Product name	Acetic acid 99-100% chemical grade		NA/EN
MSDS number	80002B	**Revision Date**	May.07.2015
Revision Number	0.01	**Issuing date**	May.07.2015

1. Product and company identification

Trade Name

Acetic acid 99-100% chemical grade

Celanese Ltd.
222 W. Las Colinas Blvd., Suite 900N
Irving, TX 75039
United States
Phone: 972 443 4000
Internet: www.celanese.com

Transportation emergency phone numbers:
In USA, call 800 424 9300
Outside USA, call 703 527 3887, collect calls accepted.
In Mexico, call (921) 211-5048, 211-5000

Identified uses
Chemical intermediate, Agrochemicals, Cleaning agent, Process chemicals

2. Hazard Identification

GHS Classification

Hazards	**Category**
Flammable liquid	Category 3
Skin corrosion/irritation	Category 1A
Serious eye damage/eye irritation	Category 1

Label elements

Signal Word Danger

Hazard Statements
Flammable liquid and vapor
Causes severe skin burns and eye damage
Causes serious eye damage

Precautionary statements
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.
In case of fire:
Use foam, dry chemical, carbn dioxide (CO2), water spray to extinguish.
Do not breathe dust/fume/gas/mist/vapors/spray
Wash face, hands and any exposed skin thoroughly after handling.
Wear protective gloves/ protective clothing/ eye protection/ face protection.
IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower.
IF SWALLOWED: rinse mouth. Do NOT induce vomiting
IF INHALED: Remove person to fresh air and keep comfortable for breathing.
Immediately call a POISON CENTER or doctor/physician
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
Immediately call a POISON CENTER or doctor.
Wash contaminated clothing before reuse.
Store locked up.
Store in a well-ventilated place. Keep cool.
Dispose of contents/ container to an approved waste disposal plant.

3. Composition/information on ingredients

Components	CAS-No	Percent %
Acetic acid	64-19-7	min 99.85

4. First aid measures

General Information
Remove contaminated, soaked clothing immediately and dispose of safely. Pay attention to own protection. In any case show the physician the Safety Data Sheet.

Skin
Wash off immediately with plenty of water for at least 15 minutes. Obtain medical attention.

Eyes
Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Call a physician immediately.

Inhalation
Move to fresh air. Keep at rest. Call a physician immediately.

Ingestion
If conscious, drink plenty of water. If swallowed, do not induce vomiting - seek medical advice.

Notes to physician
Observe for latent pulmonary edema.

5. Fire-fighting measures

NFPA: **Health:** 3 **Flammability:** 2 **Instability:** 0

Suitable extinguishing media
Foam, Dry chemical, Carbon dioxide (CO2), Water spray

Extinguishing media which must not be used for safety reasons
Do not use a solid water stream as it may scatter and spread fire.

Special exposure hazards arising from the substance or preparation itself, its combustion products, or released gases
Under conditions giving incomplete combustion, hazardous gases produced may consist of
Carbon monoxide
Carbon dioxide (CO2)
Nitrogen oxides (NOx)
Combustion gases of organic materials must in principle be graded as inhalation poisons

Special protective equipment for fire-fighters
Wear self-contained breathing apparatus and protective suit.

Environmental precautions
Water used to fight fire runoff can cause environmental damage. Dike and collect water used to fight fire.

Other Information
Cool containers / tanks with water spray

6. Accidental release measures

Personal precautions
Avoid contact with the skin and the eyes. Keep away from heat and sources of ignition. Provide adequate ventilation.

Isolation
Keep unnecessary people away; isolate hazard area and deny entry. Isolate for 800 meters or 0.5 miles in all directions if tank, rail car, or tank truck in involved in fire. Evacuate downwind areas as conditions warrant to prevent exposure and to allow vapors or fumes to dissipate. Spills may expose downwind areas to toxic or flammable concentrations over considerable distances in some cases.

Environmental precautions
Prevent further leakage or spillage. Do not discharge into the drains/surface waters/groundwater. Dike and collect water used to fight fire.

Methods for cleaning up
Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Keep in suitable, closed containers for disposal. Dispose of in accordance with local regulations.

Authority Notification
Within the United States, call the National Response Center (800-424-8802) and appropriate state and local authorities if the quantity released over 24 hours is equal to or greater than the reportable quantity listed below:

5000 lb/2270kg

7. Handling and storage

Advice on safe handling
Provide sufficient air exchange and/or exhaust in work rooms.

Protection - fire and explosion:
Keep away from sources of ignition - No smoking. Take necessary action to avoid static electricity discharge. Ground and bond containers when transferring material. In case of fire, emergency cooling with water spray should be available.

Technical measures/Storage conditions
Keep tightly closed in a dry, cool and well-ventilated place. Handle an open container with care.

Material storage
Store locked up. Keep in a dry, cool and well-ventilated place.

Incompatible products
Keep away from:, bases, amines

8. Exposure controls / personal protection

OSHA Exposure Limits

Components	TWA
Acetic acid	10 PPM

ACGIH Exposure Limits

Components	TWA
Acetic acid	10 PPM

Components	STEL
Acetic acid	15 PPM

Components	2005 NIOSH IDLH
Acetic acid	50 PPM

Mexico National Exposure Limits

Components	LMPE - PPT	
Acetic acid	25 mg/m^3	10 PPM

Components	STEL	
Acetic acid	37 mg/m^3	15 PPM

Components	Mexican Carcinogen Category

Acetic acid	Not applicable

Exposure controls

Engineering measures
General or dilution ventilation is frequently insufficient as the sole means of controlling employee exposure. Local ventilation is usually preferred. Explosion-proof equipment (for example fans, switches, and grounded ducts) should be used in mechanical ventilation systems.

Protective equipment
A safety shower and eyebath should be readily available.

General advice
Do not get in eyes, on skin, or on clothing. Do not breathe vapors or spray mist. Use only in an area equipped with a safety shower. Hold eye wash fountain available.

Respiratory protection
For concentrations > 1 and < 10 times the occupational exposure level: Use air-purifying respirator with full facepiece and organic vapor cartridge(s) or air-purifying full facepiece respirator with an organic vapor canister or a full facepiece powered air-purifying respirator fitted with organic vapor cartridge(s). The air purifying element must have an end of service life indicator, or a documented change out schedule must be established. Otherwise, use supplied air.

For concentrations more than 10 times the occupational exposure level and less than the lower of either 100 times the occupational exposure level or the IDLH: Use Type C full facepiece supplied-air respirator operated in positive-pressure or continuous-flow mode.

For concentrations > 100 times the occupational exposure level or greater than the IDLH level or unknown concentrations (such as in emergencies): Use self-contained breathing apparatus with full facepiece in positive-pressure mode or Type C positive-pressure full facepiece supplied-air respirator with an auxiliary positive-pressure self-contained breathing apparatus escape system.

For escape: Use self-contained breathing apparatus with full facepiece or any respirator specifically approved for escape.

Skin protection:
Wear impervious clothing and gloves to prevent contact. Neoprene is recommended. Other protective material may be used, depending on the situation, if adequate degradation and permeation data is available. If other chemicals are used in conjunction with this chemical, material selection should be based on protection for all chemicals present..

Eye/face protection:
Wear chemical goggles when there is a reasonable chance of eye contact.. In addition to goggles, wear a face shield if there is a reasonable chance for splash to the face..

9. Physical and chemical properties

Appearance

Form	liquid
Color	colourless
Odor	pungent

9. Physical and chemical properties

Molecular Weight	60.05
Flash point	39°C(104°F)
Method	closed cup
Ignition temperature	463°C (865°F)
Decomposition Temperature	not determined
Lower explosion limit	4.0 Vol. %
Upper explosion limit	19.9 Vol. %
Melting point/range	17°C (62.6°F)
Boiling point/range	118°C (244.4°F) .?°F)
Density	1.045 g/ml @ 25°C
pH	2.4 @ 60 g/l
Viscosity	1.056 mPa*s @ 25°C
Vapor pressure	21 hPa @ 25°C 77 hPa @ 50°C
Vapor density	2.07 (Air=1)
Evaporation Rate	0.97 (n-Butyl acetate = 1)
Water solubility	miscible
Solubility in other solvents	miscible with Ethanol Diethyl ether Acetone Benzene soluble in Chloroform
Partition coefficient (n-octanol/water)	-0.17 (measured)

10. Stability and reactivity

Chemical stability
Stable under normal conditions of handling, use and transportation.

Conditions to avoid
Avoid any source of ignition. Avoid contact with heat, sparks, open flame, and static discharge.

Incompatible Materials
Keep away from:
amines
bases

Hazardous Combustion or Decomposition Products:
Thermal decomposition products may include oxides of carbon.

Possibility of hazardous reactions
Hazardous polymerization does not occur.

11. Toxicological information

Potential health effects

Routes of exposure Skin, eyes, inhalation, ingestion.

Immediate effects

Skin	Causes skin burns. May be harmful if absorbed through skin. Symptoms of overexposure include: Redness or discoloration, swelling, itching, burning or blistering of skin.
Eyes	Exposure to vapors and liquid causes severe eye burns, damage irreversible. Symptoms of exposure may include: Eye irritation, burning sensation, pain, watering, and/or change of vision.
Inhalation	Causes respiratory tract irritation. Symptoms of exposure may include: Nasal discharge, hoarseness, coughing, chest pain and breathing difficulty. Accumulation of fluid in the lungs (pulmonary edema); symptoms can be delayed for several hours.
Ingestion	Causes digestive tract burns. Symptoms of exposure may include: Nausea, vomiting, loss of appetite, gastrointestinal irritation and/or diarrhea. Inflammation of mouth, throat, esophagus and/or stomach.

Target organ effects

Overexposure (prolonged or repeated exposure) may cause:
Injury to the eyes
Digestive tract damage
Respiratory tract damage
Skin damage.

Medical conditions which may be aggravated by exposure:

Respiratory Tract
Skin
Eyes

Acetic acid

Acute oral toxicity	LD50: 3310 mg/kg
Acute inhalation toxicity	LC50 (4h): > 40000 mg/m³
Skin corrosion/irritation	corrosive
Species	rabbit
Method	OECD 404
Skin Sensitization	nonsensitizer
Serious eye damage/eye irritation	corrosive
Species	rabbit eye
Method	OECD 405
Carcinogenic effects	No evidence of carcinogenicity
in vitro Mutagenicity	Ames Test: negative - with and without metabolic activation - Method: OECD 471 In vitro Mammalian Chromosome aberrations in Chinese Hamster Cells: negative - with and without metabolic activation - Method: OECD 473
in vivo Mutagenicity	In vivo Mammalian Erythrocyte Micronucleus Test: negative - Method: EU Method B.12 (Reference substance: Acetic anhydride)
Developmental effects	No evidence of reproductive and developmental toxicity
Routes of exposure	oral gavage
Species	rabbit rat mouse

Acetic acid

	NOAEL: 1600 mg/kg bw/day
Repeated exposure	No adverse effects
Routes of exposure	oral gavage
Species	rat male
	NOAEL: 290 mg/kg bw/day

12. Ecological Information

Acetic acid

Acute fish toxicity	LC50: > 300.82 mg/l (96h)
Species:	Oncorhynchus mykiss (rainbow trout)
Method	OECD 203
Acute daphnia toxicity	EC50: > 300.82 mg/l (48h)
Species:	Daphnia magna
Method	OECD 202
Toxicity to aquatic plants	EC50: > 300.82 mg/l (72h)
Species:	Skeletonema costatum
Method	ISO 10253
Toxicity to bacteria	EC3 (16h): 850 mg/l
Species:	Pseudomonas putida
Biodegradation	Readily biodegradable
Method	OECD 301 C
Other potential hazards	The substance does not meet the criteria for PBT / vPvB according to REACH, Annex XIII

13. Disposal considerations

Disposal considerations
Dispose of spilled material in accordance with state and local regulations for hazardous waste. Recommended methods are incineration or biological treatment at a federally or state-permitted disposal facility. Note that this information applies to the material as manufactured; processing, use, or contamination may make this information inappropriate, inaccurate, or incomplete.

Note that this handling and disposal information may also apply to empty containers, liners and rinsate. State or local regulations or restrictions are complex and may differ from federal regulations. This information is intended as an aid to proper handling and disposal; the final responsibility for handling and disposal is with the owner of the waste.

EPA Hazardous Waste Code(s): D002, D001

14. Transport information

US Department of Transportation

UN/NA Number:	UN 2789
Proper Shipping Name	Acetic acid, glacial
Hazard class	8

14. Transport information

Subsidiary hazard	3
Packing Group	II
Reportable Quantity (RQ)	5000 lb/2270kg
Emergency Resp. Guide	132

TDG

UN/NA Number:	UN 2789
Proper Shipping Name	ACETIC ACID, GLACIAL
Class:	8
Subsidiary Risk:	3
Packing Group:	II

Mexico Transport Information

UN-No.	UN 2789
Proper Shipping Name	Acetic acid, glacial
Hazard Class	8
Subsidiary Risk	3
Packing Group	II

ICAO/IATA

UN-No.	UN 2789
Proper Shipping Name	Acetic acid, glacial
Hazard Class	8
Subsidiary Risk	3
Packing group	II

IMDG

UN/ID No.	UN 2789
Proper Shipping Name	Acetic acid, glacial
Hazard Class	8
Subsidiary Risk	3
Packing group	II
Marine pollutant	no
EmS Code	F-E, S-C

15. Regulatory Information

US State Regulations

Chemicals associated with the product which are subject to the state right-to-know regulations are listed along with the applicable state(s):

Acetic acid 64-19-7

Pennsylvania	Listed
New York	Listed
New Jersey	Listed
Illinois	Listed
Massachusetts	Listed
Rhode Island	Listed

U.S. FEDERAL REGULATIONS

TSCA Inventory:
We certify that all components are either on the TSCA inventory or qualify for an exemption.

Environmental Regulations:

Acetic acid 64-19-7
CERCLA Hazardous Substance Listed

SARA 311:

Acute health:	Yes
Chronic health:	No
Fire:	Yes
Sudden release of pressure:	No
Reactive:	No

INTERNATIONAL REGULATIONS

International Inventories
Listed on the chemical inventories of the following countries or qualifies for an exemption:
Australia (AICS)
Canada (DSL)
China (IECSC)
Europe (EINECS)
Japan (ENCS)
Japan (ISHL)
Korea (KECI)
New Zealand (NZIoC)
Philippines (PICCS)
United States (TSCA)

16. Other information

NFPA:	Health: 3	Flammability: 2	Instability: 0
HMIS:	Health: 3	Flammability: 2	Physical Hazard: 0

16. Other information

Prepared By
Product Stewardship Department
Celanese

Sources of key data used to compile the datasheet
Information contained in this safety data sheet is based on Celanese owned data and public sources deemed valid or acceptable.. The absence of data elements required by ANSI or 1907/2006/EC indicates that no data meeting these requirements is available..

Other Information:
Observe national and local legal requirements
Changes against the previous version are marked by ***

For industrial use only. The information contained herein is accurate to the best of our knowledge. We do not suggest or guarantee that any hazards listed herein are the only ones which exist. Celanese makes no warranty of any kind, express or implied, concerning the safe use of this material in your process or in combination with other substances. Effects can be aggravated by other materials and/or this material may aggravate or add to the effects of other materials. This material may be released from gas, liquid, or solid materials made directly or indirectly from it. User has the sole responsibility to determine the suitability of the materials for any use and the manner of use contemplated. User must meet all applicable safety and health standards. Material safety data sheets are provided on the Internet by Celanese as a service to its customers. Possession of an Internet MSDS does not indicate that the possessor of the MSDS was a purchaser or user of the subject product.

Abbreviation and Acronym:

ADR = Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
CAS = Chemical Abstracts Service (division of the American Chemical Society)
CLP = Classification, Labelling and Packaging
DNEL = Derived No Effect Level
EINECS = European Inventory of Existing Commercial Chemical Substances
GHS = Globally Harmonized System of Classification and Labelling of Chemicals
IATA = International Air Transport Association
IBC Code = International Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk (IMO)
ICAO = International Civil Aviation Organization
IMDG = International Maritime Code for Dangerous Goods
LC50 = Lethal Concentration
LD50 = Lethal Dose
LOAEC = Low Observed Adverse Effect Concentration
LOAEL = Low Observed Adverse Effect Level
LOEL = Low Observed Effect Level
MEST = Mouse Ear Swelling Test
NOAEC = No Observed Adverse Effect Concentration
NOAEL = No Observed Adverse Effect Level
NOEC = No Observed Effect Concentration
NOEL = No Observed Effect Level
PBT = Persistent, Bioaccumulative and Toxic
PNEC = Predicted No Effect Concentration
RCR = Risk Characterization Ratio
RID = Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)
R-Phrases = Risk Phrases
S-Phrases = Safety Phrases
STOT RE = Specific Target Organ Toxicity Repeated Exposure
STOT SE = Specific Target Organ Toxicity Single Exposure
STP = Sewage Treatment Plant
vPvB = very Persistent and very Bioaccumulative