

Safety Data Sheet acc. to OSHA HCS (HazCom 2012)

Printing date 12/10/2020

Reviewed on 12/10/2020

1 Identification

- **Product identifier**
- **Trade name: Vario PAN Indicator Solution 0.1%**
- **Catalogue number:** 530630, 4530630, 424451, 530630-0, 530631, 530632
- **Application of the substance / the mixture:** Reagent for water analysis
- **Manufacturer/Supplier:**
Tintometer Inc.
6456 Parkland Drive
Sarasota, FL 34243
USA
phone: (941) 756-6410
fax: (941) 727-9654
www.lovibond.us
Made in Germany
- **Emergency telephone number:** + 1 866 928 0789 (English, French, Spanish)

2 Hazard(s) identification

- **Classification of the substance or mixture**



GHS02 Flame

Flam. Liq. 3 H226 Flammable liquid and vapor.



GHS08 Health hazard

Carc. 1B H350 May cause cancer.
Repr. 1B H360 May damage fertility or the unborn child.



GHS05 Corrosion

Eye Dam. 1 H318 Causes serious eye damage.



GHS09 Environment

Aquatic Acute 1 H400 Very toxic to aquatic life.
Aquatic Chronic 2 H411 Toxic to aquatic life with long lasting effects.

- **Label elements**
- **GHS label elements** The product is classified and labeled according to the Hazard Communication Standard (HCS).
- **Hazard pictograms**



GHS02



GHS05



GHS08



GHS09

- **Signal word** Danger
- **Hazard-determining components of labeling:**
N,N-dimethylformamide
Octylphenol polyethoxyethanol

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Hazard statements

- H226 Flammable liquid and vapor.
- H318 Causes serious eye damage.
- H350 May cause cancer.
- H360 May damage fertility or the unborn child.
- H400 Very toxic to aquatic life.
- H411 Toxic to aquatic life with long lasting effects.

Precautionary statements

- P201 Obtain special instructions before use.
- P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
- P280 Wear protective gloves/protective clothing/eye protection.
- P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- P308+P313 IF exposed or concerned: Get medical advice/attention.
- P405 Store locked up.

Other hazards

Vapours of the product are heavier than air and may accumulate on the ground, in mines, drains or cellars with higher concentration.

3 Composition/information on ingredients

Chemical characterization: Mixtures

Description: aqueous solution

Composition and Information on Ingredients:

Percent ranges are used due to the confidential product information.

CAS: 68-12-2 EINECS: 200-679-5 Index number: 616-001-00-X RTECS: LQ 2100000	N,N-dimethylformamide ⚠ Flam. Liq. 3, H226; ⚠ Carc. 1B, H350; Repr. 1B, H360; ⚠ Acute Tox. 4, H312; Acute Tox. 4, H332; Eye Irrit. 2A, H319	40–50%
CAS: 9036-19-5 EINECS: 264-520-1	Octylphenol polyethoxyethanol ⚠ Eye Dam. 1, H318; ⚠ Aquatic Acute 1, H400 (M=10); Aquatic Chronic 1, H410 (M=1); ⚠ Acute Tox. 4, H302; Skin Irrit. 2, H315	5–<10%

Additional information: For the wording of the listed hazard phrases refer to section 16.

4 First-aid measures

Description of first aid measures

General information: Immediately remove any clothing soiled by the product.

After inhalation: Supply fresh air or oxygen; call for doctor.

After skin contact:

Immediately rinse with plenty of water.

Seek medical treatment.

After eye contact: Rinse opened eye for several minutes (at least 15 min) under running water. Then consult a doctor.

After swallowing:

Rinse out mouth and then drink 1-2 glasses of water.

Seek medical treatment.

Most important symptoms and effects, both acute and delayed

burns

after inhalation:

headache

drowsiness

dizziness

mucous membrane irritation

after swallowing:

sickness

vomiting

diarrhoea

cramps

Indication of any immediate medical attention and special treatment needed: No further relevant information available.

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5 Fire-fighting measures

- **Extinguishing media**
- **Suitable extinguishing agents:** Water, Carbon dioxide (CO₂), Foam, Fire-extinguishing powder
- **For safety reasons unsuitable extinguishing agents:**
For this substance / mixture no limitations of extinguishing agents are given.
- **Special hazards arising from the substance or mixture**
Can burn in fire.
Can form explosive gas-air mixtures.
Formation of toxic gases is possible during heating or in case of fire.
In case of fire, the following can be released:
nitrous gases
Nitrogen oxides (NO_x)
dimethylamine
- **Advice for firefighters**
- **Protective equipment:**
Wear self-contained respiratory protective device.
Wear fully protective suit.
- **Additional information**
Collect contaminated fire fighting water separately. It must not enter the sewage system.
Dispose of fire debris and contaminated fire fighting water in accordance with official regulations.
Ambient fire may liberate hazardous vapours.

6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures**
- **Advice for non-emergency personnel:**
Wear protective equipment. Keep unprotected persons away.
Avoid substance contact.
Ensure adequate ventilation
- **Advice for emergency responders:** Protective equipment: see section 8
- **Environmental precautions:**
Do not allow product to reach sewage system or any water course.
Prevent seepage into sewage system, workpits and cellars.
- **Methods and material for containment and cleaning up:**
Ensure adequate ventilation.
Absorb with liquid-binding material (sand, diatomite, universal binders).
Dispose contaminated material as waste according to item 13.
- **Reference to other sections**
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

7 Handling and storage

- **Precautions for safe handling**
- **Advice on safe handling:**
Open and handle receptacle with care.
Ensure good ventilation/exhaustion at the workplace.
Protect from heat.
Keep ignition sources away - Do not smoke.
- **Hygiene measures:**
Do not inhale gases / fumes / aerosols.
Do not get in eyes, on skin, or on clothing.
Take off immediately all contaminated clothing.
Store protective clothing separately.
Wash hands before breaks and at the end of work.
Do not eat, drink or smoke when using this product.
- **Conditions for safe storage, including any incompatibilities**
- **Storage:**
- **Requirements to be met by storerooms and receptacles:** Store in a cool location.
- **Information about storage in one common storage facility:** Store away from oxidizing agents.

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• **Further information about storage conditions:**

Store under lock and key and with access restricted to technical experts or their assistants only.
Protect from heat and direct sunlight.
Protect from exposure to the light.
Protect from humidity and water.

• **Recommended storage temperature:** 20°C +/- 5°C (approx. 68°F)

• **Specific end use(s)** No further relevant information available.

* 8 Exposure controls/personal protection

• **Control parameters**

• **Components with limit values that require monitoring at the workplace:**

The following constituent is the only constituent of the product which has a PEL, TLV or other recommended exposure limit.

CAS: 68-12-2 N,N-dimethylformamide	
PEL (USA)	Long-term value: 30 mg/m ³ , 10 ppm Skin
REL (USA)	Long-term value: 30 mg/m ³ , 10 ppm Skin
TLV (USA)	Long-term value: 15 mg/m ³ , 5 ppm Skin; BEI
EL (Canada)	Long-term value: 10 ppm Skin, IARC 2A
EV (Canada)	Long-term value: 30 mg/m ³ , 10 ppm Skin

• **Ingredients with biological limit values:**

CAS: 68-12-2 N,N-dimethylformamide	
BEI (USA)	15 mg/L Medium: urine Time: end of shift Parameter: N-Methylformamide
	40 mg/L Medium: urine Time: prior to last shift of workweek Parameter: N-Acetyl-S-(N-methylcarbamoyl) cysteine (semi-quantitative)

• **Additional information:** The lists that were valid during the creation were used as basis.

• **Engineering measures:**

Technical measures and appropriate working operations should be given priority over the use of personal protective equipment.
See item 7.

• **Personal protective equipment:**

Protective clothing should be selected specifically for the workplace, depending on concentration and quantity of the hazardous substances handled.

• **Breathing equipment:** Use respiratory protective device against the effects of fume/dust/aerosol.

• **Recommended filter device for short term use:** Combination filter A-P2

• **Protection of hands:**

Protective gloves
Preventive skin protection by use of skin-protecting agents is recommended.
After use of gloves apply skin-cleaning agents and skin cosmetics.

• **Material of gloves**

Nitrile rubber, NBR
Recommended thickness of the material: ≥ 0.5 mm

• **Penetration time of glove material**

Value for the permeation: Level ≤ 1 (10 min)
The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

• **Eye protection:** Tightly sealed goggles

• **Body protection:** Protective work clothing

• **Limitation and supervision of exposure into the environment:**

Do not allow product to reach sewage system or any water course.

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Risk of explosion.

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9 Physical and chemical properties

· Information on basic physical and chemical properties	
· Appearance:	
Form / Physical state:	Fluid
Color:	Dark orange color
· Odor: Amine-like	
· Odor threshold: Not determined.	
· pH-value at 20°C (68°F): 8	
· Melting point/freezing point: Not determined.	
· Initial boiling point and boiling range: ~100°C (~212°F)	
· Flash point: 58°C (136.4°F) (DIN EN ISO 2719)	
· Flammability (solid, gas): Flammable liquid and vapor.	
· Decomposition temperature: Not determined.	
· Auto-ignition temperature: Product is not self-igniting.	
· Danger of explosion: Product is not explosive. However, formation of explosive air/vapor mixtures are possible.	
· Flammability or explosive limits:	
Lower:	2.2 Vol % (CAS 68-12-2)
Upper:	16.0 Vol % (CAS 68-12-2)
· Oxidizing properties: none	
· Vapor Pressure: Not determined.	
· Density at 20°C (68°F): 1.05 g/cm ³ (8.76 lbs/gal)	
· Relative density: Not determined.	
· Vapor density: Not determined.	
· Evaporation rate: Not determined.	
· Solubility(ies)	
Water:	Fully miscible.
· Partition coefficient (n-octanol/water): Not determined.	
· Viscosity: Not determined.	
· Solvent content:	
Organic solvents:	< 50 %
Water:	< 30 %
Solids content:	< 20 %
· Other information No further relevant information available.	

10 Stability and reactivity

- **Reactivity** Fumes can combine with air to form an explosive mixture.
- **Chemical stability** Stable at ambient temperature (room temperature).
- **Possibility of hazardous reactions**
 - Flammable vapour-air mixtures may develop.
 - Reacts with reducing agents.
 - Reacts with oxidizing agents.
 - Reacts with halogenated compounds.
 - Violent reactions possible with:
 - chlorine
 - nitrates
- **Conditions to avoid** Heating.
- **Incompatible materials:**
 - alkali metals
 - copper

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various plastics

- **Hazardous decomposition products:**

formaldehyde

Ammonia (NH₃)

In case of fire: see section 5.

* 11 Toxicological information

- **Information on toxicological effects**

- **Acute toxicity:** Based on available data, the classification criteria are not met.

- **Acute toxicity estimate (ATE_(MIX)) - Calculation method:**

Oral	GHS ATE _(MIX)	4850 mg/kg (.)
Dermal	GHS ATE _(MIX)	3044 mg/kg (.)
Inhalative	GHS ATE _(MIX)	24.5 mg/l/4h (vapour)

- **LD/LC50 values that are relevant for classification:**

CAS: 68-12-2 N,N-dimethylformamide

Oral	LD50	2800 mg/kg (rat) (RTECS)
Dermal	LD50	1500 mg/kg (rabbit) (IUCLID)
Inhalative	LC50	11 mg/l/4h (ATE)

CAS: 9036-19-5 Octylphenol polyethoxyethanol

Oral	LD50	1900–5000 mg/kg (rat)
Dermal	LD50	>3000 mg/kg (rabbit)

- **Primary irritant effect:**

- **on the skin:** Based on available data, the classification criteria are not met.

- **on the eye:**

Causes serious eye damage.

Risk of corneal clouding.

- **Information on components:**

CAS: 9036-19-5 Octylphenol polyethoxyethanol

Irritation of skin	OECD 404	(rabbit: irritation) (ECHA: read across CAS 140-66-9)
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- **Sensitization:** Based on available data, the classification criteria are not met.

- **Information on components:**

CAS: 9036-19-5 Octylphenol polyethoxyethanol

Sensitization	Patch test (human)	(negative)
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- **Carcinogenic categories**

- **IARC (International Agency for Research on Cancer)**

CAS: 68-12-2	N,N-dimethylformamide	2A
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- **NTP (National Toxicology Program)**

None of the ingredients is listed.

- **OSHA-Ca (Occupational Safety & Health Administration)**

None of the ingredients is listed.

- **Other information:** see section 8 / 15

- **Synergistic Products:** None

- **CMR effects (carcinogenicity, mutagenicity and toxicity for reproduction):**

The following statements refer to the mixture:

Carc. 1B, Repr. 1B

- **Germ cell mutagenicity** Based on available data, the classification criteria are not met.

- **Carcinogenicity** May cause cancer.

- **Reproductive toxicity** May damage fertility or the unborn child.

- **STOT (specific target organ toxicity) -single exposure** Based on available data, the classification criteria are not met.

- **STOT (specific target organ toxicity) -repeated exposure** Based on available data, the classification criteria are not met.

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- **Aspiration hazard** Based on available data, the classification criteria are not met.
- **Additional toxicological information:** CAS 68-12-2: Danger through skin absorption.
- **Experience with humans:**
CAS 68-12-2: Can cause liver damage.
CAS 68-12-2: Can cause kidney damages.

12 Ecological information

· Toxicity

· Aquatic toxicity:

CAS: 68-12-2 N,N-dimethylformamide

EC50	13100 mg/l/48h (Daphnia magna) (Merck)
LC50	7100 mg/l/96h (bluegill) (Merck / US-EPA)

CAS: 9036-19-5 Octylphenol polyethoxyethanol

EC50 (static)	0.011 mg/l/48h (Daphnia magna) (ECHA: read across CAS 140-66-9)
EC50	1.9 mg/l/96h (Pseudokirchneriella subcapitata) (ECHA: read across CAS 140-66-9)
NOEC	0.012 mg/l (zebrafish) (OECD 210) (ECHA: read across CAS 140-66-9)
	0.03 mg/l (Daphnia magna) (OECD 202, 21d) (ECHA: read across CAS 140-66-9)
LC50	0.26 mg/l/96h (gold orfe) (OECD 203) (ECHA: read across CAS 140-66-9)
	4–8.9 mg/l/96h (fathhead minnow) (Merck)

· Persistence and degradability

CAS: 68-12-2 N,N-dimethylformamide

OECD 301 E	100 % / 21 d, anerob (readily biodegradable) (Modified OECD Screening Test)
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CAS: 9036-19-5 Octylphenol polyethoxyethanol

OECD 301 C	22 % / 28 d (not readily biodegradable) (aerob)
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· Bioaccumulative potential

Pow = n-octanol/wasser partition coefficient

log Pow < 1 = Does not accumulate in organisms.

log Pow 1-3 = Not worth-mentioning accumulating in organisms.

CAS: 68-12-2 N,N-dimethylformamide

log Pow	-0.85 (.)
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CAS: 9036-19-5 Octylphenol polyethoxyethanol

log Pow	2.7 (.) (calculated)
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- **Mobility in soil** No further relevant information available.
- **Other adverse effects** Avoid transfer into the environment.

13 Disposal considerations

· Waste treatment methods

· Recommendation:

Must not be disposed of together with household garbage. Do not allow product to reach sewage system.

Hand over to hazardous waste disposers.

· Uncleaned packagings:

- **Recommendation:** Disposal must be made according to official regulations.

- **Recommended cleansing agent:** Water, if necessary with cleansing agents.

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14 Transport information

<ul style="list-style-type: none"> · UN-Number · DOT, IMDG, IATA 	UN1993
<ul style="list-style-type: none"> · UN proper shipping name · DOT · IMDG · IATA 	Flammable liquids, n.o.s. (N,N-Dimethylformamide) FLAMMABLE LIQUID, N.O.S. (N,N-DIMETHYLFORMAMIDE), MARINE POLLUTANT FLAMMABLE LIQUID, N.O.S. (N,N-DIMETHYLFORMAMIDE)
<ul style="list-style-type: none"> · Transport hazard class(es) · DOT 	<div style="text-align: center;">  </div>
<ul style="list-style-type: none"> · Class · Label 	3 Flammable liquids 3
<ul style="list-style-type: none"> · IMDG 	<div style="text-align: center;">  </div>
<ul style="list-style-type: none"> · Class · Label 	3 Flammable liquids 3
<ul style="list-style-type: none"> · IATA 	<div style="text-align: center;">  </div>
<ul style="list-style-type: none"> · Class · Label 	3 Flammable liquids 3
<ul style="list-style-type: none"> · Packing group · DOT, IMDG, IATA 	III
<ul style="list-style-type: none"> · Environmental hazards: · Marine pollutant: 	Product contains environmentally hazardous substances: Octylphenol polyethoxyethanol Symbol (fish and tree)
<ul style="list-style-type: none"> · Special precautions for user · Hazard identification number (Kemler code): · EMS Number: · Stowage Category 	Warning: Flammable liquids 30 F-E, S-E A
<ul style="list-style-type: none"> · Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code 	Not applicable.
<ul style="list-style-type: none"> · Transport/Additional information: · DOT · Quantity limitations 	On passenger aircraft/rail: 60 L On cargo aircraft only: 220 L
<ul style="list-style-type: none"> · IMDG · Limited quantities (LQ) · Excepted quantities (EQ) 	5L Code: E1 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml

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*15 Regulatory information

- Safety, health and environmental regulations/legislation specific for the substance or mixture
- Sara

• Section 355 (Extremely hazardous substances):

None of the ingredients is listed.

• Section 313 (Specific toxic chemical listings):

CAS: 68-12-2 | N,N-dimethylformamide

• TSCA (Toxic Substances Control Act):

All components have the value ACTIVE.

• Hazardous Air Pollutants

CAS: 68-12-2 | N,N-dimethylformamide

• Proposition 65

• Chemicals known to cause cancer:

CAS: 68-12-2 | N,N-dimethylformamide

• Chemicals known to cause reproductive toxicity for females:

None of the ingredients is listed.

• Chemicals known to cause reproductive toxicity for males:

None of the ingredients is listed.

• Chemicals known to cause developmental toxicity:

None of the ingredients is listed.

• New Jersey Right-to-Know List:

CAS: 68-12-2 | N,N-dimethylformamide

CAS: 631-61-8 | ammonium acetate

• New Jersey Special Hazardous Substance List:

CAS: 68-12-2 | N,N-dimethylformamide

TE, F2

• Pennsylvania Right-to-Know List:

CAS: 68-12-2 | N,N-dimethylformamide

CAS: 631-61-8 | ammonium acetate

• Pennsylvania Special Hazardous Substance List:

CAS: 631-61-8 | ammonium acetate

E

• EPA (Environmental Protection Agency)

CAS: 631-61-8 | ammonium acetate

D

• NIOSH-Ca (National Institute for Occupational Safety and Health)

None of the ingredients is listed.

• Information about limitation of use:

Employment restrictions concerning pregnant and lactating women must be observed.

Employment restrictions concerning young persons must be observed.

- Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

*16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

• Relevant phrases

H226 Flammable liquid and vapor.

H302 Harmful if swallowed.

H312 Harmful in contact with skin.

H315 Causes skin irritation.

H318 Causes serious eye damage.

H319 Causes serious eye irritation.

H332 Harmful if inhaled.

H350 May cause cancer.

H360 May damage fertility or the unborn child.

H400 Very toxic to aquatic life.

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H410 Very toxic to aquatic life with long lasting effects.

- **Recommended restriction of use:** professional/industrial use only
- **Date of preparation / last revision** 12/10/2020 / 38

- **Abbreviations and acronyms:**

OECD: Organisation for Economic Co-operation and Development

STOT: specific target organ toxicity

SE: single exposure

RE: repeated exposure

EC50: half maximal effective concentration

IC50: half maximal inhibitory concentration

NOEL or NOEC: No Observed Effect Level or Concentration

c.c.: closed cup

ACGIH® - American Conference of Governmental Industrial Hygienists

•A1 - Confirmed human carcinogen

•A2 - Suspected human carcinogen

•A3 - Confirmed animal carcinogen with unknown relevance to humans

•A4 - Not classifiable as a human carcinogen

•A5 - Not suspected as a human carcinogen

IARC - International Agency for Research on Cancer

•Group 1 - Carcinogenic to humans

•Group 2A - Probably carcinogenic to humans

•Group 2B - Possibly carcinogenic to humans

•Group 3 - Not classifiable as to carcinogenicity to humans

•Group 4 - Probably not carcinogenic to humans

NTP - National Toxicology Program, U.S. Department of Health and Human Services

•Group K - Known to be Human Carcinogens

•Group R - Reasonably Anticipated to be Human Carcinogens

IMDG: International Maritime Code for Dangerous Goods

DOT: US Department of Transportation

IATA: International Air Transport Association

EINECS: European Inventory of Existing Commercial Chemical Substances

ELINCS: European List of Notified Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

NIOSH: National Institute for Occupational Safety

OSHA: Occupational Safety & Health

TLV: Threshold Limit Value

PEL: Permissible Exposure Limit

REL: Recommended Exposure Limit

BEI: Biological Exposure Limit

Flam. Liq. 3: Flammable liquids – Category 3

Acute Tox. 4: Acute toxicity – Category 4

Skin Irrit. 2: Skin corrosion/irritation – Category 2

Eye Dam. 1: Serious eye damage/eye irritation – Category 1

Eye Irrit. 2A: Serious eye damage/eye irritation – Category 2A

Carc. 1B: Carcinogenicity – Category 1B

Repr. 1B: Reproductive toxicity – Category 1B

Aquatic Acute 1: Hazardous to the aquatic environment - acute aquatic hazard – Category 1

Aquatic Chronic 1: Hazardous to the aquatic environment - long-term aquatic hazard – Category 1

Aquatic Chronic 2: Hazardous to the aquatic environment - long-term aquatic hazard – Category 2

- **Sources**

Data arise from safety data sheets, reference works and literature.

ECHA: European CHemicals Agency <http://echa.europa.eu>

IUCLID (International Uniform Chemical Information Database)

RTECS (Registry of Toxic Effects of Chemical Substances)

- *** Data compared to the previous version altered.**
-