SAFETY DATA SHEET

According to Regulation (EC) No. 1907/2006 (REACH) Article 31, Annex II as amended

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

1.1 Product identifier

Product name:

SiYPro A420

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses: Process additive for the petrochemical industry
Polymerization inhibitor for monomers.

Uses advised against: Not determined.

1.3 Details of the supplier of the safety data sheet

Company Name : Evonik Operations GmbH
Rellinghauser Str. 1-11
45128 Essen
Germany

Telephone : +49 201 173 01

Fax : +49 201 173 3000

E-mail : productsafety-cs@evonik.com

1.4 Emergency telephone number:

24-Hour Health Emergency : +49 2365 49 2232
+49 2365 49 4423 (Fax)

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

The product has been classified according to the legislation in force.

Classification according to Regulation (EC) No 1272/2008 as amended.

Health Hazards

Serious Eye Damage/Eye Irritation	Category 1	H318: Causes serious eye damage.
Specific Target Organ Toxicity - Repeated Exposure (Oral)	Category 2 (Spleen.)	H373: May cause damage to organs through prolonged or repeated exposure.

2.2 Label Elements

Contains: 4-hydroxy-2,2,6,6-tetramethylpiperidinoxyl

{ error: graphic file not found: D:\wwi\graphics\GHS_acid.bmp|Corrosion }{ error: graphic file not found: D:\wwi\graphics\GHS_silhouet.bmp|Health hazard }

Signal Words: Danger

Hazard Statement(s): H318: Causes serious eye damage.
H373: May cause damage to organs through prolonged or repeated exposure.

Precautionary Statements

Prevention: P260: Do not breathe dust/fume/gas/mist/vapors/spray.
P280: Wear protective gloves/protective clothing/eye protection/face protection.

Response: P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310: Immediately call a POISON CENTER/doctor.
P314: Get medical advice/attention if you feel unwell.

2.3 Other hazards Do not allow material to contaminate ground water system. A PBT/vPvB evaluation is not available, since a chemical safety evaluation is not required / has not been carried out.

SECTION 3: Composition/information on ingredients

3.2 Mixtures

General information: Preparation on the base: Aqueous Solution

Chemical name	Concentration	CAS-No.	EC No.	REACH Registration No.	M-Factor:	Notes
4-hydroxy-2,2,6,6-tetramethylpiperidinoxyl	>=5 - <=20%	2226-96-2	218-760-9	01-2119968566-20	No data available.	

* All concentrations are percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.
# This substance has workplace exposure limit(s).
This substance is listed as SVHC

Classification

Chemical name	Classification	Notes
4-hydroxy-2,2,6,6-tetramethylpiperidinoxyl	Acute Tox.: 4: H302; Eye Dam.: 1: H318; STOT RE: 2: H373;	No data available.

CLP: Regulation No. 1272/2008.

The full text for all H-statements is displayed in section 16.

SECTION 4: First aid measures

General: Pay attention to self-protection. Remove victims from hazardous area. Immediately remove soiled or soaked clothing and remove it to a safe distance. Keep victim warm, in a stabilized position and covered. Do not leave victims unattended. If the casualty is unconscious: Place the victim in the recovery position.

4.1 Description of first aid measures

Inhalation: Potential for exposure by inhalation if aerosols or mists are generated. Move victims into fresh air. With labored breathing: Provide with oxygen. Consult a doctor. If the casualty is not breathing: Perform mouth-to-mouth resuscitation, notify emergency physician immediately.

Skin Contact: Wash off affected area immediately with plenty of water for at least 15 minutes. If symptoms persist, consult a physician for treatment.

Eye contact: With eye held open, thoroughly rinse immediately with plenty of water for at least 10 minutes. Consult an ophthalmologist immediately if the symptoms persist. When dealing with caustic substances, notify emergency physician immediately (key words: burns in eye).

Ingestion: Rinse mouth. Immediately give large quantities of water to drink. Obtain medical attention. When dealing with caustic substances, notify emergency physician immediately.

4.2 Most important symptoms and effects, both acute and delayed: Irritation of skin and mucous membranes Corrosive daze, Headache, vertigo, somnolence (sleepiness), nausea. Health injuries may be delayed.

4.3 Indication of any immediate medical attention and special treatment needed

Hazards: Strongly irritating to corrosive. Harmful in contact with skin and if swallowed. . Vapours may cause drowsiness and dizziness.

Treatment: The initial focus is only on the local action, characterized by quickly progressing deep tissue damage. In the eye, caustic/ irritating and harmful liquids cause, depending on the intensity of exposure, various levels of irritation, destruction, and ablation of the epithelium of the conjunctiva and cornea, corneal clouding, edema and ulcerations. Danger! Possible loss of eyesight! Superficial irritations and damage up to ulcerations and scarring develop on the skin. After accidental absorption in the body, the pathology and clinical findings are dependent on the kinetics of the substance (quantity of absorbed substance, the absorption time, and the effectiveness of early elimination measures (first aid)/ excretion - metabolism). A specific action of the substance is unknown. In case of substances with high water solubility, irritations up to formation of necrosis in the upper respiratory tract may result after inhalation of caustic/ irritating aerosols and mists. The initial focus is on the local action: signs of irritation of the respiratory tract such as coughing, burning behind the sternum, tears, burning in the eyes or nose. There is a risk of pulmonary edema!

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media: All extinguishing substances suitable.

Unsuitable extinguishing media: Do not use a solid water stream as it may scatter and spread fire.

5.2 Special hazards arising from the substance or mixture:	In the case of fire, the following hazardous smoke fumes may be produced: carbon monoxide, carbon dioxide. organic products of decomposition
5.3 Advice for firefighters	
Special fire fighting procedures:	Contaminated extinguishing water must be treated at a suitable disposal plant in accordance with waste management laws. Water used to extinguish fire should not enter drainage systems, soil or stretches of water. In case of fire, remove the endangered containers and bring to a safe place, if this can be done safely. Use water spray to cool unopened containers. Fire residues should be disposed of in accordance with the regulations. Pay attention to self-protection. Keep out unprotected persons.
Special protective equipment for fire-fighters:	In case of fire: full protective suit and wear a self contained respiratory apparatus

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures:	Keep unauthorized personnel away. Avoid breathing dust/mist/vapors.
6.1.1 For non-emergency personnel:	Avoid penetration into drainage system or in rooms situated at a lower level because of danger of explosion.
6.1.2 For emergency responders:	No data available.
6.2 Environmental Precautions:	Observe regulations on prevention of water pollution (check, dam up, cover up). Do not allow entrance in sewage water, soil, stretches of water, drainage systems, surface water. If the product contaminates rivers and lakes or drains inform respective authorities.
6.3 Methods and material for containment and cleaning up:	Absorb with liquid-binding material, e. g.: chemisorption, diatomaceous earth, universal binder Transfer into suitable containers. Clean contaminated surface thoroughly. Pack and label wastes like the pure substance. Do not detach label from the delivery containers prior to disposal. Disposal according to local authority regulations.
6.4 Reference to other sections:	Wear personal protective equipment; see section 8.

SECTION 7: Handling and storage:

7.1 Precautions for safe handling:	Handle in accordance with good industrial hygiene and safety practice. Avoid contact with eyes, skin, and clothing. If there is the possibility of skin/eye contact, the indicated hand/eye/body protection should be used. Avoid formation of aerosol. Do not inhale vapours / aerosols. Avoid contact with eyes, skin, and clothing. Always close container tightly after removal of product. Avoid residues of the product on the containers. The personal protective equipment used must meet the requirements of Regulation (EU) 2016/425 and amendments (CE certification). It should be defined in the work place in the form of a risk analysis according to Regulation (EU) 2016/425 and amendments.

7.2 Conditions for safe storage, including any incompatibilities: Protect from sunlight, warmth and heat. In order to ensure due transportation, make certain that stacks are of the correct height, containers are securely fastened so as not to fall off, and labelled according to the regulations. In the event of internal transportation, already-opened containers are to be kept closed in order to avoid spillage. Store in the original receptacle, keeping this tightly sealed, under cool and dry conditions. Keep away from food, drink and animal feedingstuffs. Normal measures for preventive fire protection. Ensure there are sufficient retaining facilities for water used to extinguish fire. Take precautionary measures against static discharges. Keep away from heat and sources of ignition.

7.3 Specific end use(s): We are unaware of any specific end uses which go beyond the data reported in Section 1.

SECTION 8: Exposure controls/personal protection

8.1 Control Parameters

Occupational Exposure Limits

None of the components have assigned exposure limits.

DNEL-Values

Remarks: No substance-related safety assessment is necessary / has been conducted for this product.

PNEC-Values

Remarks: No substance-related safety assessment is necessary / has been conducted for this product.

8.2 Exposure controls

Appropriate Engineering Controls: Ensure suitable suction/aeration at the work place and with operational machinery. Provide for installation of emergency shower and eye bath.

Individual protection measures, such as personal protective equipment

Eye/face protection: Tightly fitting safety goggles

Hand Protection: Material: Nitrile.
Glove thickness: 0.2 mm
Guideline: DIN EN 374
Additional Information: Applies to handling for brief periods or of small amounts
Material: Nitrile/Chloroprene
Glove thickness: 0.65 mm
Guideline: DIN EN 374
Additional Information: Applies to handling for longer periods or of large amounts
Additional Information: Selection of protective gloves to meet the requirements of specific workplaces., Suitability for specific workplaces should be clarified with protective glove manufacturers., Remember that the useful time per day of a chemical protection glove may be much shorter than the permeation time determined according to EN 374 due to the many different influential factors involved (e.g. temperature).

Skin and Body Protection: Select materials and equipment for physical protection depending on the concentration and volume of hazardous substances and the workplace involved.

Respiratory Protection:	When handling for a short time: In case of breathable aerosols/vapors: Respirator with ABEK combination filter in the event of prolonged exposure during handling: In case of breathable aerosols/vapors: wear a self contained respiratory apparatus Note time limit for wearing respiratory protective equipment.
Hygiene measures:	Immediately change moistened and saturated work clothes. Take off contaminated clothing and wash it before reuse. Do not eat, drink, smoke, or sniff while at work. Wash your hands and/or face before breaks and before termination of work. Preventive skin protection is recommended. Use barrier cream regularly.
Environmental Controls:	The environmental regulations on the control and monitoring of environmental exposures are to be observed.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance	
Physical state:	liquid
Form:	clear solution
Color:	Orange
Odor:	No data available.
Odor Threshold:	No data available.
pH:	6.5 - 9.5
Freezing point:	0 °C
Boiling Point:	100 °C
Flash Point:	does not flash
Evaporation Rate:	No data available.
Flammability (solid, gas):	No data available.
Flammability Limit - Upper (%):	No data available.
Flammability Limit - Lower (%):	No data available.
Vapor pressure:	73.3 hPa (38 °C)
Vapor density (air=1):	No data available.
Density:	Approximate 1 g/cm3
Relative density:	No data available.
Solubility(ies)	
Solubility in Water:	completely miscible
Solubility (other):	No data available.
Partition coefficient (n-octanol/water):	0.55 (calculated)
Self Ignition Temperature:	No data available.
Decomposition Temperature:	No data available.
Kinematic viscosity:	No data available.
Dynamic viscosity:	1 mPa.s (25 °C) | 0.9 mPa.s (40 °C)

9.2 Other information

Explosive properties:	No data available.
Oxidizing properties:	Not to be expected in view of the structure

SECTION 10: Stability and reactivity

10.1 Reactivity: No data available.

10.2 Chemical Stability:	Stable under recommended storage conditions.
10.3 Possibility of hazardous reactions:	No dangerous reaction known under conditions of normal use.
10.4 Conditions to avoid:	sun rays, heat, heat effect Keep away from heat and sources of ignition.
10.5 Incompatible Materials:	No further information available
10.6 Hazardous Decomposition Products:	In case of fire or thermal decomposition production of carbon monoxide, carbon dioxide organic products of decomposition

SECTION 11: Toxicological information

Information on likely routes of exposure

Inhalation:	If handled correctly, not a relevant route of exposure. Information on effects are given below.
Skin Contact:	If handled correctly, not a relevant route of exposure. Information on effects are given below.
Eye contact:	Relevant route of exposure. Information on effects are given below.
Ingestion:	If handled correctly, not a relevant route of exposure. Information on effects are given below.

11.1 Information on toxicological effects

Acute toxicity

Oral

Product:	Acute toxicity estimate: > 2,000 mg/kg (Calculation method)
Components:	
4-hydroxy-2,2,6,6-tetramethylpiperidinoxyl	LD 50 (Rat, male and female): 1,053 mg/kg

Dermal

Product:	No data available.
Components:	
4-hydroxy-2,2,6,6-tetramethylpiperidinoxyl	LD 50 (Rat, male and female): > 2,000 mg/kg Based on available data, the classification criteria are not met.

Inhalation

Product:	No data available.
Components:	
4-hydroxy-2,2,6,6-tetramethylpiperidinoxyl	Not applicable, Vapour No data available., Dusts, mists and fumes

Repeated dose toxicity

Product:	No data available.
Components:	
4-hydroxy-2,2,6,6-tetramethylpiperidinoxyl	NOAEL (Rat(Female, Male), Oral, continuous): 40 mg/kg LOAEL (Rat(Female, Male), Oral, continuous): 200 mg/kg

Skin Corrosion/Irritation:

Product: No data available.

Components:

4-hydroxy-2,2,6,6-tetramethylpiperidinoxyl	OECD 404 (Rabbit, 4 h): Not irritating Based on available data, the classification criteria are not met.

Serious Eye Damage/Eye Irritation:

Product: No data available.

Components:

4-hydroxy-2,2,6,6-tetramethylpiperidinoxyl	OECD 405 (Rabbit, 24 h): Risk of serious damage to eyes.

Respiratory or Skin Sensitization:

Product: No data available.

Components:

4-hydroxy-2,2,6,6-tetramethylpiperidinoxyl	Buehler Test, OECD 406 (Guinea Pig): Not a skin sensitizer. Based on available data, the classification criteria are not met.

Germ Cell Mutagenicity

In vitro

Product: No data available.

Components:

4-hydroxy-2,2,6,6-tetramethylpiperidinoxyl	Ames test (OECD 471): positive HGPRT-Test (OECD 476): negative

In vivo

Product: No data available.

Components:

4-hydroxy-2,2,6,6-tetramethylpiperidinoxyl	Micronucleus test (OECD 474) pharyngal probe (Mouse): negative Based on available data, the classification criteria are not met. (OECD 486) pharyngal probe (Rat)negative Based on available data, the classification criteria are not met.

Carcinogenicity

Product: No data available.

Components:

4-hydroxy-2,2,6,6-tetramethylpiperidinoxyl	No data available.

Reproductive toxicity

Product: No data available.

Components:

4-hydroxy-2,2,6,6-tetramethylpiperidinoxyl	Not classified

Specific Target Organ Toxicity - Single Exposure

Product: No data available.

Components:

4-hydroxy-2,2,6,6-tetramethylpiperidinoxyl	Not classified

Specific Target Organ Toxicity - Repeated Exposure

Product:	No data available.
Components:	
4-hydroxy-2,2,6,6-tetramethylpiperidinoxyl	Oral: Spleen. - May cause damage to organs through prolonged or repeated exposure. Category 2

Aspiration Hazard

Product:	No data available.
Components:	
4-hydroxy-2,2,6,6-tetramethylpiperidinoxyl	No data available.

Other adverse effects: The properties of this product which are hazardous to health have been calculated as per regulation (EC) No. 1272/2008. See section 2 "Hazards Identification".

SECTION 12: Ecological information

12.1 Toxicity

Acute toxicity

Fish

Product:	No data available.
Components	
4-hydroxy-2,2,6,6-tetramethylpiperidinoxyl	LC 50 (Danio rerio (zebra fish), 96 h): approx. 545 mg/l (OECD 203)

Aquatic Invertebrates

Product:	No data available.
Components	
4-hydroxy-2,2,6,6-tetramethylpiperidinoxyl	EC 50 (Daphnia magna, 48 h): approx. 54 mg/l (OECD 202)

Toxicity to Aquatic Plants

Product:	No data available.
Components	
4-hydroxy-2,2,6,6-tetramethylpiperidinoxyl	EC 50 (Desmodesmus subspicatus (green algae), 72 h): 272 mg/l (OECD 201) EC 50 (Desmodesmus subspicatus (green algae), 72 h): 1,038 mg/l (OECD 201)

Toxicity to microorganisms

Product:	No data available.
Components	
4-hydroxy-2,2,6,6-tetramethylpiperidinoxyl	EC 50 (Pseudomonas putida, 16 h): 890 mg/l (DIN 38412 part 8) EC 10 (Pseudomonas putida, 16 h): 428 mg/l (DIN 38412 part 8)

Chronic Toxicity

Fish

Product: No data available.

Components

4-hydroxy-2,2,6,6-tetramethylpiperidinoxyl: No data available.

Aquatic Invertebrates

Product: No data available.

Components

4-hydroxy-2,2,6,6-tetramethylpiperidinoxyl: NOEC (Daphnia magna, 21 d): 1.5 mg/l (OECD 202 part 2)

Toxicity to Aquatic Plants

Product: No data available.

Components

4-hydroxy-2,2,6,6-tetramethylpiperidinoxyl: NOEC (Desmodesmus subspicatus (green algae), 72 h): 22 mg/l (OECD 201)

12.2 Persistence and Degradability

Biodegradation

Product: No data available.

BOD/COD Ratio

Product No data available.

Components

4-hydroxy-2,2,6,6-tetramethylpiperidinoxyl: No data available.

12.3 Bioaccumulative potential

Product: No data available.

12.4 Mobility in soil: No data available.

12.5 Results of PBT and vPvB assessment: A PBT/vPvB evaluation is not available, since a chemical safety evaluation is not required / has not been carried out.

4-hydroxy-2,2,6,6-tetramethylpiperidinoxyl: No data available.

12.6 Other adverse effects: The properties of this product which are characteristics posing a threat to the environment have been calculated as per regulation (EC) No. 1272/2008. See section 2 "Hazards Identification".

12.7 Additional Information: No ecotoxicological data is available for this product.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

General information: No data available.

Disposal methods: Pack and label wastes like the pure substance. Do not detach label from the delivery containers prior to disposal. Disposal according to local authority regulations.

Uncontrolled disposal or recycling of this packaging is not permitted and can be dangerous.

Contaminated Packaging: Do not reuse empty containers and dispose of in accordance with the regulations issued by the appropriate local authorities.

SECTION 14: Transport information

14.1 UN number

Not regulated as a dangerous good

14.2 UN proper shipping name

Not regulated as a dangerous good

14.3 Transport hazard class(es)

Not regulated as a dangerous good

14.4 Packing group

Not regulated as a dangerous good

14.5 Environmental hazards

Not regulated as a dangerous good

14.6 Special precautions for user

Not applicable

14.7 Transport in bulk according to Annex II of Marpol and the IBC Code

Not applicable for product as supplied.

SECTION 15: Regulatory information

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

EU. Directive 2012/18/EU (SEVESO III) on major accident hazards involving dangerous substances, Annex I: Not applicable

National Regulations

Please observe Appendix XVII of the EU Regulation 1907/2006 (Restrictions on the manufacture, placing on the market, and use of certain dangerous substances, preparations and articles) as well as their amendments.

It must be determined whether preventive substance-specific occupational medical examinations in accordance with national law in each case must be offered / carried out at regular intervals. Please note Directive 92/85/EEC (Pregnant Workers Directive) and amendments. Please note Directive 94/33/EC (Protection of Young Workers at the Workplace Directive) and amendments.

15.2 Chemical safety assessment: No Chemical Safety Assessment has been carried out.

International regulations

SECTION 16: Other information

Abbreviations and acronyms:

ADR - European Agreement concerning the International Carriage of Dangerous Goods by Road; **ADN -** European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways; **AGW -** Occupational exposure limit; **ASTM -** American Society for Testing and Materials; **AwSV -** Ordinance on facilities for handling substances that are hazardous to water; **BSB -** Biochemical oxygen demand; **c.c. -** closed cup; **CAS -** Chemical Abstract Services; **CESIO -** European Committee of Organic Surfactants and their Intermediates; **CSB -** Chemical oxygen demand; **DMEL -** Derived minimum effect level; **DNEL -** Derived no effect level; **EbC50 -** median concentration in terms of reduction of growth; **EC -** Effective concentration; **EINECS -** European Inventory of Existing Commercial Chemical Substances; **EN -** European norm; **ErC50 -** median concentration in terms of reduction of growth rate; **GGVSEB -** German ordinance for road, rail and inland waterway transportation of dangerous goods; **GGVSee -** German ordinance for sea transportation of dangerous goods; **GLP -** Good Laboratory Practice; **GMO -** Genetic Modified Organism; **IATA -** International Air Transport Association; **ICAO -** International Civil Aviation Organization; **IMDG -** International Maritime Dangerous Goods; **ISO -** International Organization For Standardization; **LD/LC -** lethal dosis/concentration; **LOAEL -** Lowest observed adverse effect level; **LOEL -** Lowest observed effect level; **M-Factor -** multiplying factor; **NOAEL -** No observed adverse effect level; **NOEC -** no observed effect concentration; **NOEL -** no observed effect level; **o.c. -** open cup; **OECD -** Organisation for Economic Cooperation and Development; **OEL -** Occupational Exposure Limit; **PBT -** Persistent, bioaccumulative, toxic; **PNEC -** Predicted no effect concentration; **REACH -** REACH registration; **RID -** Convention concerning International Carriage by Rail; **SVHC -** Substances of Very High Concern; **TA -** Technical Instructions; **TRGS -** Technical Rules for Hazardous Substances; **vPvB -** very persistent, very bioaccumulative; **WGK -** Water Hazard Class

Key literature references and sources for data: No data available.

Classification and procedure used to derive the classification for mixtures according to Regulation (EC) 1272/2008 [CLP]

Classification according to Regulation (EC) No 1272/2008 as amended.	Classification procedure
Serious Eye Damage/Eye Irritation, Category 1	Calculation method
Specific Target Organ Toxicity - Repeated Exposure, Category 2 Oral	Calculation method

Wording of the H-statements in section 2 and 3

H318		Causes serious eye damage.
H373		May cause damage to organs through prolonged or repeated exposure.

Training information: Comply with national laws regulating employee instruction.

Revision Information Changes since the last version are highlighted in the margin. This version replaces all previous versions.

Disclaimer:

This information and all further technical advice is based on our present knowledge and experience. However, it implies no liability or other legal responsibility on our part, including with regard to existing third party intellectual property rights, especially patent rights. In particular, no warranty, whether express or implied, or guarantee of product properties in the legal sense is intended or implied. We reserve the right to make any changes according to technological progress or further developments. The customer is not released from the obligation to conduct careful inspection and testing of incoming goods. Performance of the product described herein should be verified by testing, which should be carried out only by qualified experts in the sole responsibility of a customer. Reference to trade names used by other companies is neither a recommendation, nor does it imply that similar products could not be used.