HYDRANAL™Titrant 5 E

34732-100ML

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SECTION 1. IDENTIFICATION

Product name	:	HYDRANAL™Titrant 5 E
Number	:	000000020507
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	:	dark brown
Odor	:	characteristic

Classification of the substance or mixture

Classification of the substance or mixture	:	Flammable liquids, Category 2 Eye irritation, Category 2A Specific target organ toxicity - repeated exposure, Category 2

GHS Label elements, including precautionary statements

Symbol(s) :

Signal word : Danger

Hazard statements : Highly flammable liquid and vapour.
Causes serious eye irritation.
May cause damage to organs through prolonged or repeated exposure.

Precautionary statements : **Prevention:**
Keep away from heat/ sparks/ open flames/ hot surfaces. No smoking.
Keep container tightly closed.
Ground/bond container and receiving equipment.
Use explosion-proof electrical/ ventilating/ lighting equipment.
Use only non-sparking tools.
Take precautionary measures against static discharge.
Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.
Wash skin thoroughly after handling.
Wear protective gloves/protective clothing/eye protection/face protection.

Response:
IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
Get medical advice/ attention if you feel unwell.
If eye irritation persists: Get medical advice/ attention.
In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction.

Storage:
Store in a well-ventilated place. Keep cool.

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

Carcinogenicity

ACGIH:	Ethanol	64-17-5
	A3: Confirmed animal carcinogen	

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical nature : Mixture

Chemical name	CAS-No.	Concentration
Ethanol	64-17-5	>=70.00 - <90.00 %
Iodine	7553-56-2	>=5.00 - <10.00 %
1H-Imidazole monohydriodide	68007-08-9	>=5.00 - <10.00 %

SECTION 4. FIRST AID MEASURES

General advice : Move out of dangerous area. First aider needs to protect himself. Take off all contaminated clothing immediately.

Inhalation : Remove 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 : No information available.

symptoms/effects, acute and delayed		
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	:	High volume water jet
Specific hazards during firefighting	:	Fire may cause evolution of: Carbon monoxide Hydrogen halides
Special protective equipment for firefighters	:	In the event of fire, wear self-contained breathing apparatus.
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	:	Remove all sources of ignition. Ensure adequate ventilation.
Environmental precautions	:	Should not be released into the environment.
Methods and materials for containment and cleaning up	:	Soak up with inert absorbent material. Pick for disposal in tightly closed containers

SECTION 7. HANDLING AND STORAGE

Handling

Precautions for safe	:	Exhaust ventilation at the object is necessary.

handling

Advice on protection against fire and explosion	:	Keep away from sources of ignition - No smoking. The heavy vapours can overcome a considerable distance up to the source of ignition.

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.

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. Do not breathe vapours/dust. Take off all contaminated clothing immediately. Avoid contact with skin and eyes.
Engineering measures	:	Use with local exhaust ventilation.
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.
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
Ethanol	64-17-5	STEL : Short term exposure limit	(1,000 ppm)	2009	ACGIH:US. ACGIH Threshold Limit Values, as amended
Ethanol	64-17-5	REL : Recommended exposure limit (REL):	1,900 mg/m3 (1,000 ppm)	2005	NIOSH/GUIDE:US. NIOSH: Pocket Guide to Chemical Hazards, as amended
Ethanol	64-17-5	PEL : Permissible exposure limit	1,900 mg/m3 (1,000 ppm)	02 2006	OSHA_TRANS:US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000), as amended
Ethanol	64-17-5	TWA : Time weighted average	1,900 mg/m3 (1,000 ppm)	1989	Z1A:US. OSHA Table Z-1-A (29 CFR 1910.1000), as amended
Iodine	7553-56-2	Ceil_Time : 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

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			

Iodine	7553-56-2	Ceil_Time : 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

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state	:	liquid
Color	:	dark brown
Odor	:	characteristic
Odor threshold	:	Note: no data available
pH	:	Note: no data available
Melting point/range	:	Note: no data available
Boiling point/boiling range	:	77 °C
Flash point	:	54 °F (12 °C)
Evaporation rate	:	Note: no data available
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	:	0.888 g/cm3 at 20 °C
Water solubility	:	Note: no data available
Partition coefficient: n-octanol/water	:	Note: no data available
Ignition temperature	:	Note: Not applicable, no data available
Decomposition temperature	:	Note: No decomposition if used as directed.
Viscosity, dynamic	:	Note: no data available
Viscosity, kinematic	:	Note: no data available

SECTION 10. STABILITY AND REACTIVITY

Reactivity	:	Not classified as a reactivity hazard.
Chemical stability	:	Stable under recommended storage conditions.
Possibility of hazardous reactions	:	Hazardous polymerisation does not occur.
Conditions to avoid	:	Heat, flames and sparks.
Incompatible materials	:	Formation of explosive gas/air mixtures.
Hazardous decomposition products	:	Carbon monoxide Carbon dioxide (CO2)

Iodine compounds

SECTION 11. TOXICOLOGICAL INFORMATION

Acute oral toxicity	:	Acute toxicity estimate: > 5,000 mg/kg Method: Calculation method
Acute inhalation toxicity		
Ethanol	:	LC50: 20000 ppm Exposure time: 10 h Species: Rat
Iodine	:	LC50: > 4.588 mg/l , dust/mist Exposure time: 4 h Species: Rat
Acute dermal toxicity	:	Acute toxicity estimate: > 5,000 mg/kg Method: Calculation method
Skin irritation		
Ethanol	:	Species: Rabbit Result: Irritating to skin. Exposure time: 24 h
Iodine	:	Species: reconstructed human epidermis (RhE) Result: Irritating to skin.
Eye irritation		
Ethanol	:	Species: Rabbit Result: Irritating to eyes. Exposure time: 24 h
Sensitisation		
1H-Imidazole monohydriodide	:	Mouse local lymph node assay Species: Mouse

Result: Does not cause skin sensitisation.
Method: OECD 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)

1H-Imidazole monohydriodide : Result: negative
Method: Mutagenicity (Escherichia coli - reverse mutation assay)

: Test Method: Ames test
Result: negative

: Test Method: Chromosome aberration test in vitro
Cell type: Chinese hamster cells
Result: negative
Method: OECD Test Guideline 473

Further information

Ethanol : Confirmed animal carcinogen with unknown relevance to humans.

SECTION 12. ECOLOGICAL INFORMATION

Toxicity to fish

Ethanol : LC0: 8,140 mg/l
Exposure time: 48 h
Species: Leuciscus idus (Golden orfe)

flow-through test
LC50: 12,900 mg/l
Exposure time: 96 h
Species: Oncorhynchus mykiss (rainbow trout)

LC50: 14,200 mg/l
Exposure time: 96 h
Species: Pimephales promelas (fathead minnow)

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

1H-Imidazole monohydriodide : LC0: >= 100 mg/l
Exposure time: 96 h
Species: Danio rerio (zebra fish)
Method: OECD Test Guideline 203

Toxicity to daphnia and other aquatic invertebrates

Ethanol : EC50: 9,268 mg/l
Exposure time: 48 h
Species: Daphnia magna (Water flea)

EC50: 10,800 mg/l
Exposure time: 24 h
Species: Daphnia magna (Water flea)

Iodine : LC50: 0.55 mg/l
Exposure time: 48 h
Species: Daphnia magna (Water flea)

1H-Imidazole monohydriodide : EC50: 1.4 mg/l
Exposure time: 48 h
Species: Daphnia magna (Water flea)
Method: OECD Test Guideline 202

EC0: 0.46 mg/l
Exposure time: 48 h
Species: Daphnia magna (Water flea)
Method: OECD Test Guideline 202

Toxicity to algae

Ethanol : LC0: 5,000 mg/l
Species: Scenedesmus quadricauda (Green algae)

Iodine : Growth inhibition
EC50: 0.13 mg/l
Exposure time: 72 h

Species: Desmodesmus subspicatus (green algae)
Method: OECD Test Guideline 201

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

Toxicity to bacteria

Ethanol : LC0: 6,500 mg/l
Species: Pseudomonas putida

EC50: 35,470 mg/l
Exposure time: 5 min
Species: Photobacterium phosphoreum

EC50: 34,634 mg/l
Exposure time: 30 min
Species: Photobacterium phosphoreum

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

Further information on ecology

Additional ecological information : no data available

SECTION 13. DISPOSAL CONSIDERATIONS

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

SECTION 14. TRANSPORT INFORMATION

DOT	UN/ID No.	:	UN 1170
	Proper shipping name	:	Ethanol solution
	Class		3
	Packing group		II
	Hazard Labels		3
IATA	UN/ID No.	:	UN 1170
	Description of the goods	:	Ethanol solution
	Class	:	3
	Packaging group	:	II
	Hazard Labels	:	3
	Packing instruction (cargo aircraft)	:	364
	Packing instruction (passenger aircraft)	:	353
	Packing instruction (passenger aircraft)	:	Y341
IMDG	UN/ID No.	:	UN 1170
	Description of the goods	:	Ethanol solution
	Class	:	3
	Packaging group	:	II

Hazard Labels	:	3
EmS Number	:	F-E, S-D
Marine pollutant	:	no

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 Chemical (Notification and Assessment) Act	:	On the inventory, or in compliance with the inventory
China. Inventory of Existing Chemical Substances (IECSC)	:	On the inventory, or in compliance with the inventory
Note	:	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	:	No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.
SARA 313 Components	:	This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.
SARA 311/312 Hazards	:	Fire Hazard Acute Health Hazard Chronic Health Hazard

California Prop. 65	:	This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

Massachusetts RTK	:	Iodine	7553-56-2
	:	Ethanol	64-17-5
New Jersey RTK	:	Ethanol	64-17-5
	:	Iodine	7553-56-2
Pennsylvania RTK	:	Ethanol	64-17-5
	:	Iodine	7553-56-2

SECTION 16. OTHER INFORMATION

		HMIS III	NFPA
Health hazard	:	2*	2
Flammability	:	3	3
Physical Hazard	:	0	
Instability	:		0

* - Chronic health hazard
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.

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