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SAINT CHARLES IL
USA 60174

SunChemical®
a member of the DIC group

SHANGHAI HAPPY-BIZ CHEMICAL CO., LT
2104 BUILDING NO 2, SOFWARE GARDEN
WUXI CITY, 100 214000
China

July 30, 2013

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

Health	*	2
Fire hazard		1
Reactivity		0
Personal protection		

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Material Safety Data Sheet

1 . Product and company identification

Product code : ST-290

Product name : ST-290:VISCOSITY MODIFIER:G271

Material uses : Printing. Colorant.

Manufacturer/ Distributor : Sun Chemical Corporation
631 Central Avenue
Carlstadt, NJ 07072

In case of emergency : (800) 424-9300 (U.S.)
(703) 527-3887 (International)

Regulatory information : Canada: (905) 796-2222
US: (201) 933-4500

Other information : (513) 830-8500

Date of revision : 5/10/2012.

2 . Hazards identification

Physical state : Liquid.

Color : Clear.

OSHA/HCS status This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Emergency overview : Warning!

Combustible liquid. Harmful by inhalation. May be harmful if absorbed through skin. Severely irritating to eyes. Keep away from heat, sparks and flame. Do not breathe vapor or mist. Do not get in eyes. Avoid contact with skin and clothing. Use only with adequate ventilation. Keep container tightly closed and sealed until ready for use. Wash thoroughly after handling.

Routes of entry Dermal contact. Inhalation.

Potential acute health effects

Eyes : Severely irritating to eyes.

Skin : Harmful in contact with skin.

Inhalation : Toxic by inhalation. Exposure to decomposition products may cause a health hazard. Serious effects may be delayed following exposure.

Ingestion : No known significant effects or critical hazards.

Potential chronic health effects(Long term exposure)

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.

Target organs : Contains material which may cause damage to the following organs: kidneys, liver.

Medical conditions aggravated by over-exposure : Pre-existing disorders involving any target organs mentioned in this MSDS as being at risk may be aggravated by over-exposure to this product.

See toxicological information (Section 11)

2 . Hazards identification

3 . Composition/information on ingredients

Hazardous ingredients	CAS number	%
N-Vinylpyrrolidone	88-12-0	> 70

4 . First aid measures

Eye contact : Check for and remove any contact lenses. Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical attention immediately.

Skin contact : In case of contact, immediately flush skin with plenty of water while removing contaminated clothing and shoes. Wash clothing before reuse. Clean shoes thoroughly before reuse. Get medical attention if irritation develops.

Inhalation : Move exposed person to fresh air. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention immediately.

Ingestion : Wash out mouth with water. Do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention immediately.

Protection of first-aiders : No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

5 . Fire-fighting measures

Flammability of the product : Combustible liquid. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion.

Products of combustion : Decomposition products may include the following materials:
carbon dioxide
carbon monoxide
nitrogen oxides

Extinguishing media

Suitable : Use dry chemical, CO_2, water spray (fog) or foam.

Not suitable : Do not use water jet.

Special exposure hazards : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.

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.

Flammability (OSHA criteria) : IIIA

Flash point : Lowest known value: 61 to 93.3°C (141.8 to 200°F) (Closed cup) [Tagliabue.]

6 . Accidental release measures

Personal precautions : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Do not breathe vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment (see Section 8).

6 . Accidental release measures

Environmental precautions : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods for cleaning up : Stop leak if without risk. Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see section 13). Use spark-proof tools and explosion-proof equipment. Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see section 1 for emergency contact information and section 13 for waste disposal.

7 . Handling and storage

Handling : Put on appropriate personal protective equipment (see Section 8). Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. Do not get in eyes or on skin or clothing. Do not breathe vapor or mist. Do not ingest. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use non-sparking tools. Take precautionary measures against electrostatic discharges. To avoid fire or explosion, dissipate static electricity during transfer by grounding and bonding containers and equipment before transferring material. Empty containers retain product residue and can be hazardous. Do not reuse container.

Storage : Store in accordance with local regulations. Store in a segregated and approved area. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see section 10) and food and drink. Eliminate all ignition sources. Separate from oxidizing materials. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

8 . Exposure controls/personal protection

Product name	Exposure limits
N-Vinylpyrrolidone	**ACGIH TLV (United States, 1/2011).** TWA: 0.05 ppm 8 hour(s).

Consult local authorities for acceptable exposure limits.

Engineering measures : Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. The engineering controls also need to keep gas, vapor or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment.

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 or dusts.

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 : In case of inadequate ventilation wear respiratory protection. 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.

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 : Liquid.

Color : Clear.

Boiling/condensation point : Lowest known value: 217°C (423°F)

Melting/freezing point : May start to solidify at the following temperature: 13°C (55.4°F) This is based on data for the following ingredient: N-Vinylpyrrolidone.

Flash point : Lowest known value: 61 to 93.3°C (141.8 to 200°F) (Closed cup) [Tagliabue.]

VOC : 0%

Auto-ignition temperature : Lowest known value: 364°C (687.2°F) (N-Vinylpyrrolidone).

Vapor pressure : 0.013 kPa (0.1 mm Hg) [20°C]

Density : 1.04 g/cm^3 (8.679 lbs/gal)

Vapor density : Highest known value: 3.83 (Air = 1) (N-Vinylpyrrolidone).

Evaporation rate : <1 (N-Vinylpyrrolidone) compared with butyl acetate

10 . Stability and reactivity

Stability and reactivity : The product is stable.

Hazardous decomposition products : Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Hazardous polymerization : Under normal conditions of storage and use, hazardous polymerization will not occur.

Reactivity - Light : Not applicable.

11 . Toxicological information

Acute toxicity

Conclusion/Summary : No known significant effects or critical hazards.

Chronic toxicity

Conclusion/Summary : No known significant effects or critical hazards.

Carcinogenicity

Conclusion/Summary : No known significant effects or critical hazards.

Classification

Product/ingredient name	ACGIH	IARC	EPA	NIOSH	NTP	OSHA
N-Vinylpyrrolidone	A3	3	-	-	-	-

Mutagenicity

Conclusion/Summary : No known significant effects or critical hazards.

Teratogenicity

Conclusion/Summary : No known significant effects or critical hazards.

Reproductive toxicity

Conclusion/Summary : No known significant effects or critical hazards.

12 . Ecological information

Environmental effects : No known significant effects or critical hazards.

Aquatic ecotoxicity

Conclusion/Summary : Not available.

Biodegradability

Conclusion/Summary : Not available.

Other adverse effects : No known significant effects or critical hazards.

13 . Disposal considerations

Waste disposal : The generation of waste should be avoided or minimized wherever possible. Significant quantities of waste product residues should not be disposed of via the foul sewer but processed in a suitable effluent treatment plant. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. 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. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Vapor from product residues may create a highly flammable or explosive atmosphere inside the container. Do not cut, weld or grind used containers unless they have been cleaned thoroughly internally. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Refer to protective measures listed in sections 7 and 8.
Empty containers or liners may retain some product residues.

14 . Transport information

Regulatory information	UN number	Proper shipping name	Class	PG*	Label	Additional information
DOT Classification	UN2810	TOXIC LIQUID, ORGANIC, N.O.S. (CONTAINS:N-VINYL-2-PYRROLIDONE)	6.1	III		-

PG* : Packing group

15 . Regulatory information

HCS Classification : Combustible liquid
Toxic material
Irritating material
Target organ effects

TSCA 8(b) inventory : Listed

U.S. Federal regulations : **TSCA 4(a) final test rules**: No products were found.

TSCA 4(a) ITC priority list: No products were found.

TSCA 4(a) proposed test rules: No products were found.

TSCA 5(a)2 final significant new use rules: No products were found.

TSCA 5(a)2 proposed significant new use rules: No products were found.

TSCA 5(e) substance consent order: No products were found.

TSCA 6 final risk management: No products were found.

TSCA 6 proposed risk management: No products were found.

TSCA 8(a) CAIR: No products were found.

TSCA 8(a) chemical risk rules: No products were found.

15 . Regulatory information

TSCA 8(a) dioxin/furane precursor: No products were found.

TSCA 8(a) IUR Exempt/Partial exemption: Not determined

TSCA 8(a) PAIR: No products were found.

TSCA 8(c) calls for record of SAR: No products were found.

TSCA 8(d) H and S data reporting: No products were found.

TSCA 12(b) annual export notification: No products were found.

TSCA 12(b) one-time export: No products were found.

Commerce control list precursor: No products were found.

TSCA commerce control list: Not listed

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: N-Vinylpyrrolidone
SARA 311/312 MSDS distribution - chemical inventory - hazard identification: N-Vinylpyrrolidone: Fire hazard, Immediate (acute) health hazard

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.

SARA 313

Product name	CAS number	Concentration

Supplier notification : None identified.

SARA 313 notifications must not be detached from the MSDS and any copying and redistribution of the MSDS shall include copying and redistribution of the notice attached to copies of the MSDS subsequently redistributed.

CONEG : In compliance.

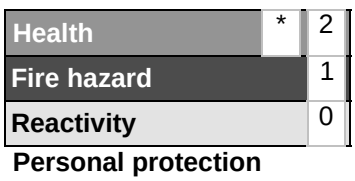
International lists

International lists :
Canada inventory: All components are listed or exempted.
Australia inventory (AICS): All components are listed or exempted.
China inventory (IECSC): All components are listed or exempted.
Japan inventory: All components are listed or exempted.
Korea inventory: All components are listed or exempted.
New Zealand Inventory of Chemicals (NZIoC): All components are listed or exempted.
Philippines inventory (PICCS): All components are listed or exempted.
Europe Inventory: Please contact your supplier to get the information.

16 . Other information

Label requirements : COMBUSTIBLE LIQUID AND VAPOR. HARMFUL IF INHALED. CAUSES EYE IRRITATION. MAY BE HARMFUL IF ABSORBED THROUGH SKIN. CONTAINS MATERIAL THAT MAY CAUSE TARGET ORGAN DAMAGE, BASED ON ANIMAL DATA.

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



Version : **7**

Notice to reader

16 . Other information

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.

ST-290

VOLATILE COMPONENT INFORMATION

		US EPA Designate
A. Product Density:		
1.)	1.04 g/cm^3 (8.679 lbs/gal)	=(Dc)s
B. Nonvolatile Content:		
1.)	100 Weight percent of nonvolatiles in product	=(Wn)s
2.)	100 Volume percent of nonvolatiles in product	=(Vn)s
3.)	8.67 Density, lb nonvolatiles/gal nonvolatiles	=(Dn)s
C. Volatiles:		
1.)	0 Weight percent of total volatiles in product	=(Wv)s
2.)	0 Density, lb volatiles/gal volatiles	=(Dv)s
D. Water Content:		
1.)	0 Weight percent of water in product	=(Ww)s
2.)	0 Volume percent of water in product	=(Vw)s
E. Volatile Organic Compounds, (VOCs):		
1.)	0 Weight percent of organic volatiles in product	=(Wo)s
2.)	0 Volume percent of organic volatiles in product	=(Vo)s
3.)	0 Density, lb organic volatiles/gal organic volatiles	=(Do)s
4.)	0 Weight percent of VOCs in total volatiles	=(Wo)v
5.)	0 Volume percent of VOCs in total volatiles	=(Vo)v
F. VOC Content in Product Expressed in Other Terms:		
1.) a.)	0 lb VOC / gal Product	
1.) b.)	0 grams VOC / liter Product	
2.) a.)	0 lb VOC / gal Product less water & exempt solvent	
2.) b.)	0 grams VOC / liter Product less water & exempt solvent	
2.) c.)	0 Weight percent of organic volatiles (VOC) in Product less water & exempt solvents.	
3.)	0 lb VOC / gal total nonvolatiles	

G. Volatiles

Ingredient	CAS number	% by weight	Density (lb/gal)
1.) Hazardous Air Pollutants VOCs (HAPs)		0	
2.) Other VOCs (Non-HAPs)			
3.) Water	7732-18-5	0	
4.) Ammonia (reported as CAS# 7664-41-7; includes CAS# 1336-21-6)	7664-41-7	0	5.99
5.) Other Non-VOC, Non-HAP Volatiles		0	

NOTE: The term Volatile Organic Compounds (VOC) refers only to volatile organic materials as defined by the US EPA and does not include water, ammonia, acetone or other exempt solvents. Unless otherwise stated, the VOC values reported above are based on materials of construction.