

HYDRANAL™-Composite 5**34805-1L-US**

Version 1.4

Revision Date 03/15/2022

Print Date 05/12/2023

SECTION 1. IDENTIFICATION

Product name : HYDRANAL™-Composite 5

Number : 000000020610

Product Use Description : Laboratory chemicals
Scientific research and development

Manufacturer or supplier's details : Honeywell International Inc.
1953 South Harvey Street
Muskegon, MI 49442

For more information call : 1-800-368-0050
+1-231-726-3171(Monday-Friday, 9:00am-5:00pm)

In case of emergency call : **Medical: 1-800-498-5701 or +1-303-389-1414**
: **Transportation (CHEMTREC): 1-800-424-9300 or**
: **+1-703-527-3887**
:
: (24 hours/day, 7 days/week)

SECTION 2. HAZARDS IDENTIFICATION**Emergency Overview**

Form : liquid

Color : brown

Odor : characteristic

Classification of the substance or mixture

Classification of the substance or mixture : Carcinogenicity, Category 2
Reproductive toxicity, Category 1B
Specific target organ toxicity - repeated exposure, Category 1

GHS Label elements, including precautionary statements

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Symbol(s)

:



Signal word

: Danger

Hazard statements

: Suspected of causing cancer.
May damage fertility or the unborn child.
Causes damage to organs through prolonged or repeated exposure.

Precautionary statements

: **Prevention:**
Obtain special instructions before use.
Do not handle until all safety precautions have been read and understood.
Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.
Wash skin thoroughly after handling.
Do not eat, drink or smoke when using this product.
Use personal protective equipment as required.**Response:**

IF exposed or concerned: Get medical advice/ attention.

Storage:

Store locked up.

Disposal:

Dispose of contents/ container to an approved waste disposal plant.

CarcinogenicityIARC: 2-Methylimidazole 693-98-1
Group 2B: Possibly carcinogenic to humans**SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS**

Chemical nature

: Mixture

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| Chemical name | CAS-No. | Concentration |
|-----------------------------|------------|-------------------|
| 2-(2-Ethoxyethoxy)ethanol | 111-90-0 | >65.00 - <75.00 % |
| Iodine | 7553-56-2 | >=5.00 - <10.00 % |
| Imidazole | 288-32-4 | >=5.00 - <10.00 % |
| Sulphur dioxide | 7446-09-5 | >=5.00 - <10.00 % |
| 1H-Imidazole monohydriodide | 68007-08-9 | >=5.00 - <10.00 % |
| 2-Methylimidazole | 693-98-1 | >=5.00 - <10.00 % |

SECTION 4. FIRST AID MEASURES

- General advice : First aider needs to protect himself. Move out of dangerous area. Take off all contaminated clothing immediately.
- Inhalation : Move to fresh air. Keep patient warm and at rest. Call a physician immediately.
- Skin contact : Wash off immediately with plenty of water. If skin irritation persists, call a physician.
- Eye contact : In the case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Protect unharmed eye.
- Ingestion : When swallowed, allow water to be drunk. Do NOT induce vomiting. Call a physician immediately.

Notes to physician

- Most important symptoms/effects, acute and delayed : No information available.

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Indication of immediate medical attention and special treatment needed, if necessary : Treat symptomatically.

SECTION 5. FIREFIGHTING MEASURES

- Suitable extinguishing media : Water spray
Foam
Carbon dioxide (CO₂)
Dry powder
- Unsuitable extinguishing media : Do not use a solid water stream as it may scatter and spread fire.
- Specific hazards during firefighting : Fire may cause evolution of:
Carbon monoxide
Carbon dioxide (CO₂)
Sulphur oxides
Nitrogen oxides (NO_x)
- Special protective equipment for firefighters : Wear an approved positive pressure self-contained breathing apparatus in addition to standard fire fighting gear.
- Further information : Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

SECTION 6. ACCIDENTAL RELEASE MEASURES

- Personal precautions, protective equipment and emergency procedures : Evacuate personnel to safe areas.
Wear personal protective equipment. Unprotected persons must be kept away.
Ensure adequate ventilation.
Remove all sources of ignition.
- Environmental precautions : Should not be released into the environment.
- Methods and materials for containment and cleaning up : Ventilate the area.
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

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regulations (see section 13).

SECTION 7. HANDLING AND STORAGE**Handling**

Precautions for safe handling : Wear personal protective equipment.
Use only in well-ventilated areas.

Advice on protection against fire and explosion : Keep away from sources of ignition - No smoking.
Normal measures for preventive fire protection.

Storage

Conditions for safe storage, including any incompatibilities : Keep only in the original container, tightly closed, in a well ventilated place.
Store at room temperature.
(Ambient temperature: > 0 < 35°C)
Protect from atmospheric moisture and water.
Do not store for longer periods (not > 1 month) at temperatures above 25°C. Higher temperature leads to an accelerated decrease in titer.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Protective measures : Ensure that eyewash stations and safety showers are close to the workstation location.
Legal requirements are to be considered in regard of the selection, use and care of personal protective equipment.
Avoid exposure - obtain special instructions before use.

Engineering measures : Use with local exhaust ventilation.
Prevent vapour buildup by providing adequate ventilation during and after use.

Eye protection : Safety goggles

Hand protection : Wear nitrile rubber gloves to avoid contact with the skin.
Gloves must be inspected prior to use.
Replace when worn.

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- Skin and body protection : Protective suit
- Respiratory protection : In case of insufficient ventilation wear suitable respiratory equipment.
- Hygiene measures : Take off all contaminated clothing immediately.
Remove and wash contaminated clothing before re-use.
Wash hands before breaks and at the end of workday.
When using do not eat or drink.

Exposure Guidelines

| Components | CAS-No. | Value | Control parameters | Update | Basis |
|---------------------------|----------|--------------------------------|-----------------------------------|--------|---|
| 2-(2-Ethoxyethoxy)ethanol | 111-90-0 | TWA : Time weighted average | 140 mg/m ³ (25 ppm) | 2007 | WEEL:US. OARS. WEELs Workplace Environmental Exposure Level Guide, as amended |

| | | | | | |
|---------------------------|----------|--------------------------------|-----------------------------------|------|---|
| 2-(2-Ethoxyethoxy)ethanol | 111-90-0 | TWA : Time weighted average | 140 mg/m ³ (25 ppm) | 2007 | WEEL:US. OARS. WEELs Workplace Environmental Exposure Level Guide, as amended |
|---------------------------|----------|--------------------------------|-----------------------------------|------|---|

| | | | | | |
|---------------------|-----------|--|------------|------------|--|
| Iodine | 7553-56-2 | TWA : Time weighted average | (0.01 ppm) | 03 2014 | ACGIH:US. ACGIH Threshold Limit Values, as amended |
| Further information | : | Form of exposure : Inhalable fraction and vapor. | | | |

| | | | | | |
|---------------------|-----------|-------------------------------------|-----------|------------|--|
| Iodine | 7553-56-2 | STEL : Short term exposure limit | (0.1 ppm) | 03 2017 | ACGIH:US. ACGIH Threshold Limit Values, as amended |
| Further information | : | Form of exposure : Vapor fraction | | | |

SAFETY DATA SHEET



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| | | | | | |
|-----------------|-----------|--|----------------------|------------|---|
| Iodine | 7553-56-2 | Ceil_Tim e : Ceiling Limit Value and Time Period (if specified) : | 1 mg/m3 (0.1 ppm) | 2005 | NIOSH/GUIDE:US. NIOSH: Pocket Guide to Chemical Hazards, as amended |
| Iodine | 7553-56-2 | Ceiling : Ceiling Limit Value: | 1 mg/m3 (0.1 ppm) | 02 2006 | OSHA_TRANS:US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000), as amended |
| Iodine | 7553-56-2 | Ceiling : Ceiling Limit Value: | 1 mg/m3 (0.1 ppm) | 1989 | Z1A:US. OSHA Table Z-1-A (29 CFR 1910.1000), as amended |
| Sulphur dioxide | 7446-09-5 | STEL : Short term exposure limit | (0.25 ppm) | 2009 | ACGIH:US. ACGIH Threshold Limit Values, as amended |
| Sulphur dioxide | 7446-09-5 | REL : Recomm ended exposure limit (REL): | 5 mg/m3 (2 ppm) | 2005 | NIOSH/GUIDE:US. NIOSH: Pocket Guide to Chemical Hazards, as amended |
| Sulphur dioxide | 7446-09-5 | STEL : Short term exposure limit | 13 mg/m3 (5 ppm) | 2005 | NIOSH/GUIDE:US. NIOSH: Pocket Guide to Chemical Hazards, as amended |

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| | | | | | |
|-----------------|-----------|--|---------------------|------------|---|
| Sulphur dioxide | 7446-09-5 | PEL : Permissible exposure limit | 13 mg/m3 (5 ppm) | 02 2006 | OSHA_TRANS:US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000), as amended |
| Sulphur dioxide | 7446-09-5 | TWA : Time weighted average | 5 mg/m3 (2 ppm) | 1989 | Z1A:US. OSHA Table Z-1-A (29 CFR 1910.1000), as amended |
| Sulphur dioxide | 7446-09-5 | STEL : Short term exposure limit | 13 mg/m3 (5 ppm) | 1989 | Z1A:US. OSHA Table Z-1-A (29 CFR 1910.1000), as amended |

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

| | |
|-----------------------------|---------------------------|
| Physical state | : liquid |
| Color | : brown |
| Odor | : characteristic |
| Odor threshold | : Note: No data available |
| pH | : 4.5 - 5.5 at , 20 °C |
| Melting point/range | : Note: No data available |
| Boiling point/boiling range | : 194 °C at 1,013 hPa |
| Flash point | : 210 °F (99 °C) |
| Evaporation rate | : Note: No data available |

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| | |
|---|--|
| Flammability | : Not applicable |
| Lower explosion limit | : Note: No data available |
| Upper explosion limit | : Note: No data available |
| Vapor pressure | : Note: No data available |
| Vapor density | : Note: No data available |
| Density | : ca. 1.17 g/cm ³ at 25 °C |
| Water solubility | : Note: completely miscible |
| Partition coefficient: n-octanol/water | : Note: No data available |
| Ignition temperature | : Note: No data available |
| Decomposition temperature | : Note: No decomposition if used as directed. |
| Viscosity, dynamic | : Note: No data available |
| Viscosity, kinematic | : Note: No data available |
| Oxidizing properties | : The substance or mixture is not classified as oxidizing. |

SECTION 10. STABILITY AND REACTIVITY

| | |
|------------|--|
| Reactivity | : Not classified as a reactivity hazard. |
|------------|--|

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|------------------------------------|---|
| Chemical stability | : Stable under normal conditions. |
| Possibility of hazardous reactions | : Hazardous polymerisation does not occur. |
| Conditions to avoid | : Protect from atmospheric moisture and water. Heat, flames and sparks. |
| Incompatible materials | : Strong oxidizing agents |
| Hazardous decomposition products | : In case of fire hazardous decomposition products may be produced such as: Carbon monoxide Carbon dioxide (CO ₂) Sulphur oxides Nitrogen oxides (NO _x) |

SECTION 11. TOXICOLOGICAL INFORMATION

| | |
|---------------------------|--|
| Acute oral toxicity | : LD50: > 2,000 mg/kg Species: Rat Method: OECD 423 |
| Acute inhalation toxicity | : Note: No data available |
| Acute dermal toxicity | : LD50: > 2,000 mg/kg Species: Rat Method: OECD Test Guideline 402 |
| Skin irritation | : Species: Rabbit Result: No skin irritation Method: OECD Test Guideline 404 |
| Eye irritation | : Species: Rabbit Result: No eye irritation Method: OECD Test Guideline 405 |

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Sensitisation

2-(2-Ethoxyethoxy)ethanol : Species: Guinea pig
Classification: non-sensitizing

1H-Imidazole
monohydriodide

: Mouse local lymph node assay
Species: Mouse
Result: Does not cause skin sensitisation.
Method: OECD 429

2-Methylimidazole

: Mouse local lymph node assay
Species: Mouse
Result: Did not cause sensitisation on laboratory animals.
Method: OECD Test Guideline 429

Repeated dose toxicity

1H-Imidazole
monohydriodide : Species: Rat
Application Route: Ingestion
Exposure time: (28 d)
NOEL: 50 mg/kg/d
Method: Repeated dose (28 days) toxicity (oral)

Genotoxicity in vitro

: Test Method: Ames test
Result: negative

Genotoxicity in vivo

2-(2-Ethoxyethoxy)ethanol : Species: Rat, male
Cell type: Liver cells
Application Route: Oral
Method: OECD Test Guideline 486
Result: negative

: Test Method: Chromosome aberration test
Species: Mouse, male
Cell type: Bone marrow
Application Route: Intraperitoneal injection
Method: OECD Test Guideline 474
Result: negative

Imidazole

: Test Method: Micronucleus test
Species: Mouse, male and female
Cell type: Bone marrow
Application Route: Oral

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Method: OECD Test Guideline 474
Result: negative

Teratogenicity
Imidazole

: Species: Rat Application Route: Oral

No observed adverse effect level: 60 mg/kg body weight
No observed adverse effect level: 60 mg/kg body weight
Method: OECD Test Guideline 414
Result: Embryotoxic effects and adverse effects on the offspring were detected.

2-Methylimidazole

: Species: Rat Application Route: Oral

No observed adverse effect level: >50 mg/kg body weight
No observed adverse effect level: 2 mg/kg body weight
Method: OECD Test Guideline 414
Result: Embryotoxic effects and adverse effects on the offspring were detected.

Further information

: Note: Causes damage to organs through prolonged or repeated exposure (Thyroid).

SECTION 12. ECOLOGICAL INFORMATION

Toxicity to fish

2-(2-Ethoxyethoxy)ethanol

: flow-through test
LC50: 6,010 mg/l
Exposure time: 96 h
Species: Ictalurus punctatus (channel catfish)
Method: OECD Test Guideline 203

Iodine

: LC50: 1.67 mg/l
Exposure time: 96 h
Species: Oncorhynchus mykiss (rainbow trout)

Imidazole

: static test
LC50: 283.6 mg/l

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| | |
|---|---|
| | Exposure time: 48 h Species: <i>Leuciscus idus</i> (Golden orfe) |
| 1H-Imidazole monohydriodide | : LC0: ≥ 100 mg/l Exposure time: 96 h Species: <i>Danio rerio</i> (zebra fish) Method: OECD Test Guideline 203 |
| 2-Methylimidazole | : static test LC50: 190 mg/l Exposure time: 96 h Species: <i>Leuciscus idus</i> (Golden orfe) Method: DIN 38412 |
| Toxicity to daphnia and other aquatic invertebrates | |
| 2-(2-Ethoxyethoxy)ethanol | : static test LC50: 1,982 mg/l Exposure time: 48 h Species: <i>Daphnia magna</i> (Water flea) Method: OECD Test Guideline 202 |
| Iodine | : LC50: 0.55 mg/l Exposure time: 48 h Species: <i>Daphnia magna</i> (Water flea) |
| Imidazole | : static test EC50: 341.5 mg/l Exposure time: 48 h Species: <i>Daphnia magna</i> (Water flea) Method: Directive 67/548/EEC, Annex V, C.2. |
| 1H-Imidazole monohydriodide | : EC50: 1.4 mg/l Exposure time: 48 h Species: <i>Daphnia magna</i> (Water flea) Method: OECD Test Guideline 202 |
| | EC0: 0.46 mg/l Exposure time: 48 h Species: <i>Daphnia magna</i> (Water flea) Method: OECD Test Guideline 202 |
| 2-Methylimidazole | : static test EC50: 225.31 mg/l Exposure time: 48 h |

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Species: *Daphnia magna* (Water flea)
Method: Directive 67/548/EEC, Annex V, C.2.

Toxicity to algae
Iodine

: Growth inhibition
EC50: 0.13 mg/l
Exposure time: 72 h
Species: *Desmodesmus subspicatus* (green algae)
Method: OECD Test Guideline 201

Imidazole

: static test
EC50: 133 mg/l
Exposure time: 72 h
Species: *Desmodesmus subspicatus* (green algae)
Method: DIN 38412

1H-Imidazole
monohydriodide

: Biomass
EC50: 8.3 mg/l
Exposure time: 72 h
Species: *scenedesmus subspicatus*
Method: OECD Test Guideline 201

Growth rate
EC50: 34 mg/l
Exposure time: 72 h
Species: *scenedesmus subspicatus*
Method: OECD Test Guideline 201

Biomass
NOEC: 1 mg/l
Exposure time: 72 h
Species: *scenedesmus subspicatus*
Method: OECD Test Guideline 201

Biomass
NOEC: 1 mg/l
Exposure time: 72 h
Species: *scenedesmus subspicatus*
Method: OECD Test Guideline 201

2-Methylimidazole

: static test
EC50: 256.3 mg/l
Exposure time: 72 h
Species: *Desmodesmus subspicatus* (green algae)

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Method: DIN 38412

static test

EC50: 189 mg/l

Exposure time: 72 h

Species: *Desmodesmus subspicatus* (green algae)

Method: DIN 38412

Toxicity to bacteria

1H-Imidazole

monohydriodide

: Respiration inhibition

EC50: > 1,000 mg/l

Exposure time: 3 h

Species: activated sludge

Method: OECD 209

Respiration inhibition

NOEC: 320 mg/l

Exposure time: 3 h

Species: activated sludge

Method: OECD 209

Elimination information (persistence and degradability)

Biodegradability

: Result: Readily biodegradable.

Value: 78 %

Method: OECD 302 B

Further information on ecology

Additional ecological information

Iodine

: Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal methods

: Observe all Federal, State, and Local Environmental regulations.

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SECTION 14. TRANSPORT INFORMATION**DOT** Not dangerous goods**TDG** Not dangerous goods**IATA** Not dangerous goods**IMDG** Not dangerous goods**SECTION 15. REGULATORY INFORMATION****Inventories**

US. Toxic Substances Control Act : All chemical substances in this product are either listed on the TSCA Inventory or are in compliance with a TSCA Inventory exemption.

Australia. Industrial Chemicals Act (AICC), as amended : On the inventory, or in compliance with the inventory

Canada. Canadian Environmental Protection Act (CEPA). Domestic Substances List (DSL) : Not in compliance with the inventory

Japan. Kashin-Hou Law List : 1H-Imidazole monohydriodide 68007-08-9
: Not in compliance with the inventory

Korea. Existing Chemicals Inventory (KECI) : 1H-Imidazole monohydriodide 68007-08-9
: Not in compliance with the inventory

Philippines. Inventory of Chemicals and Chemical Substances (PICCS) : 1H-Imidazole monohydriodide 68007-08-9
: Not in compliance with the inventory

China. Inventory of Existing Chemical Substances (IECSC) : 1H-Imidazole monohydriodide 68007-08-9
: On the inventory, or in compliance with the inventory

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New Zealand. Inventory of Chemicals (NZIoC), as published by ERMA New Zealand : Not in compliance with the inventory

Note : 1H-Imidazole monohydriodide 68007-08-9
 : Note: Because of the potential specific inventory listing of components of this product line, further, more detailed information can be requested from SafetyDataSheet@Honeywell.com.


National regulatory information

TSCA : This material must be used in compliance with the TSCA Research and Development Exemption requirements (40 CFR 720.36).

SARA 302 Components : The following components are subject to reporting levels established by SARA Title III, Section 302:
 : Sulphur dioxide 7446-09-5

SARA 313 Components : The following components are subject to reporting levels established by SARA Title III, Section 313:
 : 2-(2-Ethoxyethoxy)ethanol 111-90-0

SARA 311/312 Hazards : Acute Health Hazard
 Chronic Health Hazard

California Prop. 65 :  **WARNING:** This product can expose you to chemicals, listed below, known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.
 2-Methylimidazole 693-98-1
 Sulphur dioxide 7446-09-5

Massachusetts RTK : Sulphur dioxide 7446-09-5
 : Iodine 7553-56-2

New Jersey RTK : Sulphur dioxide 7446-09-5

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| | | |
|-------------------------|-----------------------------|-----------|
| | : Iodine | 7553-56-2 |
| | : 2-(2-Ethoxyethoxy)ethanol | 111-90-0 |
| Pennsylvania RTK | : 2-(2-Ethoxyethoxy)ethanol | 111-90-0 |
| | : Sulphur dioxide | 7446-09-5 |
| | : Iodine | 7553-56-2 |

SECTION 16. OTHER INFORMATION

| | HMIS III | NFPA |
|-----------------|-----------------|-------------|
| Health hazard | : 2 | 2 |
| Flammability | : 1 | 1 |
| Physical Hazard | : 0 | |
| Instability | : | 0 |

Hazard rating and rating systems (e.g. HMIS® III, NFPA): This information is intended solely for the use of individuals trained in the particular system.

Further information

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. Final determination of suitability of any material is the sole responsibility of the user. This information should not constitute a guarantee for any specific product properties.

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

Previous Issue Date: 02/28/2020

Prepared by Honeywell Performance Materials and Technologies Product Stewardship Group