

EN589 Cruise Plan

General Information

EN589

Marine Aerosols

Mobilize:	Sep 11, 2016 (Sun)	Narragansett, RI, USA	37 Days Total 29 at Sea
Depart:	Sep 16, 2016 (Fri)		
Return:	Oct 15, 2016 (Sat)	Narragansett, RI, USA	
DeMobilize:	Oct 18, 2016 (Tue)		

Principal Investigator: David Kieber, SUNY College of Environmental Science and Forestry [dkieber@esf.edu]

Chief Scientist: David Kieber, SUNY College of Environmental Science and Forestry [dkieber@esf.edu] Ph: 315-470-6951

Description: The main purpose of our cruise is study the organic matter that is put into the atmosphere as particles (also called aerosols) that are generated from bursting bubbles at the sea surface. Our aim is to determine if this organic matter is thousands of years old or if it is very young and recently produced by plankton in the photic zone. To do this we will use an aerosol generator that we built to reproduce a model surface ocean wherein we can produce aerosols that we can study to determine their organic content, age, etc. Ideally we plan to occupy four hydrographic stations--two biologically productive stations and two stations in the Sargasso Sea (see cruise track below). We will quantify the relative contributions of old organic matter to the total organic matter content in the aerosols that we produce from near-surface seawater (using the ship's clean flow through seawater system) in biologically productive (e.g., George's Bank) and oligotrophic regions (i.e., Sargasso Sea), and from North Atlantic Deep Water (collected at ~2500 m). Although we will make numerous measurements on the ship, much of what we will do on the cruise will be to generate the aerosol samples to bring back to our home laboratories for analysis. Depending on weather, we plan to occupy four stations, two oligotrophic stations in the Sargasso Sea and two biologically productive stations, one on George's Bank and the other in the Mid Atlantic Bight. George's Bank, at ~42° N and ~67° W, will serve as our initial station. We will then transect southward to the Bermuda Atlantic Time Series (BATS) station and then eastward to a second station in the Sargasso Sea at ~35° N and ~70° W. The fourth site will be a productive coastal station off the coast of Maryland at 37° 30.31' N and 74° 58.62' W wherein 14C carbon reservoirs have been previously characterized (natural abundance 14C is used to determine if the carbon is old or not). We will occupy the two oligotrophic stations for ~7 days each and the two biologically productive stations for ~5 days each; the remaining time will be to transit between stations and to accommodate bad weather. We may update/change this tentative cruise track dependent on satellite chl a imagery and weather.

Ancillary Facilities Requested:

Science Personnel

No.	Last	First	Sex	Affil.	Position	Email
1	Keene	William	M	University of Virginia	Scientist	wck@virginia.edu
2	Long	Michael	M	Harvard University	Scientist	mlong@seas.harvard.edu
3	Beaupre	Steven	M	SUNY Stony Brook	Scientist	steven.beaupre@stonybrook.edu
4	Zhu	Yuting	F	SUNY College of Environmental Science and Forestry	Graduate Student	yzhu@syr.edu
5	Kieber	David	M	SUNY College of Environmental Science and Forestry	Chief Scientist	djkieber@esf.edu
6	Lu	Xi	F	SUNY Stony Brook	Graduate Student	xi.lu@stonybrook.edu
7	Duplessis	Patrick	M	Dalhousie University	Graduate Student	p.duplessis@dal.ca
8	Kinsey	Joanna	F	North Carolina State Univeristy	Scientist	joanna.kinsey@gmail.com
9	Frossard	Amanda	F	University of California, Berkeley	Scientist	afrossard@berkeley.edu
10	Bisgrove	John	M	SUNY College of Environmental Science and Forestry	Graduate Student	jbisgrove@gmail.com
11	Maben	John	M	University of Virginia	Technician	jrm@virginia.edu

Summary

- 7 Males
- 4 Females
- Allergy [peanuts]: 1

Equipment and Overboarding Questionnaire

Loading, Offloading, and Port Services

[2.1] Endeavor has a maximum load capacity of 40 long tons (89,600lbs/40,640kg). Please provide an accurate combined weight of all equipment to be loaded for your cruise. Keep in mind that winches, vans, and instrumentation borrowed from combined equipment pools will contribute to the maximum load.

- ~19,000 lbs

[2.2] Forklift services are needed for most cruises and may incur an additional cost if loading or unloading in a port other than Narragansett, RI. Do you anticipate requiring a forklift?

- Yes

[2.3] Please alert us to any special requirements or concerns you may have regarding the mobilization or demobilization of your cruise.

- It will take us approximately 5 days to set up the van before the cruise and approximately 2-3 days after the cruise to disassemble and pack up the van for shipping.

CTD and Water Sampling

[7.1] Select a CTD frame configuration. All frames use a [Sea-Bird 32 carousel](http://www.seabird.com/sbe32-carousel-water-sampler) water sampler. Due to the increased difficulty of handling the 24 bottle frame, the 12 bottle frame is preferred if it is adequate for the intended sampling.

- SeaBird 24 place frame, Holds (24)10L or (12)30L Niskin bottles

[7.2] Select the desired Niskin bottle/water sampler configuration you require.

- 30L external spring

[7.3] Describe your anticipated CTD deployment plan. Information such as the periodicity, stations, depth of casts, and type of sampling are helpful.

- We plan to deploy approximately 8 deep-water CTD casts (collecting water at ~3000 m) over a two-day period at each of the two deep-water stations in the Sargasso Sea to collect water for on-board experiments. In addition, we will deploy several upper water column CTD casts (upper 200 m or shallower) at each of the four stations, and several shallow-water casts during our transit between stations.

[7.4] What is the maximum expected CTD cast depth (meters)?

- 3000 m

[7.5] Endeavor provides a standard CTD sensor array consisting of pressure (depth), dual temperature, and dual conductivity sensors. Please indicate any additional sensors that you will require.

- WETLabs C-Star Transmissometer, 25cm path length (5000m max depth)
- WETLabs ECO Chlorophyll Fluorometer (5000m max depth)
- Sea-Bird 43 Dissolved Oxygen sensor (7000m max depth)

[7.8] Please alert us to any special requirements or concerns you may have regarding CTD and Niskin bottle setup or deployment. Items such as near bottom sampling and nonstandard or special techniques should be mentioned here.

- No unusual or special CTD operations or needs are expected. We plan a yo-yo cast to rinse and soak the Niskins with seawater soon after we leave port and after we're away from the coast to clean them.

Cold Storage

[8_1] Please indicate the amount of refrigerator space needed in cu/ft

- 20 ft³

[8_2] Please indicate the amount of freezer space needed in cu/ft

- 40 ft³

[8_3] Do you require Endeavors 10.5cu/ft Thermo Scientific -80F deep freezer?

- Yes

Miscellaneous Lab Equipment/Services

[9_1] Please indicate the miscellaneous equipment and services which you might need on your cruise.

- Fume hood -w- combination deep sink, stainless steel, non-explosive use only
- Deionized water, Mili-Q Academic model
- Turner 10-AU Fluorometer (can be set up for continuous flow or discrete sampling)

[9_1_2] Please estimate the quantity of deionized water to be used daily

- 20-40 Liters

[9_2] Endeavor is equipped with a flow-through uncontaminated seawater system which is piped in from a sea chest on the ship's keel (5m). With the exception of the inlet valve, all piping is non-metallic PVC. The system is normally running continuously and can be configured to meet the needs of the cruise. An SBE21 thermosalinograph, SBE45 thermosalinograph, and WET-LABS WET-Star fluorometer are continuously logging the seawater properties. Please describe your anticipated use of the flow-through seawater system.

- We will need the seawater plumbed into our van to deliver approximately 5 LPM or less of seawater to our marine aerosol (particle) generator housed within the van..

[9_3] Please alert us to any special requirements or concerns you may have regarding miscellaneous lab equipment or shipboard services.

- We are not sure which fume hood we will need until we are on the Endeavor before the cruise. We anticipate storing small quantities of acid in the hood and may need to conduct some transfer in the hood as well.

ADCP, Bathymetry, and Pingers

[10_4] Endeavor has multiple 12kHz acoustic pingers which are used in conjunction with the onboard bathymetry equipment to track the relative distance of deployed scientific equipment. Pingers are especially useful for determining when equipment has made contact with the ocean floor. Please describe your anticipated use of Endeavor's pingers.

- It is very unlikely but still possible that, depending on the depth of the water column when we deploy the deep-water CTDs, we may need the 12kHz pinger.

Internet, Telephone, and Radio Services

[12_1] Endeavor has three primary sources of broadband internet which are always available for limited general use, such as email and light browsing. Please describe your project's requirements and expectations above and beyond this general use. Items of note might be large daily downloads of weather or satellite imagery (>10MB), connections to shore support services for gliders/UUVs, or telepresence/webinar/skype sessions with personnel ashore.

- None "above and beyond" needs anticipated other than possibly downloading NASA MODIS Chl a satellite imagery.

[12_3] Marine radios are primarily used by the crew for safe navigation of the ship. These may also be used by scientists if the project requires it. Please describe your project's requirements and expectations of Endeavor's marine radios.

- We may want to keep a radio in the aft van for personnel in the van to communicate with the bridge.

User Supplied Antennae, Sensors, and Transducers

[13_1] Describe any user supplied sensors which will need to be mounted above the waterline. Information such as the size, weight, power requirements, and optimal location are helpful.

- We will mount an Optronics specroradiometer somewhere on the 01 deck, and as discussed with Bill Fanning, we may mount a compressor on the 01 deck is mounting it in the wet lab is not acceptable WRT noise.

Electrical Power Requirements

[14_1] Please describe your unique requirements and expectations for shipboard electrical power. Items such as amperage required, location of equipment, and adapters that may be needed are helpful.

- If available, we would prefer clean power. We'll need four 20-amp, 115 volt lines to power equipment in the van.

Real-time underway digital data

[16_1] Please indicate any real-time data streams that are needed

- It would be useful to have some pertinent data streamed during the cruise--underway Chl a, lat and long, wind speed and direction, salinity, and SST. Is there continuous PAR available?

[16_3] Please alert us to any special requirements or concerns you may have regarding real-time digital data that have not already been addressed.

- No special requirements or concerns.

Hazardous Materials Manifest





ACETONITRILE

Description

A colorless limpid liquid with an aromatic odor. Flash point 42°F. Density 0.783 g / cm³. Toxic by skin absorption. Less dense than water. Vapors are denser than air.

Quantity and Notes for EN589

djkieber is bringing 20 Liters, 4 L bottles. The acetonitrile will be used as a mobile phase for HPLC in the main lab. All waste will be stored in 10 L polyelthylene carboys and returned to Syracuse as waste.

Diamond	Hazard	Value	Description
3 2 0	 Health	2	Intense or continued but not chronic exposure could cause temporary incapacitation or possible residual injury
	 Flammability	3	Can be ignited under almost all ambient temperature conditions
	 Instability	0	Normally stable, even under fire exposure conditions, and is not reactive with water
	 Special		

NITROGEN

Description

A colorless odorless gas. Noncombustible and nontoxic. Makes up the major portion of the atmosphere, but will not support life by itself. Used in food processing, in purging air conditioning and refrigeration systems, and in pressurizing aircraft tires. May cause asphyxiation by displacement of air. Under prolonged exposure to fire or heat containers may rupture violently and rocket.

Quantity and Notes for EN589

john.maben is bringing 4 tanks of compressed 99.999% Nitrogen.

Health Hazards

Excerpt from GUIDE 121 [Gases - Inert]: Vapors may cause dizziness or asphyxiation without warning. Vapors from liquefied gas are initially heavier than air and spread along ground. (ERG, 2012)

Fire Hazards

Excerpt from GUIDE 121 [Gases - Inert]: Non-flammable gases. Containers may explode when heated. Ruptured cylinders may rocket. (ERG, 2012)

Special Hazards

None

MERCURIC CHLORIDE

Description

An odorless white crystalline solid. Density 5.4 g / cm³. Melting point 277°C. Slightly volatile at ordinary temperatures. Can be sublimed unchanged. Corrosive to the mucous membranes. Toxic by inhalation (dusts, etc.), ingestion, and skin absorption. Used in photography, disinfectants, wood preservatives, fungicides.

Quantity and Notes for EN589

djkieber is bringing 15 grams . The mercuric chloride will be stored in two separate plastic containers as saturated HgCl₂ solution, each containing ~7 g of HgCl₂ (pre-weighed) that will be diluted with 100 ml of Milli-Q water aboard the ship.

Health Hazards

It is classified as extremely toxic. All forms of mercury are poisonous if absorbed. Probable oral lethal dose is 5-50 mg/kg; between 7 drops and 1 teaspoonful for a 150 lb. person. Mercuric chloride is one of the most toxic salts of mercury. Material attacks the gastrointestinal tract and renal systems. (EPA, 1998)

Fire Hazards

Material may explode on heating, with friction, or contact with alkali metals, sulfides, acetylene, ammonia, and oxalic acid. Upon decomposition highly toxic chloride and mercury fumes are emitted. Avoid formates, sulfites, hypophosphites, phosphates, sulfides, albumin, gelatin, alkalies, alkaloid salts, ammonia, lime water, antimony, arsenic, bromides, borax, carbonates, reduced iron, copper, iron, lead, silver salts, infusions of cinchona, columbo, oak bark or senna, and tannic acid. Mercuric chloride may explode with friction or application of heat. Mixtures of mercuric chloride and sodium or potassium are shock sensitive and will explode on impact. Avoid contact with acids or acid fumes. (EPA, 1998)

Special Hazards

None





METHANOL

Description

A colorless fairly volatile liquid with a faintly sweet pungent odor like that of ethyl alcohol. Completely mixes with water. The vapors are slightly heavier than air and may travel some distance to a source of ignition and flash back. Any accumulation of vapors in confined spaces, such as buildings or sewers, may explode if ignited. Used to make chemicals, to remove water from automotive and aviation fuels, as a solvent for paints and plastics, and as an ingredient in a wide variety of products.

Quantity and Notes for EN589

djkieber is bringing 4 Liter bottle. The methanol will be dispensed into 500 mL plastic bottles.

Diamond	Hazard	Value	Description
3 1 0	 Health	1	Exposure would cause irritation with only minor residual injury
	 Flammability	3	Can be ignited under almost all ambient temperature conditions
	 Instability	0	Normally stable, even under fire exposure conditions, and is not reactive with water
	 Special		





PHOSPHORIC ACID

Description

A clear colorless liquid or transparent crystalline solid. The pure solid melts at 42.35°C and has a density of 1.834 g / cm³. Liquid is usually an 85% aqueous solution. Shipped as both a solid and liquid. Corrosive to metals and tissue. Used in making fertilizers and detergents and in food processing.

Quantity and Notes for EN589

joanna.kinsey is bringing approximately 10 mL in a glass vial. ~20 uL aliquots will be used to preserve water sample. No waste will be generated.

Diamond	Hazard	Value	Description
0 3 0	 Health	3	Short exposure could cause serious temporary or moderate residual injury
	 Flammability	0	Will not burn under typical fire conditions
	 Instability	0	Normally stable, even under fire exposure conditions, and is not reactive with water
	 Special		





PROPIONALDEHYDE

Description

A clear colorless liquid with an overpowering fruity-like odor. Less dense than water. Flash point 15° F. Vapors are heavier than air.

Quantity and Notes for EN589

djkieber is bringing 1 mL in a small amber glass bottle.. An extremely dilute aqueous solution will be used as a standard. Waste will be stored in a sealed 10 L plastic container and returned to Syracuse for disposal.

Diamond	Hazard	Value	Description
3 2 2	 Health	2	Intense or continued but not chronic exposure could cause temporary incapacitation or possible residual injury
	 Flammability	3	Can be ignited under almost all ambient temperature conditions
	 Instability	2	Undergoes violent chemical change at elevated temperatures and pressures, reacts violently with water, or may form explosive mixtures with water
	 Special		

METHYLGLYOXAL

Description

Clear yellow slightly viscous liquid with a pungent odor. Yellowish-green vapors. Faintly acidic to litmus. (NTP, 1992)

Quantity and Notes for EN589

djkieber is bringing 1 bottle of 25 ml 40% solution in water. An extremely dilute aqueous solution will be used as a standard. Waste will be stored in a sealed 10 L plastic container and returned to Syracuse for disposal.

Health Hazards

SYMPTOMS: Symptoms of exposure to this compound include irritation of the skin, eyes, mucous membranes and upper respiratory tract. ACUTE/CHRONIC HAZARDS: This compound is an irritant of the skin, eyes, mucous membranes and upper respiratory tract. When heated to decomposition it emits acrid smoke, irritating fumes and toxic fumes of carbon monoxide and carbon dioxide. (NTP, 1992)

Fire Hazards

Literature sources indicate that this chemical is nonflammable. (NTP, 1992)

Special Hazards

Polymerizable





ACETALDEHYDE

Description

A clear colorless liquid with a pungent choking odor. Flash point -36°F. Boiling point 69°F. Density 6.5 lb / gal. Vapors are heavier than air and irritate the mucous membranes and especially the eyes. Used to make other chemicals.

Quantity and Notes for EN589

djkieber is bringing 4 mL in a small amber bottle. An extremely dilute aqueous solution will be used as a standard. Waste will be stored in a sealed 10 L plastic container and returned to Syracuse for disposal.

Diamond	Hazard	Value	Description
4 2 2	 Health	2	Intense or continued but not chronic exposure could cause temporary incapacitation or possible residual injury
	 Flammability	4	Will rapidly or completely vaporize at normal atmospheric pressure and temperature, or is readily dispersed in air and will burn readily
	 Instability	2	Undergoes violent chemical change at elevated temperatures and pressures, reacts violently with water, or may form explosive mixtures with water
	 Special		

GLYOXAL

Description

Yellow crystals melting at 15°C. Hence often encountered as a light yellow liquid with a weak sour odor. Vapor has a green color and burns with a violet flame.

Quantity and Notes for EN589

djkieber is bringing 1 small amber glass bottle containing 4 ml 40% solution in water. An extremely dilute aqueous solution will be used as a standard. Waste will be stored in a sealed 10 L plastic container and returned to Syracuse for disposal.

Health Hazards

Inhalation causes some irritation of nose and, 40% solution throat. Contact with liquid, 40% solution irritates eyes and causes mild irritation of skin; stains skin yellow. (No information available on symptoms of ingestion.) (USCG, 1999)

Fire Hazards

Behavior in Fire: Heat may cause polymerization to a combustible, viscous material. (USCG, 1999)

Special Hazards

Polymerizable; Water-Reactive





HYDROCHLORIC ACID, SOLUTION

Description

Colorless watery liquid with a sharp, irritating odor. Consists of hydrogen chloride, a gas, dissolved in water. Sinks and mixes with water. Produces irritating vapor. (USCG, 1999)

Quantity and Notes for EN589

djkieber is bringing 500 mL of concentrated hydrochloric acid in a glass bottle. 5 mL aqueous solutions will be used to prepare a reagent used for one of our analyses on board the ship. Waste will be stored in a 1 L glass waste container and returned to Syracuse.

Diamond	Hazard	Value	Description
0 3 1	 Health	3	Short exposure could cause serious temporary or moderate residual injury
	 Flammability	0	Will not burn under typical fire conditions
	 Instability	1	Normally stable, but can become unstable at elevated temperatures and pressures
	 Special		





CARBON TETRACHLORIDE

Description

A clear colorless liquid with a characteristic odor. Denser than water (13.2 lb / gal) and insoluble in water. Noncombustible. May cause illness by inhalation, skin absorption and/or ingestion. Used as a solvent, in the manufacture of other chemicals, as an agricultural fumigant, and for many other uses.

Quantity and Notes for EN589

djkieber is bringing 500 mL in a glass bottle. A 20 mL aliquot will be used each time to purify a reagent for one of our analyses. We expect to do this 5-10 times during the cruise. Waste will be stored in a 1 L glass waste container and returned to Syracuse.

Diamond	Hazard	Value	Description
0 3 0	 Health	3	Short exposure could cause serious temporary or moderate residual injury
	 Flammability	0	Will not burn under typical fire conditions
	 Instability	0	Normally stable, even under fire exposure conditions, and is not reactive with water
	 Special		

2,4-DINITROPHENYLHYDRAZINE

Description

<https://en.wikipedia.org/wiki/2,4-Dinitrophenylhydrazine> Main hazards: WARNING! FLAMMABLE SOLID. KEEP WET. EXPLOSIVE IF DRY. HARMFUL IF SWALLOWED, INHALED OR ABSORBED THROUGH SKIN. CAUSES IRRITATION TO EYES AND SKIN. MAY CAUSE CYANOSIS. MAY CAUSE ALLERGIC SKIN REACTION. --added by user

Quantity and Notes for EN589

djkieber is bringing 27 mg in a 40 mL sealed glass vial x 15. This compound will be used to analyze seawater samples for trace levels of aldehydes and ketones (e.g., acetone). Waste will be stored in a 10 L plastic carboy and returned to Syracuse.

Health Hazards

None

Fire Hazards

None

Special Hazards

None





ACETONE

Description

A clear colorless liquid with a sweetish odor. Flash point 0°F. Less dense than water. Vapors are heavier than air. Used as a solvent in paint and nail polish removers.

Quantity and Notes for EN589

djkieber is bringing 100 mL in a glass bottle and 500 mL of a 90% solution in water stored in a bottle. Acetone will be used as a very dilute standard and as a reagent to determine the chlorophyll a concentration in seawater. All waste will be stored in a plastic container and returned to Syracuse for disposal.

Diamond	Hazard	Value	Description
3 1 0	 Health	1	Exposure would cause irritation with only minor residual injury
	 Flammability	3	Can be ignited under almost all ambient temperature conditions
	 Instability	0	Normally stable, even under fire exposure conditions, and is not reactive with water
	 Special		





BENZOIC ACID

Description

A white crystalline solid. Slightly soluble in water. The primary hazard is the potential for environmental damage if released. Immediate steps should be taken to limit spread to the environment. Used to make other chemicals, as a food preservative, and for other uses.

Quantity and Notes for EN589

djkieber is bringing 2 x 2.5 L glass bottles containing 0.01% aqueous benzoic acid, nitrate (or nitrite), and bicarbonate. Dilute aqueous solutions will be dispensed into 11 mL glass vials with a pipette. All solutions will be returned to Syracuse for analysis and disposal.

Diamond	Hazard	Value	Description
1 1 0	 Health	1	Exposure would cause irritation with only minor residual injury
	 Flammability	1	Material would require considerable preheating, under all ambient temperature conditions, before ignition and combustion can occur
	 Instability	0	Normally stable, even under fire exposure conditions, and is not reactive with water
	 Special		

SODIUM NITRATE

Description

A white crystalline solid. Noncombustible but accelerates the burning of combustible materials. If large quantities are involved in fire or the combustible material is finely divided an explosion may result. May explode under prolonged exposure to heat or fire. Toxic oxides of nitrogen are produced in fires. Used in solid propellants, explosives, fertilizers, and for many other uses.

Quantity and Notes for EN589

djkieber is bringing 2 x 2.5 L. 0.09% nitrate in water. Solution also contains benzoic acid, and sodium bicarbonate.. Dilute aqueous solutions will be dispensed into 11 mL glass vials with a pipette. All solutions will be returned to Syracuse for analysis and disposal.

Health Hazards

INGESTION: Dizziness, abdominal cramps, vomiting, bloody diarrhea, weakness, convulsions, and collapse. Small repeated doses may cause headache and mental impairment. (USCG, 1999)

Fire Hazards

Special Hazards of Combustion Products: Yields toxic gaseous oxides of nitrogen when involved in fire. Behavior in Fire: Explodes when heated to over 1000°C. (USCG, 1999)

Special Hazards

Strong Oxidizing Agent

SODIUM BICARBONATE

Description

Odorless white crystalline powder or lumps. Slightly alkaline (bitter) taste. pH (of freshly prepared 0.1 molar aqueous solution): 8.3 at 77°F. pH (of saturated solution): 8-9. Non-toxic.

Quantity and Notes for EN589

djkieber is bringing 2 x 2.5 L 0.02% bicarbonate in water. Solution also contains nitrate (or nitrite), and benzoic acid.. Dilute aqueous solutions will be dispensed into 11 mL glass vials with a pipette. All solutions will be returned to Syracuse for analysis and disposal.

Health Hazards

SYMPTOMS: Symptoms of exposure to this compound include irritation of the skin, eyes, nose and throat, coughing, chest discomfort and gastrointestinal disturbance. It may cause distention or rupture of the stomach, systemic alkalosis, edema and expansion of extracellular fluid volume. Severe alkalosis may be characterized by hyperirritability and tetany. It can cause cerebral edema leading to death. It may also cause renal injury. **ACUTE/CHRONIC HAZARDS:** When heated to decomposition this compound emits toxic fumes of carbon monoxide, carbon dioxide and sodium oxides. (NTP, 1992)

Fire Hazards

Literature sources indicate that this chemical is noncombustible. (NTP, 1992)

Special Hazards

None

SODIUM NITRITE SOLUTION

Description

A clear colorless to yellow solution. Harmful to the environment and somewhat toxic. Used as a preservative, and to make other chemicals.

Quantity and Notes for EN589

djkieber is bringing 2 x 2.5 L 0.02% nitrite in water. Solution also contains bicarbonate, and benzoic acid.. Dilute aqueous solutions will be dispensed into 11 mL glass vials with a pipette. All solutions will be returned to Syracuse for analysis and disposal.

Health Hazards

Ingestion (or inhalation of large amounts) causes poisoning which may produce cyanosis, marked fall in blood pressure, leading to collapse, coma, and possibly death. Irritating to skin, eyes, and respiratory tract. (USCG, 1999)

Fire Hazards

Special Hazards of Combustion Products: Toxic oxides of nitrogen may form in fires. Behavior in Fire: May increase intensity of fire if water evaporates. (USCG, 1999)

Special Hazards

Strong Oxidizing Agent





N-BUTYL ALCOHOL

Description

Colorless liquid. Used in organic chemical synthesis, plasticizers, detergents, etc.

Quantity and Notes for EN589

djkieber is bringing 2 x 1 Liter glass bottles. Will be used by Patrick Duplessis for an instrument he will be bringing from Canada. Any excess butanol or waste will be transported to Syracuse after the cruise for disposal.

Diamond	Hazard	Value	Description
3 2 0	 Health	2	Intense or continued but not chronic exposure could cause temporary incapacitation or possible residual injury
	 Flammability	3	Can be ignited under almost all ambient temperature conditions
	 Instability	0	Normally stable, even under fire exposure conditions, and is not reactive with water
	 Special		





ISOPROPANOL

Description


Volatile, colorless liquid with a sharp musty odor like rubbing alcohol. Flash point of 53°F. Vapors are heavier than air and mildly irritating to the eyes, nose, and throat. Density approximately 6.5 lb / gal. Used in making cosmetics, skin and hair preparations, pharmaceuticals, perfumes, lacquer formulations, dye solutions, antifreezes, soaps, window cleaners. Sold in 70% aqueous solution as rubbing alcohol.

Quantity and Notes for EN589

djkieber is bringing 2 x 1L in plastic bottles. Mike Long will use the isopropanol during the cruise by Dave Kieber will take all excess and waste back to Syracuse for storage and disposal.

Diamond	Hazard	Value	Description
3 1 0	 Health	1	Exposure would cause irritation with only minor residual injury
	 Flammability	3	Can be ignited under almost all ambient temperature conditions
	 Instability	0	Normally stable, even under fire exposure conditions, and is not reactive with water
	 Special		

User Uploaded Files

File	Size	Desc.	Type	
labvanonrvatlantis.jpg	0.62 MB	Photo of lab van on Atlantis	.jpg	 Download

Latest Changes

Date	User	Desc.
2016-09-17 12:09	egruebel	Cruise header information updated by user
2016-09-13 03:24	steven.beaupre	User steven.beaupre was upgraded to cruise administrator
2016-09-12 07:53	steven.beaupre	User steven.beaupre was upgraded to cruise administrator
2016-09-08 11:59	djkieber	Berthing plan was changed
2016-09-08 05:38	mstrong	Form uploaded for Michael Long
2016-09-08 11:09	djkieber	User added a hazardous material: ISOPROPANOL
2016-09-08 10:57	djkieber	User edited a hazardous material: N-BUTYL ALCOHOL
2016-09-08 10:54	djkieber	User added a hazardous material: N-BUTYL ALCOHOL
2016-09-08 10:53	djkieber	Hazardous material item deleted
2016-09-08 10:51	djkieber	Participant Chang, Rachel was deleted
2016-09-06 08:48	steven.beaupre	User steven.beaupre was upgraded to cruise administrator
2016-09-06 08:45	steven.beaupre	User steven.beaupre was upgraded to cruise administrator
2016-09-06 02:31	jbisgrove	Form uploaded for John Bisgrove
2016-09-06 02:21	jbisgrove	Medical profile updated for Bisgrove, John

2016-09-06 02:11	jbisgrove	User updated participant profile
2016-09-06 02:05	jbisgrove	User updated participant profile
2016-09-06 02:03	jbisgrove	Information for participant Bisgrove, John was updated
2016-09-06 02:02	jbisgrove	User updated participant profile
2016-09-06 02:01	jbisgrove	User updated participant profile
2016-09-06 01:56	djkieber	Berthing plan was changed
2016-09-06 01:50	jbisgrove	User jbisgrove can access this cruise as participant
2016-09-06 01:49	djkieber	Invitation sent to jbisgrove@gmail.com
2016-09-06 01:41	djkieber	Hazardous material item deleted
2016-09-06 01:41	djkieber	Hazardous material item deleted
2016-09-06 01:41	djkieber	User added a hazardous material: SODIUM NITRITE SOLUTION