P015-003

HAND DELIVERED

EC#2045/2070 039-0000

DuPont Chemicals & Fluoroproducts
901 W. DuPont Ave.
Belle, WV 25015-1555

January 13, 2015

RECEIVED
JAN 14 2015
WV DEP / DIV OF AIR QUALITY

Director
Division of Air Quality
WV Department of Environmental Protection
601 57th Street SE
Charleston, WV 25304

RE: Belle Plant Permit Determination

Dear Director,

Enclosed please find a Permit Determination Form and applicable Attachments for a proposed change at the Belle Plant.

If there are any questions or comments, please contact me at (304) 357-1171 or leanne.schottle.wheeler@dupont.com

Sincerely,

LeAnne S Wheeler

LeAnne S. Wheeler
Environmental Coordinator

WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF AIR QUALITY
601 57th Street, SE
Charleston, WV 25304
Phone: (304) 926-0475
www.dep.wv.gov/daq

PERMIT DETERMINATION FORM (PDF)

FOR AGENCY USE ONLY: PLANT I.D. # _____

PDF # _____ PERMIT WRITER: _____

1. NAME OF APPLICANT (AS REGISTERED WITH THE WV SECRETARY OF STATE'S OFFICE):
E.I. du Pont de Nemours and Company

2. NAME OF FACILITY (IF DIFFERENT FROM ABOVE):
Belle Plant

3. NORTH AMERICAN INDUSTRY CLASSIFICATION SYSTEM (**NAICS**) CODE:
325199

4A. MAILING ADDRESS:
901 West DuPont Ave, Belle WV 25015

4B. PHYSICAL ADDRESS: Same

5A. DIRECTIONS TO FACILITY (PLEASE PROVIDE **MAP** AS **ATTACHMENT A**): Exit U.S. Route 60 at the Belle exit; turn right onto old Route 60; travel 500 feet west; turn left to enter the main gate of the DuPont Belle plant.

5B. NEAREST ROAD:	5C. NEAREST CITY OR TOWN:	5D. COUNTY:
West DuPont Ave	Belle	Kanawha
5E. UTM NORTHING (KM):	**5F. UTM EASTING (KM):**	**5G. UTM ZONE:**
451.848	4,232.589	17

6A. INDIVIDUAL TO CONTACT IF MORE INFORMATION IS REQUIRED:
LeAnne Wheeler

6B. TITLE: Environmental Coordinator

6C. TELEPHONE:	6D. FAX:	6E. E-MAIL:
304-357-1171	304-357-1204	leanne.schottle.wheeler@dupont.com

7A. DAQ PI ANT I.D. NO. (FOR AN EXISTING FACILITY ONLY):
039 – 00001

7B. PLEASE LIST ALL CURRENT 45CSR13, 45CSR14, 45CSR19 AND/OR TITLE V (45CSR30) PERMIT NUMBERS ASSOCIATED WITH **THIS** PROCESS (FOR AN EXISTING FACILITY ONLY):
R30-03900001-2009 (4 of 5)

7C. IS THIS PDF BEING SUBMITTED AS THE RESULT OF AN ENFORCEMENT ACTION? IF YES, PLEASE LIST: NO

8A. TYPE OF EMISSION SOURCE (CHECK ONE):
☐ **NEW SOURCE** ☐ **ADMINISTRATIVE UPDATE**
☐ **MODIFICATION** ☒ **OTHER** (PLEASE EXPLAIN IN **11B**)

8B. IF ADMINISTRATIVE UPDATE, DOES DAQ HAVE THE APPLICANT'S CONSENT TO UPDATE THE EXISTING PERMIT WITH THE INFORMATION CONTAINED HEREIN?
☒ **YES** ☐ **NO**

9. IS *DEMOLITION* OR PHYSICAL *RENOVATION* AT AN EXISTING FACILITY INVOLVED? ☒ **YES** ☐ **NO**

10A. DATE OF ANTICIPATED INSTALLATION OR CHANGE:
April 15, 2015

10B. DATE OF ANTICIPATED START-UP:
April/30/2015

11A. PLEASE PROVIDE A **DETAILED PROCESS FLOW DIAGRAM** SHOWING EACH PROPOSED OR MODIFIED PROCESS EMISSION POINT AS **ATTACHMENT B.**

11B. PLEASE PROVIDE A **DETAILED PROCESS DESCRIPTION** AS **ATTACHMENT C.**

12. PLEASE PROVIDE **MATERIAL SAFETY DATA SHEETS (MSDS)** FOR ALL MATERIALS PROCESSED, USED OR PRODUCED AS **ATTACHMENT D.** FOR CHEMICAL PROCESSE, PLEASE PROVIDE A MSDS FOR EACH COMPOUND EMITTED TO AIR.

13A. **REGULATED AIR POLLUTANT EMISSIONS:**

⇒ **FOR A NEW FACILITY,** PLEASE PROVIDE PLANT WIDE EMISSIONS BASED ON THE POTENTIAL TO EMIT (PTE) FOR THE FOLLOWING AIR POLLUTANTS INCLUDING ALL PROCESSES.

⇒ **FOR AN EXISTING FACILITY,** PLEASE PROVIDE THE PROPOSED CHANGE IN EMISSIONS BASED ON THE PTE OF ALL PROCESS CHANGES FOR THE FOLLOWING AIR POLLUTANTS.

PTE FOR A GIVEN POLLUTANT IS TYPICALLY BEFORE AIR POLLUTION CONTROL DEVICES AND IS COLLECTED BASED ON THE MAXIMUM DESIGN CAPACITY OF PROCESS EQUIPMENT.

POLLUTANT	HOURLY PTE (LB/HR)	YEARLY PTE (TON/YR) (HOURLY PTE MULTIPLIED BY 8760 HR/YR) DIVIDED BY 2000 LB/TON
PM		
PM_{10}		
VOCs		
CO		
NO_x		
SO_2		
Pb		
HAPs (AGGREGATE AMOUNT) Dimethyl sulfate		
TAPs (INDIVIDUALLY)*		
OTHER (INDIVIDUALLY)*		

There are no emissions from this tank due the low vapor pressure of the material stored in it – glycolic acid. The vapor pressure of the material is 0.0017 KPa.

* ATTACH ADDITIONAL PAGES AS NEEDED

13B. PLEASE PROVIDE ALL **SUPPORTING CALCULATIONS** AS **ATTACHMENT E.**

CALCULATE AN HOURLY AND YEARLY PTE OF EACH PROCESS EMISSION POINT (SHOWN IN YOUR DETAILED PROCESS FLOW DIAGRAM) FOR ALL AIR POLLUTANTS LISTED ABOVE INCLUDING INDIVIDUAL HAP'S (LISTED IN SECTION 112[b] OF THE 1990 CAAA), TAP'S (LISTED IN 45CSR27), AND OTHER AIR POLLUTANTS (E.G. POLLUTANTS LISTED IN TABLE 45-13A OF 45CSR13, MINERAL ACIDS PER 45CSR7, ETC.).

14. **CERTIFICATION OF DATA**

I, JAMES A. O'CONNOR (*TYPE NAME*) ATTEST THAT ALL THE REPRESENTATIONS CONTAINED IN THIS APPLICATION, OR APPENDED HERETO, ARE TRUE, ACCURATE, AND COMPLETE TO THE BEST OF MY KNOWLEDGE BASED ON INFORMATION AND BELIEF AFTER REASONABLE INQUIRY, AND THAT I AM A ***RESPONSIBLE OFFICIAL*** (*PRESIDENT, VICE PRESIDENT, SECRETARY OR TREASURER, GENERAL PARTNER OR SOLE PROPRIETOR*) OF THE APPLICANT.

SIGNATURE OF RESPONSIBLE OFFICIAL: James A. O'Connor

TITLE: PLANT MANAGER DATE: 01 / 13 / 2015

** THE DEFINITION OF THE PHRASE '***RESPONSIBLE OFFICIAL***' CAN BE FOUND AT 45CSR13, SECTION 2.23.

NOTE: PLEASE CHECK ENCLOSED ATTACHMENTS:

☐ **ATTACHMENT A** ☒ **ATTACHMENT B** ☒ **ATTACHMENT C** ☒ **ATTACHMENT D** ☒ **ATTACHMENT E**

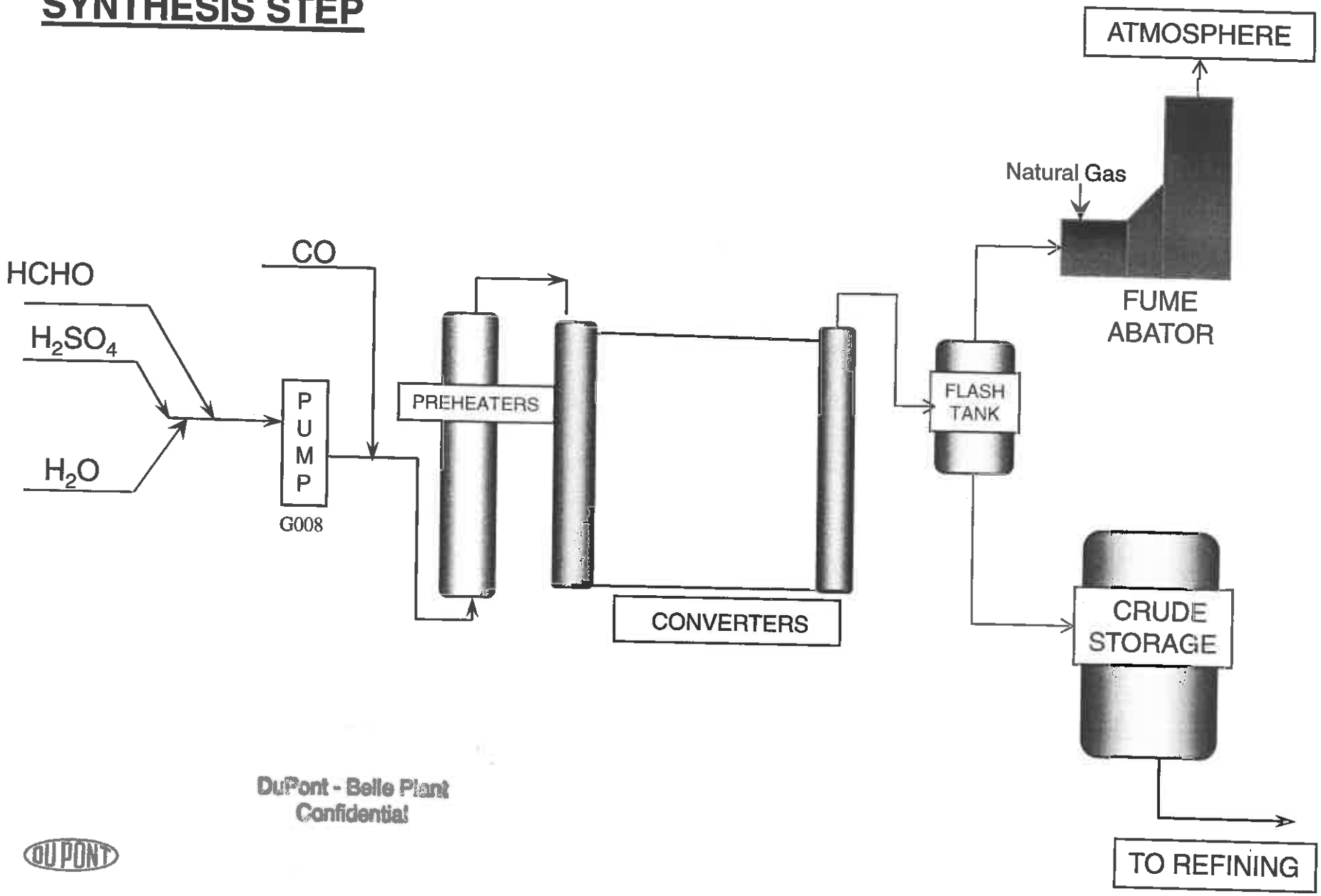
RECORDS ON ALL CHANGES ARE REQUIRED TO BE KEPT AND MAINTAINED ON-SITE FOR TWO (2) YEARS.

THE PERMIT DETERMINATION FORM WITH THE INSTRUCTIONS CAN BE FOUND ON DAQ'S PERMITTING SECTION WEB SITE:

www.dep.wv.gov/daq

Attachment B Process Flow Diagrams

SYNTHESIS STEP



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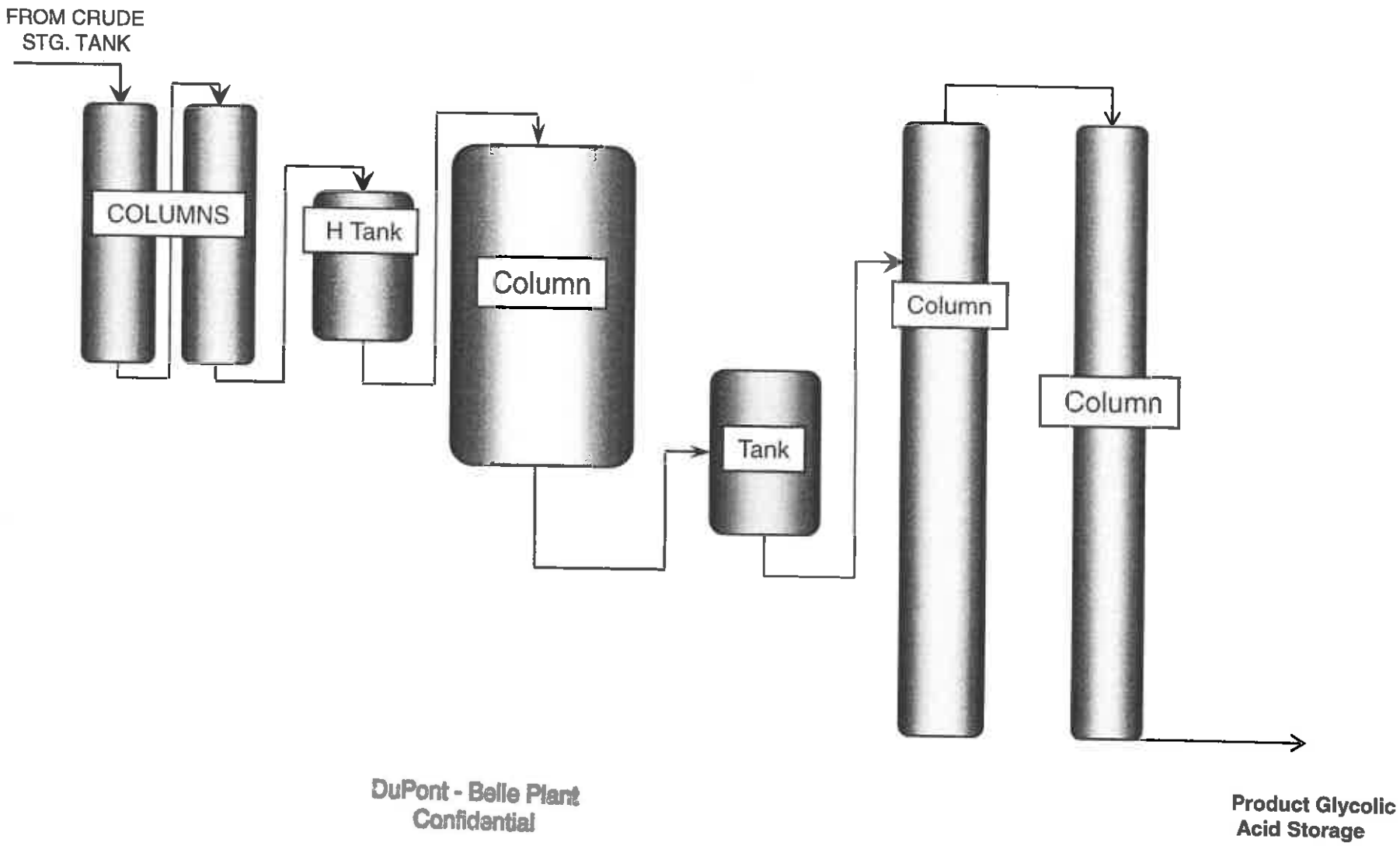
DUPONT

Attachment B Process Flow Diagrams

REFINING STEP



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Attachment C Process Description

Belle Plant Permit Determination for 36 Tank at Glycolic Acid January 2015

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Glycolic Acid is manufactured in a continuous process consisting of the following steps:

- Raw material unloading and storage
- Synthesis
- Refining
- Product storage and loading

Raw Material Unloading and Storage: Raw materials are formaldehyde solution, carbon monoxide, and water. Sulfuric acid is used as catalyst. Sodium hydroxide and salt brine are used to regenerate ion exchange resins.

Synthesis: Glycolic acid is produced from the reaction of formaldehyde, CO and water in the presence of sulfuric acid. Set proportions of formaldehyde solution, recycle crude glycolic acid and sulfuric acid are mixed and fed to an injection pump. Carbon monoxide is then added to the mixture. The feed mixture and CO are preheated and fed to converters. After the reaction, the stream goes through a flash valve into a flash chamber where the water vapor, CO gas, and volatiles are separated from the liquid. The gases flow through a separator and then into the afterburner. The crude liquid exits the bottom of the flash chamber and is cooled and pumped to crude storage. This tank vents to the atmosphere.

Refining/Purification: Crude glycolic acid is refined in a 4-step process. First is carbon treatment and then ion treatment followed by steam stripping and another ion treatment column.

Product Storage and Loading: Product from the final ion bed is fed to storage for water addition to adjust the total acid concentration. These tanks vent to the atmosphere. The refined product is then transferred to final storage from where it is loaded into tank trucks, tank cars and drums. Emissions from final storage tanks are to the atmosphere.

Regulatory Discussion:

Construction of a new storage tank is planned to replace Number 36 Tank at the Glycolic Acid (GA) Process. The new storage tank is nominally 19,000 gallons and is in the same service as the tank being replaced.

The new tank, like the old tank has no applicable standards. The new tank is not subject to Subpart Kb because of the size of the tank and vapor pressure of GA. (New tank is 19,000 gallons or 72 cubic meters so per 40 CFR 60.110b (a) it is not subject due to being less than 75 cubic meters. Also, GA has very low vapor pressure (0.0017 KPa) so there are essentially no emissions from the tank.) The tank is not subject to the MON because the tank contains primarily glycolic acid and water which are not HAPs.

The old tank and the new tank are vented to the atmosphere. The new tank will have the same through put and emissions as the tank being replaced.

The tank being replaced is included in the site's current Title V Permit R30-03900001-2009 Group 4 as emission unit GA007 and was constructed in the 1940's.

There is an existing R13 permit for the Glycolic Acid Process. Permit R13-1534 was issued for construction of the thermal oxidizer in the GA Process.

Material Safety Data Sheet

Glycolic Acid - 70% Technical Solution

Version 2.4

Revision Date 10/17/2011 Ref. 130000005166

This SDS adheres to the standards and regulatory requirements of the United States and may not meet the regulatory requirements in other countries.

SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

Product name	:	Glycolic Acid - 70% Technical Solution
MSDS Number	:	130000005166
Product Use	:	various
Manufacturer	:	DuPont 1007 Market Street Wilmington, DE 19898
Product Information	:	1-800-441-7515 (outside the U.S. 1-302-774-1000)
Medical Emergency	:	1-800-441-3637 (outside the U.S. 1-302-774-1139)
Transport Emergency	:	CHEMTREC: 1-800-424-9300 (outside the U.S. 1-703-527-3887)

SECTION 2. HAZARDS IDENTIFICATION

Potential Health Effects

Skin

Glycolic acid : Causes skin burns.
May cause: Corrosion with pain, ulceration or blisters, cracking or peeling of skin.

Eyes

Glycolic acid : Causes eye burns. May cause blindness.

Inhalation

Glycolic acid : May cause respiratory tract irritation.

Ingestion

Glycolic acid : Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhoea. Causes digestive tract burns.

Carcinogenicity

None of the components present in this material at concentrations equal to or greater than 0.1% are listed by IARC, NTP, or OSHA, as a carcinogen.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Component	CAS-No.	Concentration
Glycolic acid	79-14-1	62.8 - 65.7 %
Water	7732-18-5	30 %

SECTION 4. FIRST AID MEASURES

Skin contact : Wash off immediately with plenty of water. Take off all contaminated clothing immediately. Consult a physician. Wash contaminated clothing before re-use.

Eye contact : Rinse immediately with plenty of water and seek medical advice.

Inhalation : Move to fresh air. Oxygen or artificial respiration if needed. Consult a physician.

Ingestion : Do NOT induce vomiting. Call a physician immediately. Never give anything by mouth to an unconscious person.

SECTION 5. FIREFIGHTING MEASURES

Flammable Properties
Flash point : does not flash

Suitable extinguishing media : Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Firefighting Instructions : Wear self-contained breathing apparatus and protective suit.
Will react with most metals, releasing potentially explosive hydrogen gas.

SECTION 6. ACCIDENTAL RELEASE MEASURES

NOTE: Review FIRE FIGHTING MEASURES and HANDLING (PERSONNEL) sections before proceeding with clean-up. Use appropriate PERSONAL PROTECTIVE EQUIPMENT during clean-up.

Safeguards (Personnel)	: Use personal protective equipment.
Spill Cleanup	: Neutralize with: lime soda ash If this product is spilled and not recovered, or is recovered as a waste for treatment or disposal, the CERCLA Reportable Quantity is 100 lbs. (release of an Unlisted Hazardous Waste with the Characteristic of Corrosivity.)
Accidental Release Measures	: Try to prevent the material from entering drains or water courses.

SECTION 7. HANDLING AND STORAGE

Handling (Personnel)	: Avoid breathing mist. Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.
Storage	: Keep in a well-ventilated place. Keep tightly closed. Keep away from heat.
Storage temperature	: > 10 °C (> 50 °F)

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering controls	: Use only with adequate ventilation.
Personal protective equipment	
Respiratory protection	: When workers are facing concentrations above the exposure limit they must use appropriate certified respirators.
Hand protection	: Material: Impervious gloves
Eye protection	: Wear coverall chemical splash goggles.

Skin and body protection : Where there is potential for skin contact have available and wear as appropriate:
Complete suit protecting against chemicals

Exposure Guidelines
Exposure Limit Values
Glycolic acid

AEL *	(DUPONT)	10 mg/m3	8 & 12 hr. TWA

* AEL is DuPont's Acceptable Exposure Limit. Where governmentally imposed occupational exposure limits which are lower than the AEL are in effect, such limits shall take precedence.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Form	: liquid
Color	: light yellow
Odor	: mild, of burnt sugar
pH	: 0.1 at 25 °C (77 °F)
Melting point	: 10 °C (50 °F)
Boiling point	: 112 °C (234 °F) at 760 mm Hg
Oxidizing	: The product is not oxidizing.
Vapour Pressure	: 0.017 hPa at 25 °C (77 °F)
Density	: 1.26 g/cm3 at 20 °C (68 °F)
Water solubility	: completely miscible
Partition coefficient: n-octanol/water	: log Pow: -1.11 at 19 °C (66 °F)
Viscosity	: 11.28 mPa.s at 15.6 °C (60.1 °F)
Viscosity	: 3.49 mPa.s at 43.3 °C (109.9 °F)

SECTION 10. STABILITY AND REACTIVITY

Incompatibility : Oxidizing agents Cyanides, Sulphides, active metals (such as sodium, potassium, magnesium)

Hazardous decomposition products : Decomposition will not occur.

Hazardous reactions : Polymerization will not occur.

SECTION 11. TOXICOLOGICAL INFORMATION

Glycolic Acid - 70% Technical Solution

Sensitisation	:	animals (unspecified species)Not a skin sensitizer.
Mutagenicity	:	Evidence suggests this substance does not cause genetic damage in cultured bacterial cells. Animal testing did not show any mutagenic effects.
Reproductive toxicity	:	Animal testing did not show any effects on fertility.
Teratogenicity	:	Several developmental toxicity studies have been conducted with ethylene glycol (metabolized to glycolic acid) or with glycolic acid in mammals. The majority of studies conducted with rodents demonstrate developmental toxicity only at high dietary exposure levels which also produce other toxic effects in the adult animal. Based on the weight of evidence, glycolic acid is not considered a unique developmental hazard to the embryo.

Glycolic acid

Oral LD50	:	2,040 mg/kg (70% solution), rat
Inhalation 4 h LC50	:	3.6 mg/l , male, rat
Skin irritation	:	Corrosive, rabbit
Eye irritation	:	Corrosive, rabbit
Repeated dose toxicity	:	Oral rat Weight loss Inhalation rat Liver effects

SECTION 12. ECOLOGICAL INFORMATION

Aquatic Toxicity

Glycolic acid

96 h LC50	:	Pimephales promelas (fathead minnow) 164 mg/l
72 h EbC50	:	Pseudokirchneriella subcapitata (green algae) 22.5 mg/l
48 h EC50	:	Daphnia magna (Water flea) 141 mg/l

Environmental Fate

Glycolic Acid - 70% Technical Solution

Biodegradability : Readily biodegradable, according to appropriate OECD test.

SECTION 13. DISPOSAL CONSIDERATIONS

Waste Disposal : Treatment, storage, transportation, and disposal must be in accordance with applicable federal, state/provincial, and local regulations. May be a RCRA hazardous waste due to the corrosivity characteristic (pH).

Environmental Hazards : Do not re-use empty containers.

SECTION 14. TRANSPORT INFORMATION

DOT	UN number	: 3265
	Proper shipping name	: Corrosive liquid, acidic, organic, n.o.s. (Glycolic acid)
	Class	: 8
	Packing group	: II
	Labelling No.	: 8
IATA_C	UN number	: 3265
	Proper shipping name	: Corrosive liquid, acidic, organic, n.o.s. (Glycolic acid)
	Class	: 8
	Packing group	: II
	Labelling No.	: 8

IMDG	UN number	: 3265
	Proper shipping name	: Corrosive liquid, acidic, organic, n.o.s. (Glycolic acid)
	Class	: 8
	Packing group	: II
	Labelling No.	: 8

SECTION 15. REGULATORY INFORMATION

TSCA Status	: On the inventory, or in compliance with the inventory
SARA 313 Regulated Chemical(s)	: SARA 313: 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.
Title III hazard classification	: Acute Health Hazard: Yes Chronic Health Hazard: No Fire: No Reactivity/Physical hazard: No Pressure: No

SECTION 16. OTHER INFORMATION

		HMIS
Health	:	3
Flammability	:	0
Reactivity/Physical hazard	:	0
PPE	:	Personal Protection rating to be supplied by user depending on use conditions.
Restrictions for use	:	Do not use technical grades in personal care applications due to higher level of impurities.

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is a Registered Trademark of E. I. du Pont de Nemours and Company.

Glycolic Acid - 70% Technical Solution

Version 2.4

Revision Date 10/17/2011 Ref. 130000005166

Contact person : MSDS Coordinator, DuPont Chemicals and Fluoroproducts, Wilmington, DE 19898, (800) 441-7515

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.

Significant change from previous version is denoted with a double bar.

36 TANK (252.005) - EMISSIONS

	wt%	m.w.	Total Moles	Mole%	Density (lb/gal)	Average Density (lb/gal)	v.p. (mmHg)	Partial Pressure (mmHg)	Vapor Mole%	Total Lb	Vapor Wt%	Yearly Emission (lb)	Maximum Hourly Emission (lb)
HAA	70.0%	76	0.92	35.7%	7.79	5.45	0.0	0.0	0.0%	1	0.1%	0	0.00
Form. Acid	0.2%	46	0.00	0.2%	10.27	0.02	23.0	0.0	0.5%	25	1.4%	1	0.00
	0.0%	1	0.00	0.0%	0.00	0.00	0.0	0.0	0.0%	0	0.0%	0	0.00
	0.0%	1	0.00	0.0%	0.00	0.00	0.0	0.0	0.0%	0	0.0%	0	0.00
	0.0%	1	0.00	0.0%	0.00	0.00	0.0	0.0	0.0%	0	0.0%	0	0.00
	0.0%	1	0.00	0.0%	0.00	0.00	0.0	0.0	0.0%	0	0.0%	0	0.00
Water	29.8%	18	1.66	64.1%	8.34	2.49	11.1	7.1	99.4%	1,790	98.6%	41	0.20
Totals	100.0%		2.58	100.0%		7.96		7.2	100.0%	1,816	100.0%	42	0.20

Avg. M.W. = (liquid)	38.7	Diam. (ft) =	12	Throughput = (Mgal)	4,700	Temp. (F) =	55
		Tank Ht (ft)=	20.75			Temp. (K) =	286
Avg. M.W. = (vapor)	18.2	Liquid Ht =	3.5	Volume Tk = (Mgal)	19.5	Fill Rate (gpm) =	9
		Delta T (F)=	21.6				
Pbar = (mmHg)	0.042	Fp =	1.33	Turnovers =	241		
		C =	0.60	T/O Factor =	0.29		

BREATHING LOSS = 20 lb/yr
WORKING LOSS = 83 lb/yr

TOTAL VOC EMISSION = 1 lb/yr

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