

Notice of Alteration – Rendering License 1085RR, File No 491.10
Feather System Upgrade – Continuous Feather Hydrolyzer

To Whom It May Concern:

Currently, Rothsay utilizes a batch cooker system to hydrolyze feathers. This system consists of two batch cookers running in parallel. Both cookers were commissioned in 1974 with one of them being too damaged and worn for use and the other needing constant repairs. When repairs are done it is necessary to landfill feathers until the work is complete. Not only do we landfill feathers during repair, all hog hair coming from the Brandon MLF plant is landfilled because we are unable to currently process it. Switching to a continuous system will not only be beneficial for the purpose of throughput and yield for Rothsay, it will also highly benefit the environment. A batch cooker emits odours and pollutants in high peak loadings which are more difficult to treat. We are currently in the process of switching our scrubber chemicals to a stronger oxidizer which will help odours. This, combined with a continuous, lower loading of odours will help with odour control. We have also been asked by the City of Winnipeg to treat sulphides in our wastewater as part of our Pollution Prevention Plan. From internal investigation we have concluded that the majority of sulphides are coming from our feather system. With a continuous system, emitting sulphides without peak loads, it is much easier to treat our wastewater. By switching to a continuous system we will also be able to render all hog hair and reduce the amount of material that goes to landfill.

Rothsay proposes to permanently switch our current batch cooker system to a continuous feather hydrolyzer. This continuous system will help reduce odour, reduce pollutants in water leaving our facility and will allow us to render more material instead of landfilling it.

Sincerely,

Stephanie Lundrigan

Dave Bosshart

Ron Vincent

Rothsay, Winnipeg

Notice of Alteration – Rendering License 1085RR, File No 491.10
New Scrubber Chemical – RADOX

To Whom It May Concern:

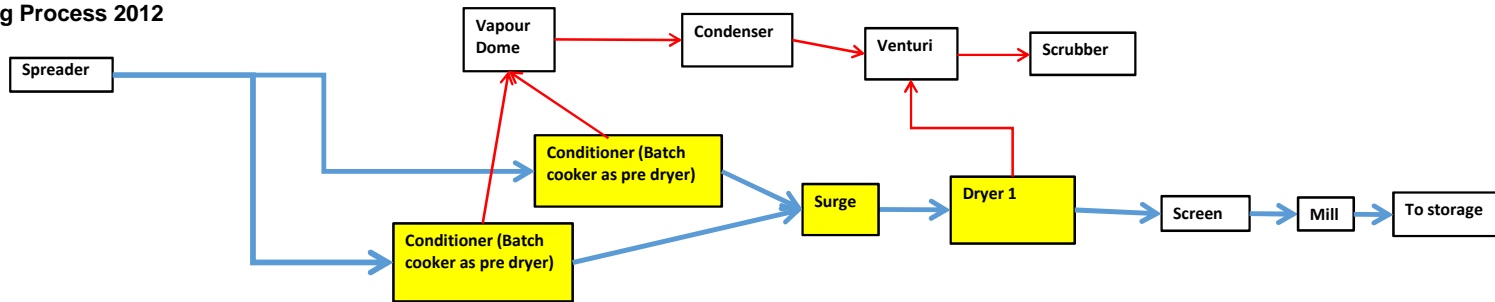
Rothsay is always proactive in searching for improved methods to control odours that may be generated inside our facility. Over the years we have installed oxidizing scrubbers, venturis, collection ducting and a 45m stack to maximize dispersion to the atmosphere. While this does not completely eliminate the potential for odours, dispersion modeling showed that under prevailing atmospheric conditions it has reduced odour intensity to less than five odour units at most residential impacted properties. These levels have proven to virtually eliminate issues in other jurisdictions. Our research into alternative treatments and experience at other facilities indicates that an oxidizer technology called RADOX shows promising results in increasing scrubber efficiency. Rothsay has completed a trial in June 2015 on our high odour intensity scrubbers. From this trial we confirm that there was improvement in odour destruction efficiency.

Rothsay proposes to permanently switch chemicals to use RADOX in all of our scrubbers with this Notice of Alteration. The MSDS for the new chemical has been attached for your review.

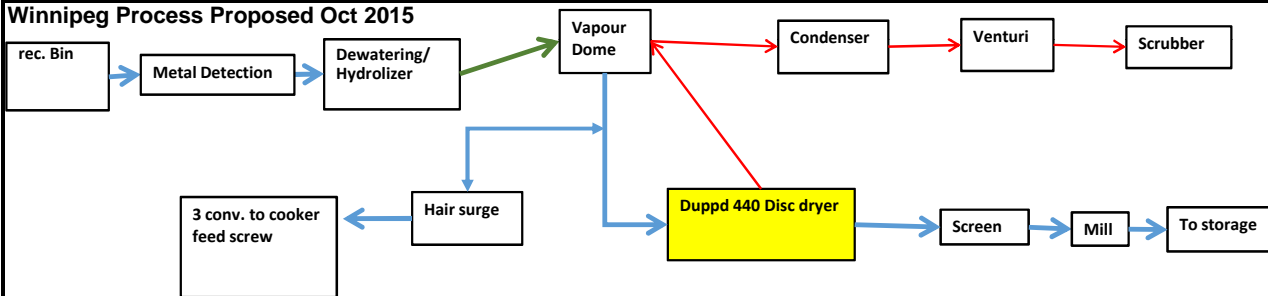
Sincerely,

Stephanie Lundrigan
Dave Bosshart
Ron Vincent
Rothsay, Winnipeg

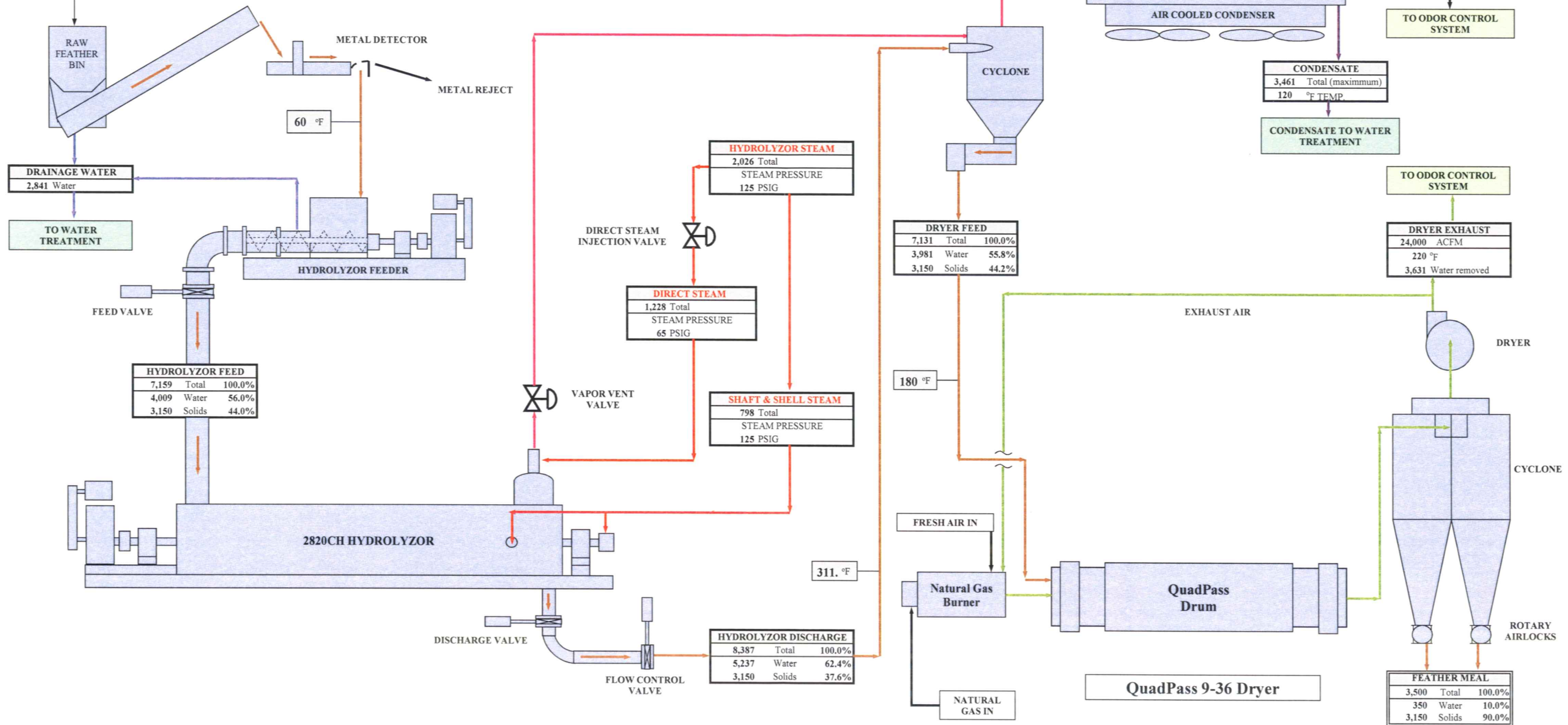
Winnipeg Process 2012



Winnipeg Process Proposed Oct 2015



CHICKEN FEATHERS		
10,000	Total	100.0%
6,850	Water	68.5%
3,150	Solids	31.5%



The quantities shown on this Heat and Mass Balance are presented for theoretical illustrative purposes only. They are not to be construed as and are not Performance Guarantees by The Dupps Company.

NOTE:
All flows are in pounds per hour unless otherwise noted

LEGEND	
Material	Blue arrow
Waste Vapor	Red arrow
Steam	Orange arrow
Drainage Water	Purple arrow
Vapor Condensate	Green arrow
Dryer Exhaust	Yellow arrow

	The DUPPS Company
	CONTINUOUS HYDROLYZING SYSTEM
	Designed for: Dupps Anywhere
	September 10, 2008 N/A

QuadPass DRYER

FINED
FACE



Sodium Hypochlorite (1-15%)



ROTHS







EXECUTIVE SUMMARY

Pinchin Ltd. (Pinchin) undertook an odour sampling program at Rothsay's Winnipeg facility located at 607 Dawson Road North in Winnipeg, Manitoba.

As directed by Rothsay, the sampling program consisted of collecting simultaneous inlet and outlet samples at the 100K scrubber and 30K scrubber and analyzing them for detection threshold (DT). Samples were collected on June 25, 2015.

The odour sampling program was undertaken in accordance with *Ontario Ministry of Environment and Climate Change (MOECC) Ontario Source Testing Code (OSTC), June 2010, PIBs # 1310e03, Part G, Method ON-6: "Determination of Odour Emissions from Stationary Sources" (Method ON-6).*

Velocity and volumetric flow rate measurements were collected at the outlet of each scrubber using the methods discussed in Method ON-1 to ON-4 of the OSTC.

During sampling, the 100K scrubber used a caustic scrubber solution and the 30K scrubber used an acidic scrubber solution. Samples were collected once each of the scrubber solutions reached their desired pH level, as determined by a third party on-site during the time of sampling.

The results of the sampling program, the emission rates and the apparent odour destruction removal efficiency (DRE) are summarized below.

Source	Location	Net Odour Concentration (ou/m ³)				Apparent DRE (%)	Flow Rate (m ³ /s) (wet ref) *	Emission Rate (ou/s)
		Test 1 (ou/m ³)	Test 2 (ou/m ³)	Test 3 (ou/m ³)	Average (ou/m ³)			
100K Scrubber	Outlet	20,814	22,980	25,374	23,056	42.2	27.7	638,651
	Inlet	46,105	46,105	27,419	39,876			
30K Scrubber	Outlet	27,072	32,200	32,200	30,491	1.5	11.2	341,495
	Inlet	25,134	37,819	29,897	30,950			

* at 25°C and 101.3 kPa.

A program summary of the emission rates for the 100K scrubber and 30K scrubber and the raw material that was being processed during the time of sampling is summarized on the following page.



Source	Processing	2003 Emission Rate (ou/s)	2007 Emission Rate (ou/s)	2015 Emission Rate (ou/s)
100K Outlet	Pork & Poultry	-	-	638,651
	Pork	152,688	349,687	-
	Poultry	-	528,351	-
	Fish	132,134	233,524	-
30K Outlet	Pork & Poultry	-	-	341,495
	Pork	73,483	-	-
	Poultry	-	110,826	-
	Fish	-	-	-

DRAFT

Comparison of 2003 and 2007 Data Summary

Location	Odour Rate Summary		Odour Removal Efficiency	
	2003 (ou/s)	2007 (ou/s)	2003 (%)	2007 (%)
100 K Scrubber (Processing pork)				
Scrubber Inlet	525,147	393,014		
Scrubber Outlet	152,688	349,687	71	11
100 K Scrubber (Processing poultry)	ND	528,351		
100 K Scrubber (Processing fish)	132,134	233,524		
50K Scrubber (Processing hog hair)				
Scrubber Inlet	47,008	193,400		
Scrubber Outlet	20,359	130,173	57	33
30K Scrubber (Processing poultry)				
Scrubber Inlet	ND	124,612		
Scrubber Outlet	ND	110,826	ND	11
30K Scrubber (Processing pork)				
Scrubber Inlet	102,545	ND		
Scrubber Outlet	73,483	ND	28	ND
25K Scrubber (Processing pork in pit, fish in storage)				
Scrubber Inlet	ND	76,234		
Scrubber Outlet	12,786	39,056	ND	49
25K Scrubber (Processing fish)				
Scrubber Inlet	546,658	269,958		
Scrubber Outlet	379,991	84,188	30	69
12K Scrubber				
Scrubber Inlet	2,554	ND		
Scrubber Outlet	7,519	ND	-194	ND
Boiler Incineration (Processing poultry)	ND	4,094		
Boiler Incineration (Processing pork)				
Inlet to pre-Incineration System	340,661	ND		
Boiler Exhaust	1,451	ND	99.6	ND

ND - No data collected during the sampling program.

MATERIAL SAFETY DATA SHEET

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January 1, 2011

SECTION I: IDENTIFICATION OF THE COMPANY AND PRODUCT

SUPPLIER: STEEN RESEARCH, INC.
19363 Willamette Drive, #235
West Linn, OR 97068

Emergency Telephone Number, CHEMTREC: (800) 424 - 9300

TRADE NAME: RADOX-23
CHEMICAL NAME: Odor Neutralizing Compound
CHEMICAL FAMILY: Cleaning Compounds

SECTION II: HAZARDOUS INGREDIENTS

CHEMICAL NAME	%	CAS #	PEL
Hydrogen Peroxide "A"	<50	7732-84-1	1.4mg/m3
Linear Alkyloxalate "A"	<10		Not Est.
Inert	<50		

NFPA: HEALTH HAZARD..... 2
FIRE HAZARD..... 0
REACTIVITY HAZARD..... 1

NFPA SCALE..... 4 = Extreme 3 = High 2 = Moderate 1 = Slight 0 = Insignificant

KEY..... NA = Not Applicable ND = Not Determined

SECTION III: PHYSICAL DATA

BOILING POINT (°F):	>210 °F	SPECIFIC GRAVITY (@20 °C):	1.20
VAPOR PRESSURE (mm Hg.):	like water	PERCENT VOLATILE BY VOLUME (%):	45
VAPOR DENSITY (air = 1):	like water	EVAP. RATE (water = 1):	Not applicable
SOLUBILITY IN WATER:	Complete @ 25C	pH:	< 2
DENSITY:	10.1 lbs/gallon	pH (soln): (5%)	4.5
APPEARANCE AND ODOR:	"A" Clear Liquid	Freezing Point	-52 C/-62 F

SECTION IV: FIRE PROTECTION INFORMATION

FLASH POINT: This product is not combustible, but is a strong oxidizer. Mixtures with combustible or flammable materials may ignite easily, burn fiercely, or may explode in contaminated, closed containers. Residual hydrogen peroxide that is allowed to dry, (upon evaporating can concentrate), on organic materials such as paper, fabrics, cotton, wood or other combustibles can cause the materials to ignite and result in fire

FLAMMABLE LIMITS: NA

EXTINGUISHING MEDIAL: Water

Special Fire-Fighting Procedures: Keep drums that are exposed to fire cool with water. Wear self-contained breathing apparatus and protective clothing.

Unusual Fire and Explosion Hazard: Do not use dry chemicals, CO2, Halon, Foam or fire blanket.

SECTION V: REACTIVITY INFORMATION

PRODUCT STABILITY:	Stable.
CONDITIONS TO AVOID:	None known.
CHEMICAL INCOMPATIBILITY:	Incompatible with high pH materials, metals, salts, organics, reducing agents, dust and dirt.
HAZARDOUS DECOMPOSITION PRODUCTS:	Decomposition may oxygen gas, steam, and heat.
HAZARDOUS POLYMERIZATION:	Will not occur.

SECTION VI: SHIPPING INFORMATION

DOT PROPER SHIPPING NAME:	Hydrogen Peroxide Solution
DOT HAZARD CLASS/ID No.:	UN 2014
D.O.T. LABELS REQUIRED:	Oxidizer
PACKING GROUP:	N/A
NON-BULK SHIPPING NAME:	Cleaning Compound
Hazard Class:	5.1 (Oxidizer)
Labels:	5.1, 8
Special Provisions:	12,A3, A6, B53, B80, B81, B85, IB2, IP5, T7, TP2, TP6, TP24,TP37
Packaging Exceptions:	None
Packaging group:	None
UN number:	UN2014
Packaging Non Bulk:	202
Packaging Bulk:	243
Quan. Limits PASsenger:	5L
Vessel Stowage Other:	25, 66, 75, 106

Canadian Transportation of Dangerous Goods (TDG) Requirements:

Proper Shipping Name	Corrosive oxidizing liquid n.o.s. (contains hydrogen peroxide < 50 percent)
Classification	TDG Class 5.1; 8: oxidizing; corrosive
PIN	UN2014
Packaging group	II

SECTION VII: HEALTH HAZARD INFORMATION

ACUTE EFFECTS OF EXPOSURE:

May irritate or damage skin, eyes or mucous membranes. Prolonged contact may cause dermatitis.

CHRONIC EFFECTS OF EXPOSURE:

No known chronic health effects. Not a known or suspect carcinogen. (Ref. NTP, IARC, OSHA)

SECTION VIII: EMERGENCY AND FIRST AID INFORMATION

Toxicological Information: Harmful if swallowed. Large exposure may be fatal.

SKIN: Flush with water, then wash exposed skin with soap and water. Launder contaminated clothing before reuse.

EYES: Promptly flush eyes with large amounts of water for 15 minutes and get medical attention. Note to Physician: Risk of permanent corneal injury and possible blindness if splashed into eyes.

INGESTION: Drink plenty of water. Get medical attention immediately. Avoid alcoholic beverages. Never give anything by mouth to an unconscious person.

INHALATION: Move to fresh air. Get medical attention if indicated. Apply artificial respiration if necessary.

SECTION IX: ENVIRONMENTAL INFORMATION

SPILL OR LEAK PROCEDURES: Contain spill if without risk. Wear proper protective equipment. Material should be containerized and disposed of in accordance with local and federal law. In case of large spills, follow all facility emergency response procedures.
Small Spills: do not use absorbents. Contain spill using noncombustible material such as vermiculite, sand or earth.

WASTE DISPOSAL METHOD Spills are slippery. Dike with adsorbent materials. Shovel into approved containers.
Dispose of in accordance with all Federal, State and Local regulations.

CONTAINER DISPOSAL: Empty containers may contain residuals. Thoroughly clean, then offer for recycling, reuse, or disposal in accordance with government regulations.

ADDITIONAL REGULATORY INFORMATION:

US Federal Regulations This product is listed on the U.S. EPA TSCA Inventory. OSHA HCS: subject to OSHA hazard communication standards. CAA RMP: not subject to CAA RMP.

SARA 302 Not subject to SARA section 302.

Sec. 311/312 TQ for reporting 10,000 pounds hydrogen peroxide.

SARA 313 Not subject to SARA section 302.

Canada DSL listed

WHMIS Classification C, DB2-Poisonous and infectious material – Other effects – Toxic

General Not subject to CERCLA. (An unlisted characteristic D001 waste is reportable under CERCLA. The RQ is 100 pounds for a D001 waste.) 40CFR302.4

California Proposition 65: This product does not contain ingredients known to the state of California to cause cancer or reproductive toxicity.

SECTION X: SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION:	Organic vapor respirator in confined spaces. In case of insufficient ventilation wear suitable respirator (NIOSH/MSHA approved)
VENTILATION:	Local exhaust is recommended.
PROTECTIVE CLOTHING:	Rubber or impervious gloves.
EYE PROTECTION:	Chemical goggles or face shield.

SECTION XI: ECOLOGICAL INFORMATION

Ecotoxicity

Aquatic Toxicity	Harmful to aquatic organisms especially to algae. Fish: 96 hours LD50 Pimephales promelas (flathead minnow) = 16.4 mg/l. Crustaceans: 48 hours LC%) Daphnia pulex (water flea) = 2.4 mg/l. Algae: freshwater algae are affected by hydrogen peroxide concentrations from 2-20 mg/l, while 1 mg/l affect marine algae.
Environmental Effects	Hydrogen peroxide occurs naturally as a result of photochemical processes in living organisms Tropospheric half-life of hydrogen peroxide is normally 10-20 hours. Soil half life varies between several minutes to 15 hours. Decomposition in soil takes minutes or several hours depending on the mineral content and concentration of micro-organisms. Decomposes into water and oxygen.
Persistence/Degradability	Precursor A is decomposed by enzymatic action and does not accumulate in cell systems. BOD 5 and COD: not applicable

SECTION XII: ADDITIONAL INFORMATION

January 1, 2011

The information is furnished without warranty, expressed or implied, except that it is accurate to the best knowledge of manufacturer. Users should consider these data only as a supplement to other information gathered by them and must make independent determinations of the suitability and completeness of information from all sources to assure proper use and disposal of these materials and the health of employees and customers.

MATERIAL SAFETY DATA SHEET

Page 1 of 3

January 1, 2006

SECTION I: IDENTIFICATION OF THE COMPANY AND PRODUCT

SUPPLIER: STEEN RESEARCH, LLC
19363 Willamette Drive, #235
West Linn, OR 97068

Emergency Telephone Number (503) 722-9088

TRADE NAME: RADOX- Precursor B
CHEMICAL NAME: Catalyst
CHEMICAL FAMILY: Cleaning Compounds

SECTION II: HAZARDOUS INGREDIENTS

CHEMICAL NAME	%	TLV/PEL
Green Vitriol	<50	1 mg/m ³
Trade Secret	<50	Not Est.

NFPA: HEALTH HAZARD..... 2
FIRE HAZARD..... 0
REACTIVITY HAZARD..... 0
NFPA SCALE.....4 = Extreme 3 = High 2 = Moderate 1 = Slight 0 = Insignificant
KEY.....NA = Not Applicable ND = Not Determined

SECTION III: PHYSICAL DATA

BOILING POINT (°F):	>210 °F	SPECIFIC GRAVITY (@20 °C):	1.40
VAPOR PRESSURE (mm Hg.):	1@295F	PERCENT VOLATILE BY VOLUME (%):	50
VAPOR DENSITY (air = 1):	3.4	EVAP. RATE (water = 1):	Not applicable
SOLUBILITY IN WATER:	Complete @ 25C	pH (apparent):	1.6
DENSITY:	10.7 lbs/gallon	pH (soln): (1%)	2.45
APPEARANCE AND ODOR:	Clear Green Liquid	Freezing Point	25degF

SECTION IV: FIRE PROTECTION INFORMATION

FLASH POINT (method used): Pensky -Martens closed cup greater than 200f
FLAMMABLE LIMITS: NA
EXTINGUISHING MEDIAL: Water, carbon dioxide, dry chemical or foam.
Special Fire-Fighting Procedures: Keep drums that are exposed to fire cool with water. Wear self-contained breathing apparatus and protective clothing.
Unusual Fire and Explosion Hazard: None

SECTION V: REACTIVITY INFORMATION

Stability - Stable under normal conditions of use.

Incompatibility - May ignite on contact with arsenic trioxide + sodium nitrate. Potentially explosive reaction with methyl isocynoacetate at 25degrees C. Corrosive to cast bronze, cast iron, copper, and zinc.

Hazardous Polymerization - This material does not polymerize.

Decomposition Products - Dose not decompose under normal conditions of use. When heated to high temperatures, decomposition occurs and produces toxic SO₂ fumes and iron fumes.

Conditions to Avoid - Open flames; avoid forming product mists.

SECTION VI: SHIPPING INFORMATION

DOT PROPER SHIPPING NAME:	SULFURIC ACID(WTH LESS THAN 51% ACID)
DOT HAZARD CLASS/ID No.:	8, UN 1760
D.O.T. LABELS REQUIRED:	Corrosive
PACKING GROUP:	II
NON-BULK SHIPPING NAME:	Cleaning Compound

SECTION VII: HEALTH HAZARD INFORMATION

ACUTE EFFECTS OF EXPOSURE:

Causes severe burns to all body tissue. May be fatal if swallowed. Harmful if inhaled. Effects teeth. Water reactive.

CHRONIC EFFECTS OF EXPOSURE:

No known chronic health effects. Not a known or suspect carcinogen. (Ref. NTP, IARC, OSHA)

SECTION VIII: EMERGENCY AND FIRST AID INFORMATION

SKIN: Remove contaminated clothing. Flush skin with water for 15 minutes. Thoroughly wash affected areas. If irritation persists, seek medical attention.

EYES: Promptly flush eyes with large amounts of water for 15 minutes and get medical attention.

INGESTION: Drink large quantities of milk or water to reduce concentration and neutralize acid. Do not induce vomiting. Seek medical attention immediately

INHALATION: Move to fresh air. Get medical attention if indicated. Apply artificial respiration if necessary.

SECTION IX: ENVIRONMENTAL INFORMATION

SPILL OR LEAK PROCEDURES: Contain spill if without risk. Wear proper protective equipment. Neutralize with alkaline material(soda ash, lime) Do not use saw dust.

WASTE DISPOSAL METHOD Spills are slippery. Dike with adsorbant materials.Shovel into approved containers. CERCLA regulations require reporting of spills and releases to soil.

CONTAINER DISPOSAL: Empty containers may contain residuals. Thoroughly clean, then offer for recycling, reuse, or disposal in accordance with government regulations.

Additional Regulatory Information:

CERCLA:

Sara Title III

Sec. 313 Toxic Chemical Release- Sulfuric Acid CAS#7664-93-9, (36-50%)

Sec. 302-304 Extremely Hazardous Substances- Quantity- RQ 1,000 lbs.

Sec. 311-312 Inventory Reporting, Hazard Category: Immediate(Accute)

California Proposition 65:

SECTION X: SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION: Organic vapor respirator in confined spaces.

VENTILATION: Local exhaust is recommended.

PROTECTIVE CLOTHING: Rubber or impervious gloves.

EYE PROTECTION: Chemical goggles or face shield.

SECTION XI: ADDITIONAL INFORMATION

FDA: None.

USDA: None.

EPA: All ingredients reported on TSCA Inventory.

AQUATIC TOXICITY: ori-rat LDLo:1389 mg/kg ori-mus LD₅₀ 1520 mg/kg
rec

January 1, 2006

The information is furnished without warranty, expressed or implied, except that it is accurate to the best knowledge of manufacturer. Users should consider these data only as a supplement to other information gathered by them and must make independent determinations of the suitability and completeness of information from all sources to assure proper use and disposal of these materials and the health of employees and customers.
