SAFETY DATA SHEET

500881 CYCLAL C

1. IDENTIFICATION

Product Description: **CYCLAL C**

CAS # 68039-49-6

Other means of identification

Vigon Item # 500881

Recommended use Concentrated aromatic ingredient which may be used fragrance compounds according to legal and IFRA guidelines.

Recommended restrictions For Manufacturing Use Only

Company

Vigon International, Inc.
127 Airport Road
E. Stroudsburg, PA 18301
For information call: 570-476-6300
Web Site: www.vigon.com

24 Hour Emergency Response Information

INFOTRAC (ACCT# 78928);
1-800-535-5053 WITHIN THE U.S.A.
1-352-323-3500 OUTSIDE THE U.S.A.

Manufacturer/Importer/Supplier/Distributor information

Manufacturer

Company name	Vigon International, Inc.	
Address	127 Airport Road E. Stroudsburg, PA 18301 United States	
Telephone	For information call:	570-476-6300
Website	www.vigon.com	
E-mail	Not available.	
Emergency phone number	INFOTRAC 1-800-535-5053 1-352-323-3500	(ACCT# 78928); WITHIN THE U.S.A. OUTSIDE THE U.S.A.

2. HAZARD(S) IDENTIFICATION

Physical hazards	Flammable liquids	Category 4
Health hazards	Acute toxicity, oral	Category 5
	Skin corrosion/irritation	Category 2
	Sensitization, skin	Category 1B
Environmental hazards	Hazardous to the aquatic environment, acute hazard	Category 2
	Hazardous to the aquatic environment, long-term hazard	Category 2

Label elements

Signal word	Warning
Hazard statement	Combustible liquid. May be harmful if swallowed. Causes skin irritation. May cause an allergic skin reaction. Toxic to aquatic life. Toxic to aquatic life with long lasting effects.
Precautionary statement	
Prevention	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Avoid breathing mist or vapor. Wash thoroughly after handling. Contaminated work clothing should not be allowed out of the workplace. Avoid release to the environment. Wear protective gloves/protective clothing/eye protection/face protection.
Response	IF ON SKIN: Wash with plenty of water. Call a POISON CENTER/doctor if you feel unwell. If skin irritation or rash occurs: Get medical advice/attention. Take off contaminated clothing and wash it before reuse. In case of fire: Use appropriate media to extinguish. Collect spillage.
Storage	Store in a well-ventilated place.
Disposal	Dispose of contents/container in accordance with local/regional/national/international regulations.
Hazard(s) not otherwise classified (HNOC)	None known.
Supplemental information	100% of the mixture consists of component(s) of unknown acute dermal toxicity. 100% of the mixture consists of component(s) of unknown acute inhalation toxicity.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Substances

Chemical name	Common name and synonyms	CAS number	%
2,4-DIMETHYLCYCLOHEX-3-ENE-1-CARBALDEHYDE	4-formyl-1,3-dimethylcyclohex-1-ene 2,4-DIMETHYL-3-CYCLOHEXEN-1-CARBOXALDEHYDE 3-Cyclohexene-1-carboxaldehyde, 2,4-dimethyl- DIMETHYLCYCLOHEX-3-ENE-1-CARBALDEHYDE (MIXED ISOMERS)	68039-49-6	100

4. FIRST-AID MEASURES

Inhalation	If breathing is difficult, remove to fresh air and keep at rest in a position comfortable for breathing. For breathing difficulties, oxygen may be necessary. Call a physician if symptoms develop or persist.
Skin contact	Take off immediately all contaminated clothing. Get medical attention if irritation develops and persists. Wash skin thoroughly with soap and water for several minutes.
Eye contact	Remove contact lenses, if present and easy to do. Get medical attention if irritation develops and persists. Promptly wash eyes with plenty of water while lifting the eye lids.
Ingestion	Call a physician or poison control center immediately. If swallowed, rinse mouth with water (only if the person is conscious). Do not induce vomiting. If vomiting occurs, the head should be kept low so that stomach vomit doesn't enter the lungs.
Most important symptoms/effects, acute and delayed	Direct contact with eyes may cause temporary irritation. Skin irritation. May cause redness and pain. May cause an allergic skin reaction. Dermatitis. Rash.

Indication of immediate medical attention and special treatment needed	Not available.
General information	Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Show this safety data sheet to the doctor in attendance.

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media	Water spray, fog, CO2, dry chemical, or alcohol resistant foam.
Unsuitable extinguishing media	Do not use a solid water stream as it may scatter and spread fire.
Specific hazards arising from the chemical	Fire may produce irritating, corrosive and/or toxic gases.
Special protective equipment and precautions for firefighters	Firefighters must use standard protective equipment including flame retardant coat, helmet with face shield, gloves, rubber boots, and in enclosed spaces, SCBA. Structural firefighters protective clothing will only provide limited protection. Wear self-contained breathing apparatus with a full facepiece operated in the positive pressure demand mode when fighting fires.
Fire fighting equipment/instructions	In case of fire and/or explosion do not breathe fumes. Use standard firefighting procedures and consider the hazards of other involved materials. Move containers from fire area if you can do so without risk. Water runoff can cause environmental damage. Ventilate closed spaces before entering them. Keep run-off water out of sewers and water sources. Dike for water control.
Specific methods	Use water spray to cool unopened containers.
General fire hazards	Static charges generated by emptying package in or near flammable vapor may cause flash fire.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures	Keep unnecessary personnel away. Eliminate all sources of ignition. Avoid contact with skin or inhalation of spillage, dust or vapor. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ventilate closed spaces before entering them.
Methods and materials for containment and cleaning up	Eliminate all ignition sources (no smoking, flares, sparks or flames in immediate area). Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Absorb with inert absorbent such as dry clay, sand or diatomaceous earth, commercial sorbents, or recover using pumps. The product is immiscible with water and will spread on the water surface. Large Spills: Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Cover with plastic sheet to prevent spreading. Prevent product from entering drains. Absorb in vermiculite, dry sand or earth and place into containers. Small Spills: Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination. Never return spills in original containers for re-use. This material and its container must be disposed of as hazardous waste. Collect and dispose of spillage as indicated in section 13 of the SDS.
Environmental precautions	Retain and dispose of contaminated wash water. Avoid release to the environment. Contact local authorities in case of spillage to drain/aquatic environment. Prevent further leakage or spillage if safe to do so. Do not contaminate water.

7. HANDLING AND STORAGE

Precautions for safe handling

Do not handle or store near an open flame, heat or other sources of ignition. Take precautionary measures against static discharges. All equipment used when handling the product must be grounded. Avoid breathing vapor. Avoid contact with eyes, skin, and clothing. Avoid prolonged exposure. Wash thoroughly after handling.

Conditions for safe storage, including any incompatibilities

Keep container closed. Handle containers with care. Open slowly in order to control possible pressure release. Store in a cool, well-ventilated area.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Occupational exposure limits

This substance has no PEL, TLV, or other recommended exposure limit.

Biological limit values

No biological exposure limits noted for the ingredient(s).

Exposure guidelines

DNEL (Derived No-Effect Level): Workers - Long-term exposure
Systemic effects - inhalation: 0.44 mg/m³
Systemic effects - dermal: 0.125 mg/kg pc/j
DNEL (Derived No-Effect Level): General population - Long-term exposure
Systemic effects - inhalation: 0.108 mg/m³
Systemic effects - dermal: 0.062 mg/kg bw/j
Systemic effects - oral: 0.062 mg/kg bw/j
PNEC (Predicted No-Effect Concentration) aqua (freshwater): 7.5 µg/L
PNEC (Predicted No-Effect Concentration) aqua (marine water): 0.75 µg/L
PNEC (Predicted No-Effect Concentration) Sewage Treatment Plant: 10 mg/L
PNEC (Predicted No-Effect Concentration) sediment (freshwater): 0.226 mg/kg sediment dw
PNEC (Predicted No-Effect Concentration) sediment (marine water): 0.0226 mg/kg sediment dw
PNEC (Predicted No-Effect Concentration) soil: 0.0408 mg/kg soil dw
PNEC (Predicted No-Effect Concentration) aqua (intermittent releases): 75 µg/L

Appropriate engineering controls

Use explosion-proof ventilation equipment to stay below exposure limits. Adequate ventilation should be provided so that exposure limits are not exceeded.

Individual protection measures, such as personal protective equipment

Eye/face protection

Wear safety glasses with side shields (or goggles). Face shield is recommended.

Skin protection

Hand protection

Chemical resistant gloves.

Other

Use of an impervious apron is recommended.

Respiratory protection

Respiratory protection not required. If ventilation is insufficient, suitable respiratory protection must be provided.

Thermal hazards

Wear appropriate thermal protective clothing, when necessary.

General hygiene considerations

When using do not smoke. Keep away from food and drink. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Contaminated work clothing should not be allowed out of the workplace.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance

Refer to Spec Sheet

Physical state

Liquid.

Form

Liquid.

Color	Refer to Spec Sheet
Odor	Characteristic.
Odor threshold	Not available.
pH	Not available.
Melting point/freezing point	> -58 °F (> -50 °C)
Initial boiling point and boiling range	384.8 °F (196 °C)
Flash point	149.0 °F (65.0 °C) Closed Cup
Evaporation rate	Not available.
Flammability (solid, gas)	Not applicable.
Upper/lower flammability or explosive limits	
Flammability limit - lower (%)	Not available.
Flammability limit - upper (%)	Not available.
Explosive limit - lower (%)	Not available.
Explosive limit - upper (%)	Not available.
Vapor pressure	0.58 mm Hg at 25 °C
Vapor density	4.8
Relative density	Not available.
Solubility(ies)	
Solubility (water)	Insoluble
Partition coefficient (n-octanol/water)	Not available.
Auto-ignition temperature	Not available.
Decomposition temperature	Not available.
Viscosity	Not available.
Other information	
Explosive properties	Not explosive.
Flammability class	Combustible IIIA estimated
Molecular formula	C9H14O
Molecular weight	138.21 g/mol
Oxidizing properties	Not oxidizing.
Specific gravity	0.93 at 25 °C

10. STABILITY AND REACTIVITY

Reactivity	The product is stable and non-reactive under normal conditions of use, storage and transport.
Chemical stability	Material is stable under normal conditions.
Possibility of hazardous reactions	No dangerous reaction known under conditions of normal use.

Conditions to avoid	Avoid heat, sparks, open flames and other ignition sources. Avoid temperatures exceeding the flash point. Contact with incompatible materials.
Incompatible materials	Strong oxidizing agents.
Hazardous decomposition products	No hazardous decomposition products if stored and handled as indicated.

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Inhalation	No adverse effects due to inhalation are expected.
Skin contact	Causes skin irritation. May cause an allergic skin reaction.
Eye contact	Direct contact with eyes may cause temporary irritation.
Ingestion	May be harmful if swallowed.
Symptoms related to the physical, chemical and toxicological characteristics	Skin irritation. May cause redness and pain. May cause an allergic skin reaction. Dermatitis. Rash.

Information on toxicological effects

Acute toxicity May be harmful if swallowed.

Product	Species	Test Results
2,4-DIMETHYLCYCLOHEX-3-ENE-1-CARBALDEHYDE (CAS 68039-49-6)		
Acute		
Oral		
LD50	Rat	3900 mg/kg

Skin corrosion/irritation
Causes skin irritation.
The substance is classified as a skin irritant (category 2) by IFRA
Irritating effects were observed in different studies (dermal irritation in rabbit according to the OECD 404 guideline, skin sensitisation in guinea pig according to the OECD 406 guideline and dermal acute toxicity in rabbit).
Based on these results, the substance is classified as skin irritant category 2 under CLP.

Serious eye damage/eye irritation
Direct contact with eyes may cause temporary irritation.
The substance is classified as an eye irritant (category 2A) by IFRA
Irritating effects were observed in an eye irritation study conducted in rabbit, however classification criteria were not met.

Respiratory or skin sensitization

Respiratory sensitization Not a respiratory sensitizer.

Skin sensitization
May cause an allergic skin reaction.
The substance is classified as a skin sensitizer (category 1B) by IFRA
Skin sensitisation effects were observed in a Guinea Pig Maximisation Test (GPMT) conducted according to the OECD 406 guideline.

Germ cell mutagenicity

The substance was not mutagenic in a Ames test (OECD 471).
In a chromosome aberration test in Chinese hamster ovary cells (OECD 473), a structurally related substance did not induce numerical chromosome aberrations (with and without metabolic activation) nor structural aberrations without metabolic activation;
equivocal results were obtained regarding induction of structural aberrations after metabolic activation. However, this structurally related substance was not mutagenic either in an in vivo micronucleus test (OECD 474).

Carcinogenicity

IARC Monographs. Overall Evaluation of Carcinogenicity

Not listed.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1052)

Not regulated.

US. National Toxicology Program (NTP) Report on Carcinogens

Not listed.

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not available.

Reproductive toxicity

In a one-generation reproduction toxicity study, conducted on a structurally related substance according to OECD guideline No 415, the No Observed Adverse Effect Level (NOAEL) for developmental toxicity was established at 25 mg/kg pc/j.

Specific target organ toxicity - single exposure

Not classified.

Specific target organ toxicity - repeated exposure

Two repeated dose toxicity studies (28 and 90 days) were conducted in the rat with two structurally related substances. The 28 days study NOAEL based on decreased body weight in males was the lowest ; 120 mg/kg pc/j.

Aspiration hazard

Although the substance is a low viscosity and mobile liquid with a kinematic viscosity of 2.243 mm^2/s at 20 °C, there is no evidence of aspiration toxicity for this material from either human experience or from animal toxicity data and it is not a member of a recognized category of materials having aspiration toxicity potential (i.e. hydrocarbons).

12. ECOLOGICAL INFORMATION

Ecotoxicity

Toxic to aquatic life with long lasting effects.

Product		Species	Test Results
2,4-DIMETHYLCYCLOHEX-3-ENE-1-CARBALDEHYDE (CAS 68039-49-6)			
Aquatic			
Acute			
Algae	EC50	Green algae (Desmodesmus subspicatus)	31 mg/l, 72 hours (based on growth rate - nominal concentration - OECD 201)
Crustacea	EC50	Daphnia magna	22.4 mg/l, 48 hours (measured concentration - similar to OECD 202)
Fish	LC50	Oncorhynchus mykiss (reported as Salmo gairdneri)	7.5 mg/l, 96 hours (measured concentration - OECD 203)

Persistence and degradability	The substance is not readily biodegradable. Biodegradation achieved in 28 days: 3% (oxygen consumption - assay conducted according to OECD 301F guideline - activated sludge, domestic wastewater treatment plant). The substance is not considered to be very persistent and very bioaccumulating (vPvB).
Bioaccumulative potential	No data available.
Mobility in soil	The adsorption coefficient of the substance was determined in a study conducted following the OECD 121 guideline:log Koc: 2.2 Taken with the high water solubility, this value is low enough to suggest that the substance will show limited adsorption to soil or sediment particulates, and will partition mainly to water (in the surface or ground water compartments).
Other adverse effects	No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

13. DISPOSAL CONSIDERATIONS

Disposal instructions	Do not discharge into drains, water courses or onto the ground. Do not allow this material to drain into sewers/water supplies. Do not contaminate ponds, waterways or ditches with chemical or used container. Dispose of contents/container in accordance with local/regional/national/international regulations.
Local disposal regulations	Dispose in accordance with all applicable regulations.
Hazardous waste code	Not established.
Waste from residues / unused products	Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).
Contaminated packaging	Since emptied containers may retain product residue, follow label warnings even after container is emptied. Empty containers should be taken to an approved waste handling site for recycling or disposal.

14. TRANSPORT INFORMATION

ADN

UN number	3082
UN proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (2,4-Dimethylcyclohex-3-ene-1-carbaldehyde)
Transport hazard class(es)	9
Subsidiary class(es)	-
Packing group	III
Environmental hazards	Yes
Labels required	9

ADR

UN number	3082
UN proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (2,4-Dimethylcyclohex-3-ene-1-carbaldehyde)
Transport hazard class(es)	9
Subsidiary class(es)	-
Packing group	III
Environmental hazards	Yes
Labels required	9

RID

UN number	3082
UN proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (2,4-Dimethylcyclohex-3-ene-1-carbaldehyde)
Transport hazard class(es)	9
Subsidiary class(es)	-
Packing Group	III
Environmental Hazards	Yes
Labels required	9
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.

DOT

BULK

UN number	NA1993
Proper shipping name	COMBUSTIBLE LIQUID, N.O.S. (2,4-Dimethylcyclohex-3-ene-1-carbaldehyde)
Hazard class	Combustible liq
Packing group	III
Environmental hazards	
Marine pollutant	Yes
Packaging exceptions	150
Packaging bulk	241
Labels required	None

DOT

NON-BULK

Not regulated as dangerous goods.

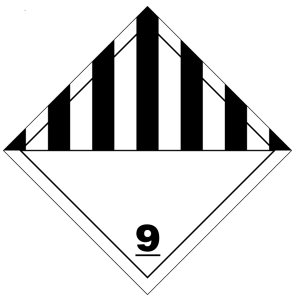
IATA

Not regulated as dangerous goods.

IMDG

UN number	3082
UN proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (2,4-Dimethylcyclohex-3-ene-1-carbaldehyde)
Transport hazard class(es)	9
Subsidiary class(es)	-
Packing group	III
Environmental hazards	
Marine pollutant	Yes
Labels required	9
Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code	Not applicable.

ADN; ADR; IMDG; RID



Marine pollutant

15. REGULATORY INFORMATION

US federal regulations This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

CERCLA Hazardous Substance List (40 CFR 302.4)

Not listed.

SARA 304 Emergency release notification

Not regulated.

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not available.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1052)

Not regulated.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Not regulated.

Superfund Amendments and Reauthorization Act of 1986 (SARA)

SARA 302 Extremely hazardous substance

Not listed.

SARA 311/312 Hazardous chemical Yes

Classified hazard categories Flammable (gases, aerosols, liquids, or solids)
Acute toxicity (any route of exposure)
Skin corrosion or irritation
Respiratory or skin sensitization

SARA 313 (TRI reporting)

Not regulated.

Other federal regulations

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List

Not regulated.

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)

Not regulated.

Safe Drinking Water Act (SDWA) Not regulated.

US state regulations

California Proposition 65

California Proposition 65 - Carcinogens & Reproductive Toxicity (CRT): Listed substance

Not listed.

International Inventories

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Chemical Substances (AICS)	Yes
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	Yes
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	Yes
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	Yes
Korea	Existing Chemicals List (ECL)	Yes
New Zealand	New Zealand Inventory	Yes
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes
Taiwan	Taiwan Toxic Chemical Substances (TCS)	Yes
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)
A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

16. OTHER INFORMATION, INCLUDING DATE OF PREPARATION OR LAST REVISION

Issue date 11-17-2015

Revision date 01-30-2018

Version # 06

HMIS® ratings Health: 2
Flammability: 2
Physical hazard: 0

Disclaimer

Vigon International, Inc. cannot anticipate all conditions under which this information and its product, or the products of other manufacturers in combination with its product, may be used. It is the user's responsibility to ensure safe conditions for handling, storage and disposal of the product, and to assume liability for loss, injury, damage or expense due to improper use. The information in the sheet was written based on the best knowledge and experience currently available. The above information relates only to this product and not to its use in combination with any other material or any particular process and is designed only as guidance for the safe handling, use, processing, storage, transportation, and disposal and should not be considered as a guarantee or quality specification. This product has not been evaluated for safe use in e-cigarettes or any vaping application where the product(s) is/are intentionally vaporized and inhaled. Vigon International, Inc. has performed no testing on these products in e-cig/vaping applications. It is the sole responsibility of the individual(s) purchasing this product to assess its' safety in the final application. The above information relates only to this product and not to its use in combination with any other material or any particular process and is designed only as guidance for the safe handling, use, processing, storage, transportation, disposal, and should not be considered as a guarantee or quality specification. The above information is based on data provided by and collected from recognized sources such as distributors, manufacturers, and technical groups and is considered to be accurate to the best of Vigon's knowledge as of the date of this document. It is the responsibility of the user to review all safety information about this product and determine its safety and suitability in their own processes and operations. Appropriate warnings and safe handling procedures should be provided to all handlers and users, taking into account the intended use and the specific conditions and factors relating to such use in accordance with all applicable laws and regulations.

Revision information

This document has undergone significant changes and should be reviewed in its entirety.