

SAFETY DATA SHEETS:

Zydex Industries

PRODUCT NAME: NANOTAC

Issue Date: Apr 11, 2016

Print Date: Apr 11, 2016

1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND THE COMPANY/UNDERTAKING

- **Product Name-** Nanotac
- **Recommended use of chemical and restriction on use- Identified Uses:** Additive for addition to Bitumen modification and for Aggregate treatment.
- **Company Identification-** Zydex Industries , 61, Gotri Sevasi Road, Gotri, Vadodara, Gujarat , India -390 021
- **Customer Information Number-** 91-265-3312000, info@zydexindustries.com
www.zydexindustries.com
- **Emergency Telephone Number-** Dr. Ajay Ranka (+91) 9825008145/
Dr. Moulik Ranka (+91) 7567622211

2. HAZARDS IDENTIFICATION

- **Hazard Classification-**
Classification of the substance or mixture (Ethylene Glycol)
Product classification according to Regulation (EC) 1272/2008 (CLP):
Acute toxicity, Oral– Category 4, H302 Harmful if Swallowed
Specific target Organ Toxicity- Category 2, H373 May cause damage to organs through
Repeated exposure (Oral) prolonged or repeated exposure if swallowed

Product classification according to Directive 67/548/EEC or 1999/45/EC: Harmful
R22 Harmful if swallowed.

- **Hazard Pictograms-**



- **Label Elements-**
Product labeling according to Regulation (EC) 1272/2008 (CLP):
Precautionary statements are listed according to the United Nations Globally Harmonized System of Classification and Labelling of Chemicals (GHS) - Annex III. Regulations in individual countries/regions may determine which statements are required on the product label. See product label for specifics.
- **Signal Word-** Warning.
- **Hazard statements-**
H302 Harmful if swallowed.
H373 May cause damage to organs through prolonged or repeated exposure if swallowed

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- **Precautionary Statements-**
 - P260 Do not breathe dust/fume/gas/mist/vapors/spray**
 - P264 Wash thoroughly after handling.**
 - P301+P330 + P 331 IF SWALLOWED Rinse mouth. Do not induce vomiting.**
 - P314 Get medical Advice/attention if you feel unwell.**
 - P501 Dispose of contents/container in accordance with local, regional and international regulations.**
- **Other hazards:** No information available

3. COMPOSITION/INFORMATION ON INGREDIENTS

- Substance/Synonyms- Proprietary Organosilane compounds

Component	CAS No.	Concentration (%)
alkoxy-alkylsilyl compounds	-	38-42
Ethylene Glycol	CAS # 107-21-1	58-62

4. FIRST AID MEASURES

- **Description of first aid measures-**
 - **General Advice-** Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label where possible).
 - **Inhalation-** Remove to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER/doctor/physician if you feel unwell.
 - **Skin Contact-** Remove/Take off immediately all contaminated clothing. Wash with plenty of soap and water. Immediately call a POISON CENTER or doctor/physician. Wash contaminated clothing before reuse.
 - **Eye Contact-** Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Obtain medical attention if pain, blinking or redness persists.
 - **Ingestion-** Rinse mouth. Do NOT induce vomiting. Obtain emergency medical attention.
- **Most Important symptoms and effects, both acute and delayed-** Dizziness, Drowsiness, Headache, Irritation, Nausea. Pre-existing sensitization, skin and/or respiratory disorders or diseases may be aggravated. Obtain emergency medical attention.
- **Indication of any immediate medical attention and special treatment needed-** Treat symptomatically

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5. FIREFIGHTING MEASURES

- **Suitable Extinguishing Media-** Foam. Dry powder. Carbon dioxide. Water spray.
- **Unsuitable Extinguishing Media-** Not Known.

- **Special hazards arising from substance/mixture**
 - Fire hazard- Can form highly flammable liquid and vapour.
 - Explosion hazard- May form flammable/explosive vapour-air mixture.
 - Reactivity - Stable under normal conditions.

- **Advice for firefighters**

Firefighting instructions- Use water spray or fog for cooling exposed containers. Exercise caution when fighting any chemical fire. Do not allow run-off from firefighting to enter drains or water courses.

- **Special Protective equipment for firefighter:**

Do not enter fire area without proper protective equipment, including respiratory protection. Wear self-contained breathing apparatus (SCBA) equipped with a full face piece and operated in a pressure-demand mode (or other positive pressure mode) and approved protective clothing.

6. ACCIDENTAL RELEASE MEASURES

- **Personal precautions, protective equipment and emergency procedures-**
 - **General measures-** Remove ignition sources. Use special care to avoid static electric charges. No naked lights. No smoking
 - **For non-emergency personnel -** Emergency procedures: Evacuate unnecessary personnel. Stop leak without risks if possible. Avoid contact with skin, eyes and clothing. Avoid inhalation of vapours.
 - **For emergency responders -** Protective equipment Equip clean-up crew with proper protection. Avoid inhalation of vapours. Avoid contact with skin and eyes.
 - **Emergency procedures -**Ventilate area.

- **Environmental precautions-** Prevent entry to sewers and public waters. Notify authorities if liquid enters sewers or public waters.

- **Methods and materials for containment and cleaning up-** Soak up spills with inert solids, such as clay or diatomaceous earth as soon as possible. Collect spillage. Store away from other materials.

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7. HANDLING AND STORAGE

➤ Precautions for safe handling-

- Additional hazards when processed- Handle empty containers with care because residual vapours may be flammable.
- Precautions for safe handling- Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Provide good ventilation in process area to prevent formation of vapour. No naked lights. No smoking. Use only non-sparking tools. Use only outdoors or in a well-ventilated area. Do not breathe vapours. Avoid contact with skin, eyes and clothing.
- Hygiene measures- Do not eat, drink or smoke when using this product. Wash hands thoroughly after handling.

➤ Conditions for safe storage-

- Technical measures- Ground/bond container and receiving equipment.
- Storage conditions- Keep only in the original container in a cool, well ventilated place away from Sources of ignition. Keep container tightly closed.
- Incompatible products- Strong bases. Strong acids.

➤ Storage Stability- Keep away from moisture. Shelf life use within 24 months

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

➤ Control parameters-

Chemical name	EU OELV	EU IOELV	ACGIH - TWA	ACGIH - STEL	UKWELs
Ethylene Glycol	40 ppm	40 ppm	100 mg/M ³	40 ppm	TWA 52 ppm, STEL 104 ppm

N/E- Not Established (No exposure limits established for listed substances for listed country/region/organization)

➤ Exposure Controls-

- Personal protective equipment - Avoid all unnecessary exposure.
- Hand protection - Wear protective gloves.
- Eye protection - Chemical goggles or safety glasses.
- Skin and body protection - Wear suitable protective clothing.
- Respiratory protection - Where exposure through inhalation may occur from use, respiratory protection equipment is recommended.
- Thermal hazard protection - Not required for normal conditions of use.
- Environmental exposure controls - Avoid release to the environment.
- Other information - Do not eat, drink or smoke during use.

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9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state	:	Liquid
Color	:	Pale Yellow
Odour	:	Sweet
Odour Threshold	:	No data available
pH	:	6-7
Melting point	:	3°C
Freezing point	:	8°C
Boiling point	:	Approx. 200 °C
Flash point	:	≥ 95 °C (closed cup)
Evaporation rate	:	0.01 (Literature)
Partition coefficient	:	No data available
Auto ignition temperature	:	No data available
Decomposition temperature	:	No data available
Viscosity	:	
Kinematic viscosity	:	No data available
Viscosity, dynamic	:	100 - 500 cP @ 30°C
Explosive properties	:	Not Explosive
Oxidizing properties	:	Not Oxidizing
Molecular weight	:	N/A
Flammability	:	No data available
Vapor pressure	:	No data available
Density	:	1.03-1.05 g/ml
Relative vapor density	:	<2.1 (Literature)
Water solubility	:	Miscible with: Ethanol. Methanol. Alcoholic. Acetone. Miscible and reacts with water
Lower explosion limit	:	No test data available
Upper explosion limit	:	No test data available

[Note: Physical data presented above are typical values and should not be construed as a specification]

10. STABILITY AND REACTIVITY

- **Reactivity-** Stable under normal conditions. Reacts with water.
- **Chemical stability-** Stable under normal conditions. Moisture exposure may form flammable/explosive vapour-air mixture.
- **Possibility of hazardous reactions-** Under fire conditions closed containers may rupture or explode. Can form explosive mixture with air.
- **Conditions to avoid-** Direct sunlight. Extremely high or low temperatures and moisture.
- **Incompatible materials-** Water. Acids, Oxidizing agents
- **Hazardous decomposition products-** Carbon monoxide, Carbon dioxide

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11. TOXICOLOGICAL INFORMATION➤ **Acute Toxicity**

- Acute Oral Toxicity-
- Acute Dermal Toxicity-
- Acute Inhalation Toxicity-

➤ **Skin Irritation-** May cause skin irritation. Repeated or prolonged contact may cause irritation, dermatitis, defatting and drying or cracking of the skin.

➤ **Serious eye damage/Eye irritation-** Causes eye irritation

➤ **Sensitization-**

- For skin sensitization- Not classified (based on available data, the classification criteria are not met).
- For respiratory sensitization- Not classified (based on available data, the classification criteria are not met). Ethylene Glycol solvent: This material has a low potential to cause allergic skin reactions,

➤ **Specific target organ toxicity (STOT)-**

- STOT single exposure- Not classified (based on available data, the classification criteria are not met)
- STOT repeated toxicity- Not classified (based on available data, the classification criteria are not met)

➤ **Carcinogenicity** - Not classified (based on available data, the classification criteria are not met). Ethylene Glycol: Under conditions of a two-year NTP gavage study, there was no evidence of carcinogenic activity in animal studies.

➤ **Reproductive toxicity-** Not classified (based on available data, the classification criteria are not met).

Ethylene Glycol: No effects on reproductive organs were observed in subchronic and long-term studies with rats and mice. Developmental toxicity oral study, mouse: No developmental effects were observed in absence of maternal toxicity.

➤ **Mutagenicity-** Not classified (based on available data, the classification criteria are not met).

Ethylene Glycol: Ames testing showed no mutagenic activity and mixed results both positive and negative were observed from other in-vitro genotoxicity assays. Ethylene glycol showed no genotoxicity during in-vivo testing. The weight of the evidence indicates this material is not mutagenic or clastogenic.

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➤ **Components influencing toxicology-**

Chemical Name	LC50 Inhalation	Species	LD50 Oral	Species	LD50 Skin	Species
Ethylene Glycol	2.5 mg/L	Rat, M, F	7712 mg/Kg	Rat, M, F	3500 mg/kg b	Mouse M,F

12. ECOLOGICAL INFORMATION

Ethylène Glycol is not classified as dangerous to aquatic organism.

Chemical Name	Fish 96hr LC50	Species	Fish 96hr LC50	Species Fish	Chronic NOEC	Species
Ethylene Glycol	72860 mg/L	Pimephalis promelas	>100 mg/L	Oryzias latipes (Medaka)	N/E	

Chemical Name	Invertebrates 48 hr EC50	Species	Invertebrates 24 hr EC50	Species	Invertebrates Chronic NOEC	Species
Ethylene Glycol	<100mg/l	Daphnia magna	6500-13000 mg/l	Pseudokirchneriella subcapitata		

- **Persistence and degradability-** Not Established
- **Bio accumulative Potential-** Not Established
- **Mobility in Soil-** No additional information available
- **Other adverse effects-** Avoid release to the environment

13. DISPOSAL CONSIDERATIONS

➤ **Waste treatment methods-**

- **Waste disposal recommendations-** Dispose in a safe manner in accordance with local/national regulations. Dispose of this material and its container to hazardous or special waste collection point.
- **Additional information-** Handle empty containers with care because residual vapours are flammable.
- **Ecology-waste materials-** Hazardous waste due to toxicity. Avoid release to the environment.

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14. TRANSPORT INFORMATION

- **UN Number**
 - UN-no (Land transport)- Not Applicable
- **UN proper shipping name**
 - Proper shipping name (Land transport)- Not Applicable
 - Proper shipping name (IATA)- Not Applicable
 - Proper shipping name (IMDG)- Not Applicable
- **Transport hazard class (es)**
 - Class (land transport)- Not applicable
 - Class (IATA)- Not applicable
 - Class (IMDG)- Not applicable
- **Packing group**
 - Packing group (Land transport)- Not Applicable
- **Environmental hazards**
 - Other information- Not Classified
- **Special precautions for user**
 - Special transport precautions- Ensure there is adequate ventilation.
- Overland transport- Not Regulated
- Transport by sea- Not Regulated
- Air transport- Not Regulated
- **Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code**
Not Applicable

15. REGULATORY INFORMATION

- EU
 - EU authorization and/or restrictions on use- Not Applicable
 - Other EU information- REACH Registration Numbers, 17-2119878844-19-0000, 17-2119878842-23-0000
 - National regulations- No Additional Information
 - CA Prop. 65- Ethylene glycol (ingested)- Toxicity (developmental) - June 19, 2015
 - Chemical inventories-
 - Regulation Status-
Canadian Domestic Substances List (DSL): Y
Canadian Non-Domestic Substances List (NDSL): N

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European Inventory of Existing Chemical Substances (EINECS): Y

European List of notified chemical substances (ELINCS): Y

Europe REACH (EC) 1907/2006: Preregistration

U.S. Toxic Substances Control Act (TSCA): Y

16. OTHER INFORMATION

- Hazard rating system
 - NFPA (national fire protection association)
Health-1 Fire- 1 Reactivity-0

 - HMIS (Hazard Material Identification System)
Health-1 Fire- 1 Reactivity-0

- Revision date- Apr 11, 2016

Zydex Industries urges each customer or recipient of this (M) SDS to study it carefully and consult appropriate expertise, as necessary or appropriate, to become aware of and understand the data contained in this (M)SDS and any hazards associated with the product. The information herein is provided in good faith and believed to be accurate as of the effective data shown above. However no warranty express or implied is given. Regulatory requirements are subject to change and may differ between various locations.