Vetro Power Nano-Dynamis Anti-Fouling Coating

MATERIAL SAFETY DATA SHEET (MSDS)

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Product name : Vetro Power Nano-Dynamis Anti-Fouling Coating
Product code :

1.2. Recommended Use Uses advised against

Use of the Substance/Mixture : Coating

1.3. Details of the supplier of the safety data sheet

ZYAX CHEM PVT. LTD.,
3rd Floor, Kamer Building,
38 Cawasji Patel Street, Fort,
Mumbai - 400001, India.
Contact No: +91 8779240420
info@zyax.in - www.zyax.in

1.4. Emergency telephone number

Emergency number : +91 22 2757 3899

SECTION 2: Hazards identification

2.1. Classification

Classification according to Regulation (EC) No. 1272/2008 [CLP]

GHS Classification

Flammable liquids, Category 2	H225: Highly flammable liquid and vapour. On basis of test data.
Acute toxicity, Category 4	H302: Harmful if swallowed. Calculation method
Skin corrosion, Category 1B	H314: Causes severe skin burns and eye damage. Calculation method
Serious eye damage, Category 1	H318: Causes serious eye damage. Calculation method
Skin sensitisation, Category 1	H317: May cause an allergic skin reaction. Calculation method
Specific target organ toxicity - single exposure, Category 3	H336: May cause drowsiness or dizziness. Central nervous system Calculation method
Chronic aquatic toxicity, Category 3	H412: Harmful to aquatic life with long lasting effects. Calculation method.

2.2. Label elements

Labelling according to Regulation (EC) No. 1272/2008 [CLP]

Hazard pictograms (CLP) :

Signal word (CLP) : Danger
Contains : Hydrogen peroxide

Hazard statements (CLP)	H225	Highly flammable liquid and vapour.
	H302	Harmful if swallowed.
	H314	Causes severe skin burns and eye damage.
	H317	May cause an allergic skin reaction.
	H336	May cause drowsiness or dizziness.
	H412	Harmful to aquatic life with long lasting effects.

Precautionary statements (CLP)

Prevention:

P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

Response:

P303 + P361 + P353 IF ON SKIN (or hair):

Take off immediately all contaminated clothing. Rinse skin with water/shower.

P305 + P351 + P338 + P310 IF IN EYES:

Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/doctor.

Hazardous components which must be listed on the label:

- 123-86-4 n-butyl acetate
- 63148-62-9 Organic polysiloxane compound
- 919-30-2 3-aminopropyltriethoxysilane

2.3. Other hazards

No information available.

SECTION 3: Composition/information on ingredients

3.2 Mixtures

Chemical characterization

Polysiloxane in organic solvent Hazardous components

Organic polysiloxane compound

CAS-No.	: 63148-62-9
Classification (REGULATION (EC) No 1272/2008)	: Flam. Liq. 2; H225 Acute Tox. 4; H302 Skin Corr. 1B; H314 Aquatic Chronic 3; H412
Concentration [%]	: >= 30 - < 50

3-aminopropyltriethoxysilane

CAS-No.	: 919-30-2
EC-No.	: 213-048-4
Classification (REGULATION (EC) No 1272/2008)	: Acute Tox. 4; H302 Skin Corr. 1B; H314 Eye Dam. 1; H318 Skin Sens. 1; H317
Concentration [%]	: >= 5 - < 10

toluene

CAS-No.	: 108-88-3
EC-No.	: 203-625-9
Classification (REGULATION (EC) No 1272/2008)	: Flam. Liq. 2; H225 Repr. 2; H361d Asp. Tox. 1; H304 STOT RE 2; H373 Skin Irrit. 2; H315 STOT SE 3; H336
Concentration [%]	: >= 0,3 - < 1

Substances with a workplace exposure limit :

n-butyl acetate

CAS-No.	: 123-86-4
EC-No.	: 204-658-1
Registration number	: 01-2119485493-29-xxxx
Classification (REGULATION (EC) No 1272/2008)	: Flam. Liq. 3; H226 STOT SE 3; H336
Concentration [%]	: >= 50 - < 70

For explanation of abbreviations see section 16.

SECTION 4: First aid measures

4.1. Description of first aid measures

General advice : Take off all contaminated clothing immediately.
If symptoms persist, call a physician.
Show this safety data sheet to the doctor in attendance.
First aider needs to protect himself.

Inhalation : If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing.
Call a physician immediately.
Show this safety data sheet to the doctor in attendance.

Skin contact : Wash off immediately with plenty of water for at least 15 minutes.
Call a physician immediately.
Show this safety data sheet to the doctor in attendance.

Eye contact : Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.
Remove contact lenses. : Do NOT induce vomiting.

Ingestion If conscious, drink plenty of water.
Call a physician immediately.
Show this safety data sheet to the doctor in attendance.

4.2 Most important symptoms and effects, both acute and delayed

Symptoms : Irritation
Headache
Cough
Has a degreasing effect on the skin.
Narcotic effects

4.3 Indication of any immediate medical attention and special treatment needed

Treatment : Treat symptomatically.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media : Alcohol-resistant foam
Carbon dioxide (CO2)

Unsuitable extinguishing media : Water

5.2 Special hazards arising from the substance or mixture

Specific hazards during firefighting : In case of fire hazardous decomposition products may be produced such as:
Nitrogen oxides (NOx)
Carbon dioxide (CO2)
Carbon monoxide

5.3 Advice for firefighters

Special protective equipment for firefighters : In the event of fire, wear self-contained breathing apparatus.
Use personal protective equipment.

Further information : Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Personal precautions : Refer to protective measures listed in sections 7 and 8.

6.2. Environmental precautions

Environmental precautions : Do not flush into surface water or sanitary sewer system.

6.3. Methods and material for containment and cleaning up

Methods for cleaning up : Contain spillage, soak up with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and transfer to a container for disposal according to local / national regulations (see section 13).
Keep in suitable, closed containers for disposal.
Clean contaminated floors and objects thoroughly while observing environmental regulations.

6.4. Reference to other sections

For further information refer to section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Advice on safe handling : Do not breathe vapours or spray mist.
Do not get on skin or clothing.
For personal protection see section 8.
Use only in area provided with appropriate exhaust ventilation.

Advice on protection against fire and explosion : Keep away from sources of ignition - No smoking.
Take measures to prevent the build up of electrostatic charge.

7.2. Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers : Store in original container.
Open container periodically in order to release pressure which may be generated (ammonia).

Further information on storage conditions : Keep container tightly closed in a dry and well-ventilated place.
Protect against light.
Do not store at temperatures above 25 °C.

Advice on common storage : Keep away from food and drink.

7.3 Specific end use(s)

Specific use(s) : No data available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Components	:	**n-butyl acetate**
CAS-No.	:	123-86-4
Value	:	AGW
Control parameters	:	62 ppm 300 mg/m3
Category short-time exposure	:	2;(I)
Update	:	2012-09-13
Basis	:	DE TRGS 900
Further information	:	AGS: Commission for dangerous substancesWhen there is compliance with the OEL and biological tolerance values, there is no risk of harming the unborn child

Components	:	**toluene**
CAS-No.	:	108-88-3
Value	:	AGW
Control parameters	:	50 ppm 190 mg/m3
Category short-time exposure	:	4;(II)
Update	:	2010-08-04
Basis	:	DE TRGS 900
Further information	:	DFG: Senate commission for the review of compounds at the work place dangerous for the health (MAK-commission).European Union (The EU has established a limit value: deviations in value and peak limit are possible)Skin absorptionWhen there is compliance with the OEL and biological tolerance values, there is no risk of harming the unborn child
Value	:	AGW
Control parameters	:	200 mg/m3
Category short-time exposure	:	2;(II)
Update	:	2009-02-16
Basis	:	DE TRGS 900
Further information	:	Group-AGW: Group exposure limit for hydrocarbon solvent mixturesCommission for dangerous substancesSee also No. 2.9 of the TRGS 900

Biological occupational exposure limits

Substance name	:	**toluene**
CAS-No.	:	108-88-3
Control parameters	:	CLA-TD-4283: 600 µg/l (Blood)
Sampling time	:	Immediately after exposition or after working hours
Update	:	2013-04-04
Basis	:	TRGS 903

Derived No Effect Level (DNEL) according to Regulation (EC) No. 1907/2006:

n-butyl acetate : End Use: Workers
Exposure routes: Inhalation Potential health effects: Acute effects
Value: 960 mg/m3

End Use: Workers
Exposure routes: Inhalation
Potential health effects: Chronic effects
Value: 480 mg/m3

End Use: Consumers
Exposure routes: Inhalation
Potential health effects: Acute effects
Value: 859,7 mg/m3

End Use: Consumers
Exposure routes: Inhalation
Potential health effects: Chronic effects
Value: 102,34 mg/m3

Predicted No Effect Concentration (PNEC) according to Regulation (EC) No. 1907/2006:

n-butyl acetate : Fresh water
Value: 0,18 mg/l
Marine water
Value: 0,018 mg/l
Fresh water sediment
Value: 0,981 mg/kg
Marine sediment
Value: 0,0981 mg/kg
Soil
Value: 0,0903 mg/kg

8.2. Exposure controls

Engineering measures

See chapter7; no measures exeeding the ones mentioned are necessary.

Personal protective equipment

Respiratory protection : Suitable respiratory equipment:
Combination filter A2 B2 E2 K2 Hg/P3, to standard DIN EN 371/372.

Hand protection : Break through time: > 10 min
Glove thickness: >= 0,5 mm
In case of contact through splashing:
Solvent-resistant gloves (butyl-rubber)

Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. Also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion, and the contact time.

The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.

Eye protection : tightly fitting safety glasses

Skin and body protection : Flame retardant antistatic protective clothing.
Protective clothing Category 3, type 3 - liquid-tight
Protective clothing Category 3, type 4 - spray-tight

Hygiene measures : Keep away from food and drink.
When using do not eat, drink or smoke.
Wash hands and face before breaks and immediately after handling the product.

Use barrier skin cream. Handle in accordance with good industrial hygiene and safety practice.

Protective measures : Do not breathe vapours or spray mist.
Avoid contact with skin and eyes.
Observe the usual precautions for handling chemicals.

Environmental exposure controls

General advice : Do not flush into surface water or sanitary sewer system.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Appearance

Form	:liquid
Colour	:colourless
Odour	:slightly ammonia-like

Safety data

Flash point	:16 °C
Ignition temperature	: 435 °C, Information refers to solvent
Thermal decomposition	:not determined
Lower explosion limit	:No data available
Upper explosion limit	:not determined
Flammability (solid, gas)	:not determined
Oxidizing properties	:not determined
Auto-ignition temperature	:not determined
Burning number	:not determined
pH	:Not applicable
Freezing point	:not determined
Boiling point/boiling range	:125 °C, Information applies to the solvent.
Sublimation point	:not determined
Vapour pressure	:not determined
Density	:0,92 g/cm3
Water solubility	:Reacts with water
Partition coefficient: n-octanol/water	:not determined
Solubility in other solvents	:not determined
Viscosity, dynamic	:not determined
Viscosity, kinematic	:not determined
Relative vapour density	:not determined
Corrosive in contact with metals	:not determined
Evaporation rate	:not determined

9.2. Other information

Further information :Remarks: No information available.

SECTION 10: Stability and reactivity

10.1. Reactivity

The material can slowly hydrolyze in the presence of water to form hydrogen and ammonia gases and condensed siloxane.

10.2. Chemical stability

The material can slowly hydrolyze in the presence of water to form hydrogen and ammonia gases and condensed siloxane., pressure build-up

10.3. Possibility of hazardous reactions

Hazardous reactions : Reacts with moisture, water, alcohols and amines to produce ammonia.

10.4. Conditions to avoid

Conditions to avoid : Heat, flames and sparks.
Extremes of temperature and direct sunlight.

10.5. Incompatible materials

Materials to avoid	: Oxidizing agents Bases Acids Halogenated compounds

10.6. Hazardous decomposition products

Hazardous decomposition products	: Hydrogen Ammonia

SECTION 11: Toxicological information

11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008

Product

Acute oral toxicity	:	Acute Toxicity Estimate (ATE): 1.276 mg/kg, Calculation method
Acute inhalation toxicity	:	No data available
Acute dermal toxicity	:	No data available
Skin corrosion/irritation	:	No data available
Serious eye damage/eye irritation	:	No data available
Respiratory or skin sensitisation	:	No data available

Components:

Organic polysilane compound :
Acute oral toxicity : LD50: > 300 - 2.000 mg/kg, Rat, OECD 423, Observation time: 14 d

Skin corrosion/irritation	:Rabbit, Result: Causes burns., OECD 404, Exposure time: 1 h
Germ cell mutagenicity	
Genotoxicity in vitro	:Ames test, with and without metabolic activation Result: negative, Mutagenicity (Escherichia coli - reverse mutation assay)

3-aminopropyltriethoxysilane :

Acute oral toxicity	:Acute Toxicity Estimate (ATE): 500 mg/kg, Converted acute toxicity point estimate
Skin corrosion/irritation	:Rabbit, Classification: Corrosive
Serious eye damage/eye irritation	:Rabbit, Classification: Risk of serious damage to eyes.
Respiratory or skin sensitisation	:Guinea pig, Result: Causes sensitisation., Classification: May cause sensitisation by skin contact.

toluene :

Respiratory or skin sensitisation	:Guinea pig maximization test, Guinea pig, Result: No evidence of sensitizing properties., Classification: Does not cause skin sensitisation., Directive 67/548/EEC, Annex V, B.6., GLP: yes

n-butyl acetate :

Acute oral toxicity	:LD50: > 10.000 mg/kg, Rat
Acute inhalation toxicity	:LC50: > 21,1 mg/l, 4 h, Rat, vapour, OECD Test Guideline 403
Acute dermal toxicity	:LD50: > 14.000 mg/kg, Rabbit
Skin corrosion/irritation	:Rabbit, Result: No skin irritation, OECD Test Guideline 404
Serious eye damage/eye irritation	:Rabbit, Result: No eye irritation, OECD Test Guideline 405
Respiratory or skin sensitisation	:Maximisation Test (GPMT), Guinea pig, Result: Did not cause sensitisation on laboratory animals.
STOT - single exposure	:Assessment: May cause drowsiness or dizziness.
Further information	:Has a degreasing effect on skin

SECTION 12: Ecological information

12.1. Toxicity

Components: Organic polysilane compound:

Toxicity to fish	: LC50 (Danio rerio (zebra fish)): 57,1 mg/l Exposure time: 96 h Method: OECD 203

n-butyl acetate:

Toxicity to fish	: LC50 (Pimephales promelas (fathead minnow)): 18 mg/l Exposure time: 96 h Test Type: flow-through test
Toxicity to daphnia and other aquatic invertebrates	: EC50 (Ceriodaphnia (water flea)): 44 mg/l Exposure time: 48 h Test Type: static test
Toxicity to algae	: EC50 (Scenedesmus subspicatus): 675 mg/l Exposure time: 72 h Method: DIN 38412 T.9
Toxicity to bacteria	: IC50 (activated sludge): 356 mg/l Exposure time: 40 h

12.2. Persistence and degradability

Components:

n-butyl acetate :

Biodegradability	: Result: Readily biodegradable

12.3. Bioaccumulative potential

Components:

n-butyl acetate :

Bioaccumulation	: Remarks: Does not accumulate in organisms.
Partition coefficient: n-octanol/water	: log Pow: 1,85 (20 °C)

12.4. Mobility in soil

No additional information available

12.5. Results of PBT and vPvB assessment

Product:

Assessment	: This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher..

Components:

n-butyl acetate :

Assessment	: The substance does not fulfill the PBT criteria.. The substance does not fulfill the vPvB criteria..

12.6. Endocrine disrupting properties

No additional information available

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Product	: Do not mix with aqueous wastes or wastes containing protic substances. Product should be taken to a suitable and authorized waste disposal site in accordance with relevant regulations and if necessary after consultation with the waste disposal operator and/or the competent Authorities
Contaminated packaging	: Dispose of as unused product.

SECTION 14: Transport information

ADR

UN number	: 2924
Description of the goods	: FLAMMABLE LIQUID, CORROSIVE, N.O.S. (Organic polysilazane compound, n-Butyl acetate)
Class	: 3
Packing group	: II
Classification Code	: FC
Hazard Identification Number	: 338
Labels	: 3 (8)
Environmentally hazardous	: no

IATA

UN number	: 2924
Description of the goods	: Flammable liquid, corrosive, n.o.s. (Organic polysilazane compound, n-Butyl acetate)
Class	: 3
Packing group	: II
Labels	: 3 (8)
Environmentally hazardous	: no

IMDG

UN number	: 2924
Description of the goods	: FLAMMABLE LIQUID, CORROSIVE, N.O.S. (Organic polysilazane compound, n-Butyl acetate)
Class	: 3
Packing group	: II
Labels	: 3 (8)
EmS Number 1	: F-E
EmS Number 2	: S-C
Marine pollutant	: no

RID

UN number	: 2924
Description of the goods	: FLAMMABLE LIQUID, CORROSIVE, N.O.S. (Organic polysilazane compound, n-Butyl acetate)
Class	: 3
Packing group	: II
Classification Code	: FC
Hazard Identification Number	: 338
Labels	: 3 (8)
Environmentally hazardous	: no

SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

International Chemical Weapons Convention (CWC) Schedules of Toxic Chemicals and Precursors	: Neither banned nor restricted
REACH - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, preparations and articles (Annex XVII)	: 123-86-4 108-88-3
Regulation (EC) No 649/2012 of the European Parliament and: the Council concerning the export and import of dangerous chemicals	: Neither banned nor restricted

:

REACH - Candidate List of Substances of Very High Concern for Authorisation (Article 59).	: This product does not contain substances of very high concern (Regulation (EC) No 1907/2006 (REACH), Article 57).
REACH - List of substances subject to authorisation (Annex	: Neither banned nor restricted
XIV) Regulation (EC) No 1005/2009 on substances that deplete the ozone layer	:Neither banned nor restricted
Regulation (EC) No 850/2004 on persistent organic pollutants	:Neither banned nor restricted

Water contaminating class : WGK 2 water endangering
Remarks: Data in accordance with the VwVsS regulation for mixtures.

15.2. Chemical safety assessment

A Chemical Safety Assessment is not required for a mixture.

SECTION 16: Other information

Full text of H-Statements referred to under sections 2 and 3.

H225	Highly flammable liquid and vapour.
H226	Flammable liquid and vapour.
H302	Harmful if swallowed.
H304	May be fatal if swallowed and enters airways.
H314	Causes severe skin burns and eye damage.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H318	Causes serious eye damage.
H336	May cause drowsiness or dizziness.
H361d	Suspected of damaging the unborn child.
H373	May cause damage to organs through prolonged or repeated exposure.
H412	Harmful to aquatic life with long lasting effects.

Decimal notation: "Thousands" places are identified with a dot (example: 2.000 mg/kg means "two thousand mg/kg").
Decimal places are identified with a comma (example: 1,35 g/cm3)

Further information

Further information : Observe national and local legal requirements

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.
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