under the above-mentioned usage regime. The EPA granted this exemption because they found the tolerance for this product to be "safe" where "safe" is defined as "...a reasonable certainty that no harm will result from aggregate exposure to the pesticide chemical residue, including all anticipated dietary exposures and all other exposures for which there is reliable information." This definition encompasses any exposure through drinking water and residential settings. It also requires the EPA to give special consideration to the exposure of infants and children to the pesticide chemical residue.

7. Regulatory Registrations (EPA, FDA and State)

While this product is not registered directly with the US EPA, the Agency has approved pesticide petition 4E6818: (S, S)-Ethylenediaminedisuccinic acid, "EDDS" (CAS Reg. No. 20846-91-7) submitted by the Associated Octel Company, Limited. The purpose of this petition was to request a tolerance exemption for EDDS when used as an inert sequestrant or chelating agent in pesticide products applied to growing crops under 40 CFR 180.920. The petition was approved and tolerance granted, effective November 14, 2008.

On April 25, 2008, the United States Food and Drug Administration (FDA) approved Food Contact Notification (FCN) 000799 submitted by Innospec Limited. In this FCN, Innospec submitted information and documentation regarding a close chemical relative

of EDDS, [S, S]-Ethylenediaminedisuccinic acid, trisodium salt (CAS Reg. No. 178949-82-1). The purpose of this FCN was to request that EDDS be allowed as a chelating agent in the manufacture of food-contact paper and paperboard. The FDA determined that EDDS when used in this capacity would not have a significant impact on the quality of the human environment and therefore did not require an environmental impact statement. The agency's final ruling was a "Finding of No Significant Impact" (FONSI) when EDDS was present at no more than 0.31% by weight of the dry fiber of food-contact paper and paperboard.

No further registrations are known exist with any United States National or private agencies.

In Europe, this EDDS product (including the Enviomet family of products as a whole) is "Eco-labeled" and thus approved for use in the EU Flower (http://ec.europa.eu/environment/ecolabel/index_en.htm), Nordic Swan (http://www.svanen.nu/Default.aspx?tabName=StartPage) and Bra Miljoval (http://ecolabelling.org/ecolabel/bra-miljoval/) products. In 2003, the Enviomet product line won the "UK Green Chemical Technology Award". It is also compliant and registered under REACH (Registration, Evaluation and Authorization of Chemicals-Europe's precautionary chemicals regulation where chemicals used in European products must be tested and passed for use by REACH).

8. Chemical Abstract Service (CAS) Number(s)

Old Trade name	New trade name	Chemical name	CAS
Octaquest E30	ENVIOMET C140	[S,S]-EDDS tri-sodium salt	178949-82-1
Octaquest FN	ENVIOMET C320	Iron Ammonium EDDS	158706-40-2
Octaquest A65	***ENVIOMET C265***	***[S,S]-EDDS free acid***	***20846-91-7***
Octaquest E30	Natrlquest E30	[S,S]-EDDS tri-sodium salt	178949-82-1

→For the purposes of this petition, the only product being petitioned and to be used in pesticide formulations, is Enviomet C265 (Octaquest A65), CAS #20846-91-7.

9. Physical Properties and Chemical Mode of Action

Physico Chemical Properties

STUDY	RESULTS
Autoflammability	Not autoflammable
Boiling Point	Test substance does not melt but decomposes at about 311°C
Density	1.63 g/cm^3 (1.63x10^3 kg/m^3)at 20.0°C
Explosivity	Not explosive
Flammability	Not "highly flammable"

Melting Point	Test substance does not melt but decomposes at about 311°C
Oxidizing Properties	No oxidizing properties
Particle Size Distribution	<2 μm = 0.4% (w/w) 2-5 μm = 0.3% (w/w) 5-10 μm = 1.5% (w/w) 10-20 μm = 6.7% (w/w) 20-50 μm = 35.4% (w/w) 50-63 μm = 14.6% (w/w) >63 μm = 41.2% (w/w)
Partition Coefficient	$<2x10^{-5}$ (log P_{ow}, -4.7)
Solubility in fat	Solubility in standard fat HB 307 $\leq 4x10^{3}$ g/kg, i.e. $4x10^{-1}$ mg/100 g at 37.0°C
Surface Tension	The surface tension of an aqueous solution of E-4589.02 at a concentration of 1.01 g/l is 73.3 mN/m (20.0°C)
UV/Vis Spectrum	Can be printed
Vapor Pressure	1.9 ± 0.1 Pa, i.e. $(1.4 \pm 0.1) \times 10^{-2}$ mm Hg (at 25°C)
Vapor Pressure	P (20°C) = 0.38 ± 0.04 Pa = $(1.4 \pm 0.15) \times 10^{-3}$ mm Hg
Vapor Pressure (theoretical)	$4.97x10^{-17}$ mm Hg or $6.53x10^{-15}$ Pa
Water Solubility	≥1,000 g/l

a) Chemical Interactions with Other Substances

EDDS is a chelating agent therefore can form multiple chemical bonds with certain single metal ions. The result is a complex but soluble molecule. Once EDDS reacts with a given metal ion, that ion is inactivated so that it cannot react normally with other elements or ions to produce precipitates or scale.

EDDS (and other chelating agents) play a major role in soil remediation projects because its action solubilizes heavy metals from polluted soils. Other chelating agents (such as Ethylenediaminetetraacetic acid) were used in such remediation projects but EDDS is replacing other chelating agents due to its biodegradable nature.

Tandy et al. (2006) found that in polluted soils, EDDS was degraded from levels of several hundred micromoles to below one micromole within 50 days.

b) Toxicity and Environmental Persistence

i) Toxicity

In general, EDDS has low toxicity. Laboratory studies on rats indicate that EDDS has a low acute toxicity (> 2700 mg/kg). It was a mild eye irritant to rabbits but not a dermal irritant to the rabbits or a skin sensitizer to guinea pigs.

The subchronic oral toxicity study in rats indicated that the LOAEL was 700 mg/kg/day (based upon microscopic alterations in the pancreas) and the NOEAL was 300 mg/kg/day.

Mutagenicity studies indicate that EDDS is not likely to be mutagenic. While no studies on carcinogenicity were conducted, the NTP tested Trisodium Ethylenediaminetetraacetic acid (EDTA) which is structurally similar to EDDS and also, like EDDS, lacks in mutagenic qualities. The NTP deduced that EDDS is not likely to be carcinogenic to humans in low doses. Metabolic studies indicate that EDDS is poorly absorbed and rapidly excreted within 72 hours of intake.

Developmental toxicity occurred only at high dosage levels and in the presence of maternal toxicity. This toxicity was manifested as an increase in fetal death, reduced fetal growth, multiple developmental malformations and variations afflicting major organ systems and skeletal structures. The maternal toxicity LOAEL is 944.1 mg/kg bw/day (16,000 ppm) and NOAEL is 551.1 mg/kg bw/day (8000 ppm). No toxicity was noted in the low and medium dosage level groups.

STUDY	**RESULTS**
Acute Toxicity to the worm species *Eisenia fetida* (10000286)	NOEC (of active) = 10 mg/kg of dry soil
Semi-Static Acute Toxicity with *Brachydanio rerio* (E-4589.01)	NOEC value for survival and condition $\geq$ 1,000 mg ai/l
Semi-Static Early Life Stage Test on *Brachydanio rerio* (E-4589.06)	-The highest concentration tested without a significant effect on growth (measured as dry weight) was 180 mg ai/l. -The lowest NOEC for mortality and growth was 56 mg ai/l.
Static Acute Toxicity on *Daphnia magna* (E-4589.01)	NOEC values for mobility and condition are $\geq$ 1000 mg ai/l and 320 mg ai/l respectively.
Semi-Static Reproduction Test with *Daphnia magna* (E-4589.01)	-Reproduction: 21 d EC50 = 80 mg ai; 21 d $NOEC_{5.25}$ = 32 mg ai; 21 d $FOEC_{5.25}$ = 100 mg ai. -Survival: 21 d LC50 > 100 mg ai; 21 d NOEC = 32 mg ai; 21 d FOEC = 100 mg ai. -Condition and Size: 21 d NOEC = 32 mg ai; 21 d FOEC = 100 mg ai
Alga, Growth Inhibition Test Effect of E-3972.02 on the Growth of *Chlorella vulgaris*	EbC50 (0-72) = 0.29 mg/l ErC50 (24-72 h) = 1.57 mg/l NOEC = 0.125 mg/l
Effect of E-4589.02 on the growth of the alga *Chlorella vulgaris*, in relation to the medium content of the trace metals Co, Cu and Zn	-NOEC = 1.2 mg ai/l -Cell Volumes (mg ai/l): EbC10 (72.5 h) 1.3; EbC50 (72.5 h) 1.8; EbC90 (72.5 h) 2.6; EbC10 (92.5 h) 1.3; EbC50 (92.5 h) 2.2; EbC90 (92.5 h) 3.5; EbC10 (143 h) 1.6; EbC50 (143 h) 4.6; EbC90 (143 h) 13.5. -Cell Number (mg ai/l): EbC10 (72.5 h) >12.3; EbC50 (72.5 h) > 12.3; EbC90 (72.5 h) > 12.3; EbC10 (92.5 h) 1.4; EbC50

STUDY	RESULTS
	(92.5 h) 2.4; EbC90 (92.5 h) 4.1; EbC10 (143 h) 2.6; EbC50 (143 h) 4.4; EbC90 (143 h) 7.5.
Effect of E-4402.01 on the growth of the alga *Chlorella vulgaris* in relation to the medium content of the trace metals Co, Cu and Zn	When adding the test substance to OECD medium the algal growth is strongly inhibited. With addition of increasing concentrations of trace metals the algal growth is increasingly less inhibited by E-4402.01. At trace metal concentrations of about a hundred times higher (about 1000 times higher Cu concentration) than in OECD medium the E-4402.01 addition hardly influences the algal growth.
Effect of E-4402.01 on the growth of the alga *Chlorella vulgaris* in relation to the medium content of the trace metals Co, Cu and Zn (metal toxicity and influence of river water)	When cultured in natural river water medium, the addition of 1 mg active ingredient E-4402.01 per liter reduced the growth rate of *C. vulgaris* by 35%.
Effect of E-4402.01 on the growth of the alga *Chlorella vulgaris*, in relation to the medium content of the trace metals Co, Cu and Zn (increasing water hardness)	-The water hardness level did not affect the inhibition of algal growth by the test substance. -Addition of 1 mg ai/l of E-4402.01 inhibited the growth rate by 27%. The lower growth rate, however, resulted in the same biomass yield as in the control but after a longer incubation period.

ii) Environmental Persistence

While EDDS is used extensively in soil remediation (see section 9 (a) of this petition), several studies indicate that EDDS biodegrades "rapidly" thus posing minimal concerns regarding leaching from upper soil layers into groundwater sources. Tandy et al. (2006) found that residual EDDS from soil washing was degraded after a lag phase of 7 - 11 days with a half-life of 4.18 - 5.60 days. They also found that in polluted soils, EDDS was degraded from levels of several hundred micromoles to below one micromole within 50 days.

STUDY	RESULTS
Biodegradation Study of E-4589.01 Modified Sturm Test	-E-4589.01 at 10 mg/l: biodegradation (% of $ThCO_2$) = 88 and % DOC-removal = 94 -E-4589.01 at 20 mg/l: biodegradation (% of $ThCO_2$) = 90 and % DOC-removal = 93 -Reference substance online 20 mg/l: biodegradation (% of $ThCO_2$) = 92 and % DOC-removal = 98 -Reference substance diethylene glycol 20 mg/l: biodegradation (% of $ThCO_2$) = 64

STUDY	RESULTS
	and % DOC-removal = 67
Biodegradation Study of E-4589.01 Activated Sludge Simulation Test	% DOC removal: Mean = 96; sd = 3.3; 95% confidence intervals = 94-97
Growth test with 10000286 and the plant species *Avena sativa, Lactuca sativa* and *Lycopersicum eculentum*	-*A. sativa*: 18 d LC50 (emergence) ≥1,000; 18 d NOEC (emergence) ≥1,000; 18 d NOEC (survival of seedlings) ≥1,000; 18 d EC50 (growth net weight) > 1,000; 18 d NOEC (growth net weight) 1,000; 18 d NOEC (condition) 1,000. -*L. sativa*: 18 d LC50 (emergence) >1,000; 18 d NOEC (emergence) 320; 18 d NOEC (survival of seedlings) 320; 18 d EC50 (growth net weight) 219 (187-258); 18 d NOEC (growth net weight) 100; 18 d NOEC (condition) 32. -*L. esculentum*: 18 d LC50 (emergence) ≥1,000; 18 d NOEC (emergence) ≥1,000; 18 d NOEC (survival of seedlings) ≥1,000; 18 d EC50 (growth net weight) 833 (724-958); 18 d NOEC (growth net weight) 320; 18 d NOEC (condition) 100.
Adsorption/desorption of E-4591.01 to activated sludge with ^{14}C analysis	-Sorption coefficient (Kd) values with sludge from the blank unit: at 0.1 mg test substance/l adsorption = 30 and desorption = 421; at 1.0 mg test substance/l adsorption = 37 and desorption = 334 -Kd values with inactivated sludge from the test unit: at 0.1 mg test substance/l adsorption = 71 and desorption = 1034; at 1.0 mg test substance/l adsorption = 90 and desorption = 1298 -The adsorption of the test substance to activated sludge solids is low.
Determination of [S,S]-EDDS in samples from the TNO Pre-test on photostability	-The results show a general decrease in [S, S]-EDDS response of 5 to 9% during the first day. No substantial degradation occurred between days 1 and 4. -There is no evidence from this limited number of data that [S, S]-EDDS decomposed in the light.
Determination of [S,S]-EDDS in samples from a 7 days pre-test on photostability	-No substantial degradation occurred between days 0 and 7. -The presence of algae had no influence on the [S, S]-EDDS test concentration during the test period.
Soil Adsorption/Desorption of E-4589.02 on 3 Soils (Screening Version)	-The amount of adsorption was 98%, 83% and 89% (soil dependent – strong silty sand, strong sandy loam and weak sandy

STUDY	RESULTS
	loam) -The amount of desorption was <4%, <3% and <4% (soil dependent) -The amount of adsorbed material which was not desorbed was >96%, >97% and >96% (soil dependent) -K' Values are $2.6x10^2$, 28 and 44 for each of the 3 soils. -K'oc Values are $1.9x10^4$, $1.6x10^3$ and $4.0x10^3$ for each of the 3 soils.

c) *Environmental Impacts from Use and Manufacture*

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d) *Effects on Human Health*

EDDS was tested on mammals, fish and beneficials to determine its effect. EDDS exhibits a low toxicity, see summary below. The potential to harm mammals through plant residues is minimal.

STUDY	RESULTS
Acute Oral Rats (E-3657.01)	Acute lethal oral dose >2.7 g/kg
Acute Oral Rats (E-4589.02)	LD50>2000
Acute Dermal Rabbits (E-3657.01)	LD50>2640
Acute Dermal Rats (E-4589.02)	LD50>2000
Acute Inhalation Rats (E-3657.01)	LC50 (4-hour) > 1.49 mg/l
Primary Eye Irritation Rabbits (E-4589.02)	-No staining of cornea/conjunctivae -No corrosion -Primary irritation score of 0.56 -Classified as non-irritant
Irritant Effects Rabbit Eye (E-3657.01)	Considered to be non-irritant
Irritant Effects Rabbit Skin (E-3657.01)	Primary Irritation Index = 0
Contact Hypersensitivity in Albino Guinea Pigs (E-4589.02)	Not a sensitizer

STUDY	RESULTS
Dermal Sensitization Guinea Pigs (E-4589.02)	Dermal reactions of 0 in all except one animal
Patch Test Human	Skin grades of zero with no signs of primary skin irritation
Human Repeat Insult Patch Test (E-4589.01)	E-4589.01 did not induce a delayed contact hypersensitivity response
14-Day Oral (Feeding) Toxicity Rat (E-4589.01)	No clinical signs or symptoms of ill health with dietary test article concentrations up to 5000 ppm
14-Day Oral (Feeding) Toxicity Rat (E-4589.01)	NOEL >1250 mg/kg body weight/day
Subchronic 13-week Oral (Feeding) Toxicity Rat (E-4589.01)	NOEL = 300 mg/kg body weight/day
Absorption Distribution and Elimination of Radioactivity Following Oral and Dermal Administration in Rat	-Oral - Radioactivity rapidly eliminated via the feces; oral absorption < 5%. -Dermal – 11.1% of applied dose absorbed by males and 5.18% by females; the amount of absorbed radioactivity eliminated in the excreta was < 9%. -Overall recovery after oral administration was 84.4% (males and 89.5% (females) and after dermal application was 59.1% (males) and 62.8% (females).
Absorption, Distribution and Elimination Following Oral Gavage in Male Rats	Bone marrow is exposed to EDDS
Absorption, Distribution and Elimination Following Oral Gavage in Female Rats	Bone marrow is exposed to EDDS
Developmental Toxicity Rat (E-4589.01)	NOAEL = 8,000 ppm with regard to maternal and developmental toxicity
Range-Finding developmental Toxicity Rat (E-4589.01)	The dose levels evaluated produced no apparent maternal or developmental toxicity
Range-Finding Developmental Toxicity Rat (E-4589.01)	-maternal toxicity at 16,000 ppm level and higher -developmental toxicity evidenced at 16,000 ppm and above
Developmental Toxicity Rat (E-4589.01)	-Maternal toxicity NOAEL = 400 mg/kg/day -Developmental toxicity NOAEL > 1000 mg/kg/day
Mineral Balance 28-Day Oral Toxicity – Male Rats (E-4589.01)	-No test article related deaths or clinical signs. -Increased urinary output of minerals Cu, Zn, Mg related to decreased fecal elimination. -Tissue minerals (Cu, Zn, and Mg) levels were not affected in the sternum, femur or liver. In kidneys Zn levels were decreased.
Plasma Mineral Levels in Pregnant Rats (E-4589.01)	-Maternal toxicity at the 1,000 mg/kg/day dose level

STUDY	RESULTS
	-Administration of E-4589.01 during the period gestation days 6-15 effectively lowers the plasma levels of zinc and copper in a dose-related fashion. There was no dose-related effect in plasma iron levels attributable to administration of E-4589.01
Bacterial Mutation Assay (E-3657.01)	When tested at dose levels up to 5000 μg/plate in water, E-3657.01 was not mutagenic in this bacterial test system.
Salmonella/Mammalian Microsome (Ames Test) and *Escherichia coli* WP2 Mutagenesis Assay (E-4589.01)	E-4589.01 (under the conditions of this study) did not cause a positive response in the *Salmonella*/Mammalian Microsome (Ames Test) and *Escherichia coli* WP2 uvrA Mutagenesis Assay
Test for Chemical Induction of Mutation in Mammalian Cells in Culture , The L5178Y TK+/- Mouse Lymphoma Assay (E-4589.01)	E-4589.01 was negative in both the absence and presence of exogenous metabolic activation
In Vitro Cytogenetics Assay – Chinese Hamster Ovary (CHO) Cells (E-4589.01)	-Definitive: The test article did not induce a significant increase in structural chromosome aberrations in either the absence or presence of S-9 activation, ($p \geq 0.025$). In the nonactivated 18 hour treatment there were no scorable metaphase cells; and a statistically significant increase in numerical aberrations in the 42 hour study at 20 μg/ml ($p < 0.025$) and a statistically significant dose response in numerical aberrations (42 h) ($p < 0.05$). -Confirmatory: An observed increase in the percentage of structural chromosome aberrations in this dose was within the acceptable range of the historical control values and therefore was not viewed as being biologically relevant
In Vivo Cytogenetic Assay in Rats (E-4589.01)	E-4589.01 was negative in the in vivo cytogenetic assay in rats
Acute Toxicity to the worm species *Eisenia fetida* (10000286)	NOEC (of active) = 10 mg/kg of dry soil
Semi-Static Acute Toxicity with *Brachydanio rerio* (E-4589.01)	NOEC value for survival and condition ≥ 1,000 mg ai/l
Semi-Static Early Life Stage Test on *Brachydanio rerio* (E-4589.06)	-The highest concentration tested without a significant effect on growth (measured as dry weight) was 180 mg ai/l. -The lowest NOEC for mortality and growth was 56 mg ai/l.
Static Acute Toxicity on *Daphnia magna*	NOEC values for mobility and condition are

STUDY	RESULTS
(E-4589.01)	≥ 1000 mg ai/l and 320 mg ai/l respectively.
Semi-Static Reproduction Test with *Daphnia magna* (E-4589.01)	-Reproduction: 21 d EC50 = 80 mg ai; 21 d $NOEC_{5.25}$ = 32 mg ai; 21 d $FOEC_{5.25}$ = 100 mg ai. -Survival: 21 d LC50 > 100 mg ai; 21 d NOEC = 32 mg ai; 21 d FOEC = 100 mg ai. -Condition and Size: 21 d NOEC = 32 mg ai; 21 d FOEC = 100 mg ai

e) Effects on Soil

Ethylenediaminedisuccinic acid (EDDS) has zero or minimal undesirable effects on soil. This chemical is: i) produced naturally by the Actinomycetes, *Amycolatopsis japonicum* sp. nov. and *Amycolatopsis orientalis*; ii) degrades rapidly and is completely mineralized; iii) in this proposed use pattern will have limited accessibility to plants; and iv) exhibits low toxicity to mammals, fish and other organisms.

i) Natural Production and Occurrence in Soil

EDDS is produced by organisms that grow naturally in soil and therefore occurs naturally in soil. (S, S)-ethylenediaminedisuccinic acid is produced naturally by the Actinomycetes, *Amycolatopsis japonica* sp. nov. (Goodfellow et al; 1997) and *Amycolatopsis orientalis* (Zwicker et al; 1997). "In the actinomycete, EDDS is most probably involved in Zn^{2+} uptake." (Bucheli-Witschel, Egli; 2001) Actinomycetes are common soil organisms, a highly developed form of bacteria that comprise 5% of the soil's bacterial population (Schalau 2001). EDDS is a siderophore produced by the actinomycetes that may function symbiotically with plants to assist in the transport of soil metals to plant rootlets. The use of EDDS, therefore, does not constitute the addition of a foreign material to the soil, but rather a compound that soil microorganisms and plants already encounter. Natural mechanisms already exist for the degradation and/or utilization of EDDS in the soil/plant microsystem.

ii) Degradation and Mineralization in Soil

The degradation of EDDS has been established in the published literature. EDDS is rapidly and completely mineralized. (Schowanek et al; 1997) "It is completely degradable in all environmental compartments, and with any inoculum. A short acclimation period is often observed, usually in the order of 5-8 days." It has a "ready" and transparent (no recalcitrant metabolites) biodegradation profile. (Jaworska et al; 1999) In activated sludge solids sorption of EDDS is low (Kp of 40 l/kg). "EDDS was readily degraded in lake water...photodegradation of EDDS in natural waters is independent of initial speciation of EDDS". (Metsarinne et al; 2001) The half-life of EDDS in an unacclimated Sturm test was 4.6 days and in unacclimated soil it was 2.5 days. (Schowanek et al; 1997) As EDDS does not persist in the soil it is not readily available to plants for uptake.

"EDDS and related [S, S] homologues do comply," with the internationally accepted criteria for readily biodegradability of chemicals "ostensibly because the metabolic products of the biodegradation are naturally occurring biochemicals such as succinic acid." (Whitburn et al; 1999)

The proposed use pattern for EDDS includes application to plant surfaces and hence the soil due to excess runoff and application to soil surfaces. On the soil, photodegradation and microbial degradation of EDDS will occur while the EDDS is still in the formulations. The EDDS will degrade at the same time as the pesticide formulation; The concentration of EDDS that leaches into the soil will be small. In the soil the degradation of EDDS will continue.

The degradation pathway of EDDS is not fully understood. "The catabolism of EDDS was initiated by a carbon-nitrogen lyase catalysing the non-hydrolytic cleavage of the C-N bond between the ethylenediamine part of the molecule and one of the succinyl residues without any cofactors being required...The reaction lead to the formation of fumarate and AEAA [N-(2-aminoethyl) aspartic acid]. ...The further degradation of AEAA remains still to be unraveled. To date, one can merely speculate that, catalyzed by a DH (dehydrogenase) or a MO (monooxygenase), the C-N bond between the succinyl residue and the ethylene diamine part of the molecule is split, or that an aspartyl residue is removed by the cleavage of a C-N bond within the ethylenediamine part of AEAA." (Bucheli-Witschel, Egli; 2001)

Jaworska et al. (1999) performed an environmental risk assessment using the EUSES (1.0) program. Applying the assessment to soil and river water concentrations from production, formulation and private use life stages, they determined that the estimated PEC/PNEC ratio in all relevant environmental compartments is smaller than 1, indicating "no immediate concern" at the anticipated usage level. This evaluation was based on its use in detergent applications.

iii) Usage Pattern in Relation to Bioavailability to Plants

As EDDS does not persist in the soil it is not readily available to plants for uptake.

iv) Low Toxicity

EDDS was tested on mammals, fish and beneficials to determine its effect and it was found that EDDS exhibits a low toxicity (see Section 9, (b) and (d) of this petition). The potential to harm mammals and other animals through exposure to EDDS via plant residues or runoff is therefore minimal.

In conclusion, EDDS occurs naturally, is readily biodegradable, does not accumulate in soil components, exhibits minimal mammalian toxicity and eco-toxicity and it is unlikely that EDDS would accumulate within plant tissue through its application to the soil in pesticide formulations.

10. Safety Information

See Appendix #1 for the "EnviometTM C265" Material Safety Data Sheet (MSDS).

There is no substance report available for Ethylenediaminedisuccinic acid from the National Institute of Environmental Health Studies.

11. Research Information

At this time, there is no known research literature discussing adverse effects of EDDS use. All known toxicological and eco-toxicological data for EDDS are presented above in Section 9 (b-e) of this Petition.

Further support of inclusion of synthetic EDDS on the National List is present below in Section 12 of this Petition.

12. Petition Justification Statement

Included in the following is evidence that further justifies the action requested in this petition, namely *Inclusion of a Synthetic on the National List § 205.601 ("Synthetic substances allowed for use in organic crop production.")*

a) Introduction

Chelators are an important component in pesticide formulations; they are used as sequestrants in pesticides to control metal ions by complexing them. Metals are capable of catalyzing oxidation reactions which can lead to degradation of the pesticide active ingredient. Metal ions can also interfere with active ingredients or other pesticide components by making them insoluble and thus not able to function in their intended role. Metal ions can show up in trace amounts during manufacturing from equipment or raw materials, or can be present in water that the pesticide may be diluted with, particularly in areas where hard water is common. Chelators serve to limit or eliminate the effects caused by these metal ions. In addition, chelators may be used as dispersants in bait formulations. In summary, chelators are an essential component of many pesticide formulations with the efficacy and stability of these formulations being dependent on the chelator.

b) Economic Reasons Required for Organic Production

There are currently significant economic losses suffered by organic growers from damage to crops by pests of varied types.

1. The cost of pesticide application is far less than the cost of crop loss. Losses incurred by organic growers from one pest alone could be as much as $1,594 to $19,125 per acre due to crop damage. Compare this to the cost of applying commercial pesticides, which are as low as $30 to $77/acre/application, with two to three applications/year.

2. Based on 2002 organic crop sales figures in California, the potential annual loss of sales in California on organic strawberry farms alone due to a single pest could

be between $626,250 and $5,010,000. As damage in citrus can be 40-50% in high-rainfall years and sometimes is even 90-100%, for organic oranges this economic loss could be between $1,885,200 and $2,356,500. Losses on organic artichokes, which are a minor crop, could be as high as $114,570. Carrots, lettuce, spinach, celery and cabbage are also extremely susceptible to pest damage. The total sales of organic crops of carrots, lettuce, spinach and celery in California alone were $50,000,000 in 2002.

3. Some states and other countries, for example the state of Florida, have strict quarantine regulations that do not allow any pest presence on produce shipped over their borders. Without effective pest control, organic growers cannot meet this regulation and risk having their produce quarantined.

4. Effective pest control methods are essential to ensure organic farms remain viable. There are farmers who would be using organic growing methods if they had organic pest control products. Permitting addition of EDDS to the National List would allow more growers to convert to organic methods. This will be essential to meet the growing consumer demand for organic food and to ensure that organic food is available in all parts of the country.

c) Alternatives to EDDS (substances, cultural methods, etc.)

i) Substance-based alternatives

A favorable review of this chemical is in the public interest because the biodegradable chemical, EDDS, replaces chemicals that are not as readily biodegradable. Most commonly used chelators are not as readily biodegradable as EDDS and may be persistent in the soil. EDDS is an improvement over less biodegradable chelators as it occurs naturally, is rapidly and completely mineralized when introduced to the ecosystem. It also has a low toxicity to animals. Therefore, use of EDDS as a chelating agent in pesticides would not produce the environmental pressures of some currently approved chelators.

ii) Alternative Cultural Methods to Using Pesticides

1. Biological controls are not always an effective option in organic agriculture. The numbers of biological controls available are limited and biological controls do not exist for all pest problems. Biological controls (e.g. nematodes, entomopathogenic fungi) are only effective under very limited environmental conditions. The cost of these biological controls is also sometimes cost prohibitive. Some of the proposed control organisms can cause crop damage as they will also feed on vegetation. For example, birds, such as ducks, recommended for slug control can also cause physical damage breaking plants as they move within the field.

2. Barrier controls do not take into account that many pests already occur within the area (whether per plant or per field) being surrounded by the barrier. Their efficacy would be limited to preventing more pests from moving into the field from the surrounding areas. The pests within the field would continue their life cycle and their population would continue to grow regardless of any barrier. In fact, the

barrier would contain the pests within the space to be protected. "Although on a small scale (i.e. home gardens), this is a reasonable thing to do, over the several acres that many commercial organic strawberry growers work with, this method would not be economically feasible. For example, assuming an average organic strawberry farm is 10 acres and square, this would require 5280 ft, or one mile, of copper banding". Banding a field would make it difficult to cultivate the field with a tractor. The effectiveness of barriers is also often limited; many pests are not deterred by the barrier initially or the barrier loses effectiveness over time (physical disruption or environmental breakdown).

3. Repellent controls are ineffective. The number of compounds that effectively repel pests is very limited and it is very difficult to spray all parts of plants within a field. In addition, repellent compounds are susceptible to environmental degradation and wash off by irrigation or rainfall thus requiring reapplication.

4. Traps are limited because: their effective attractant range is only a few feet necessitating large numbers of traps in acreages; some crops are more attractive to the pests than any attractant "Such methods can be effective in home gardens, but less useful to farmers".

5. Hand-picking is not a viable option. It is extremely time consuming and therefore a costly process. In addition, many pests forage in late evening or early morning when light levels are low, making it difficult to find them.

6. Cultural controls would require the elimination of no-till practices, mulches and hedges, all of which are important organic cultivation methods. This would not be a viable option for an organic farmer.

d) Beneficial Effects of EDDS Usage

As previously mentioned most commonly used chelators are not readily biodegradable and may be persistent in the soil. EDDS is an improvement as it occurs naturally, is rapidly and completely mineralized when introduced to the ecosystem and has a low toxicity to animals.

13. Confidential Business Information Statement

Pages 5 - 8 CBI - The information encompassed in these paragraphs divulges product formulas and production processes and is therefore commercially valuable, used in business, is maintained in secrecy and considered valuable trade secrets. The product formula information (pages 5, 6) is commercially valuable to W. Neudorff GmbH KG in that the product discussed in the relevant paragraphs make up a portion of Neudorff's business. The product formulas and detailed production processes (pages 7, 8) are commercially valuable to Innospec Limited in that the final product described in the relevant paragraphs makes up a portion of Innospec's business. All of the labeled CBI information on these pages is considered confidential.

Page 14 CBI - information in this paragraph divulges details surrounding the production process (including ingredients) and is therefore commercially valuable, used in business,

is maintained in secrecy and considered valuable trade secrets. This detailed production process is commercially valuable to Innospec Limited in that the final product described in this process makes up a portion of Innospec's business. This information is considered confidential.

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innospec active chemicals

ENVIOMET [TM] C265
Material Safety Data Sheet

1. Product and company identification

Common name	:	ENVIOMET [TM] C265
Material uses	:	Industrial applications: General-purpose chelating agent.
Internal code	:	30001
Supplier	:	Innospec Active Chemicals LLC 379 Thornall Street Edison New Jersey 08837 USA
Information contact	:	1-732-321-3500
Information contact	:	1-704-633-8028
In case of emergency	:	**1-800-424-9300 (Chemtrec)**

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2. Hazards identification

Physical state	:	Solid. (Granular solid.)
Odor	:	Odorless.
OSHA/HCS status	:	While this material is not considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200), this MSDS contains valuable information critical to the safe handling and proper use of the product. This MSDS should be retained and available for employees and other users of this product.
Emergency overview	:	No specific hazard.
Potential acute health effects		
Eyes	:	Slightly irritating to the eyes.
Skin	:	Slightly irritating to the skin.
Inhalation	:	Slightly irritating to the respiratory system.
Ingestion	:	No known significant effects or critical hazards.
Medical conditions aggravated by over-exposure	:	Repeated skin exposure can produce local skin destruction or dermatitis. Repeated or prolonged exposure to the substance can produce lung damage. Repeated exposure of the eyes to a low level of dust can produce eye irritation.

See toxicological information (section 11)

3. Composition/information on ingredients

Name	CAS number	%
bisaspartic acid, n,n-[1,2-ethanediyl]-	20846-91-7	60 - 100

4. First aid measures

Eye contact	:	Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Get medical attention if irritation occurs.
Skin contact	:	Wash skin thoroughly with soap and water or use recognized skin cleanser. Get medical attention if irritation occurs. Remove contaminated clothing and shoes. Wash clothing before reuse. Clean shoes thoroughly before reuse.

4 . First aid measures

Inhalation : Move exposed person to fresh air. Keep person warm and at rest. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention if symptoms occur. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Ingestion : Wash out mouth with water. Remove dentures if any. Move exposed person to fresh air. Keep person warm and at rest. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention if symptoms occur. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Protection of first-aiders : No action shall be taken involving any personal risk or without suitable training.

5 . Fire-fighting measures

Flammability of the product : May be combustible at high temperature.

Products of combustion : These products are carbon oxides (CO, CO2), nitrogen oxides (NO, NO2 etc.).

Extinguishing media

Suitable : Use an extinguishing agent suitable for the surrounding fire.

Special exposure hazards : No specific hazard.

Special protective equipment for fire-fighters : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

6 . Accidental release measures

Personal precautions : Immediately contact emergency personnel. Keep unnecessary personnel away. Use suitable protective equipment.

Environmental precautions : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Methods for cleaning up : If emergency personnel are unavailable, vacuum or carefully scoop up spilled material and place in an appropriate container for disposal by incineration. Avoid creating dusty conditions and prevent wind dispersal.

7 . Handling and storage

Handling : Wash thoroughly after handling.

Storage : Keep container tightly closed. Keep container in a cool, well-ventilated area.

8 . Exposure controls/personal protection

Consult local authorities for acceptable exposure limits.

Engineering measures : No special ventilation requirements. Good general ventilation should be sufficient to control airborne levels. If this product contains ingredients with exposure limits, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure below any recommended or statutory limits.

Personal protection

Eyes : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts.
Recommended: splash goggles

Skin : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Respiratory : Use a properly fitted, particulate filter respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

8 . Exposure controls/personal protection

Hands : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.
<1 hour/hours (breakthrough time): neoprene , nitrile rubber , PVC

Hygiene measures : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

9 . Physical and chemical properties

Physical state : Solid. (Granular solid.)

Auto-ignition temperature : 217°C (422.6°F)

Color : White.

Odor : Odorless.

Melting/freezing point : Decomposition temperature: 230°C (446°F)

Vapor pressure : 0.1 to 0.5 kPa (1 to 4 mm Hg) (at 20°C)

Dispersibility properties : Easily dispersed in cold water, hot water.

Solubility : Easily soluble in cold water, hot water.

10 . Stability and reactivity

Stability and reactivity : The product is stable.

Incompatibility with various substances : Reactive or incompatible with the following materials: oxidizing materials.

Conditions of reactivity : Flammable in the presence of the following materials or conditions: open flames, sparks and static discharge and heat.

11 . Toxicological information

Toxicity data

Product/ingredient name	Test	Result	Route	Species
bisaspartic acid, n,n-[1,2-ethanediyl]-	LD50	>2000 mg/kg	Oral	Rat

Chronic effects on humans : **MUTAGENIC EFFECTS**: Classified None. for humans [bisaspartic acid, n,n-[1,2-ethanediyl]-].

Other toxic effects on humans : Not considered to be toxic to humans.

Specific effects

Carcinogenic effects : No known significant effects or critical hazards.

Mutagenic effects : No known significant effects or critical hazards.

Teratogenicity / Reproductive toxicity : No known significant effects or critical hazards.

Sensitization

Ingestion : No known significant effects or critical hazards.

Inhalation : Slightly irritating to the respiratory system.

Eyes : Slightly irritating to the eyes.

Skin : Slightly irritating to the skin.

12 . Ecological information

Ecotoxicity data

Product/ingredient name	Species	Period	Result
bisaspartic acid, n,n-[1,2-ethanediyl]-	Fish (LC50)	96 hour/hours	>1000 mg/l
	Daphnia magna (EC50)	48 hour/hours	>1000 mg/l

Environmental precautions : No known significant effects or critical hazards.

Octanol/water partition coefficient : The product is more soluble in water; log(octanol/water) <-1.4

Bioconcentration factor : Not available.

Products of degradation : These products are carbon oxides (CO, CO2) and water, nitrogen oxides (NO, NO2 etc.)
.

Toxicity of the products of biodegradation : The product itself and its products of degradation are not toxic.

13 . Disposal considerations

Waste disposal : The generation of waste should be avoided or minimized wherever possible. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements.

Disposal should be in accordance with applicable regional, national and local laws and regulations. Local regulations may be more stringent than regional or national requirements.

The information presented below only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations.

Refer to Section 7: HANDLING AND STORAGE and Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION for additional handling information and protection of employees.

14 . Transport information

Regulatory information	UN number	Proper shipping name	Class	PG*	Label	Additional information
DOT Classification	Not regulated.	-	-	-		-
TDG Classification	Not regulated.	-	-	-		-
IMDG Class	Not regulated.	-	-	-		-
IATA-DGR Class	Not regulated.	-	-	-		-

PG* : Packing group

:

Subsidiary class : -

15 . Regulatory information

United States

HCS Classification : Not regulated.

U.S. Federal regulations : TSCA 8(b) inventory: water

SARA 302/304/311/312 extremely hazardous substances: No products were found.
SARA 302/304 emergency planning and notification: No products were found.
SARA 302/304/311/312 hazardous chemicals: No products were found.
SARA 311/312 MSDS distribution - chemical inventory - hazard identification: No products were found.

15 . Regulatory information

Clean Water Act (CWA) 307: No products were found.

Clean Water Act (CWA) 311: No products were found.

Clean Air Act (CAA) 112 accidental release prevention: No products were found.

Clean Air Act (CAA) 112 regulated flammable substances: No products were found.

Clean Air Act (CAA) 112 regulated toxic substances: No products were found.

Canada

WHMIS (Canada) : Not controlled under WHMIS (Canada).
This product has been classified according to the hazard criteria of the CPR and the MSDS contains all the information required by the CPR.

EU regulations

Risk phrases : This product is not classified according to EU legislation.

16 . Other information

Hazardous Material Information System (U.S.A.) :

National Fire Protection Association (U.S.A.) :

Date of issue : **January 22, 2008**

Date of previous issue : **No previous validation**

Version : ***

Notice to reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.
Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.