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## MSDS: Material Safety Data Sheet

### Anatomy/Physiology LabPaqs

This list includes all the chemicals used in the A&P LabPaqs:  
AP-2 and AP-2C produced by HOL.  
Only some of these chemicals are in each LabPaq.

Effective Date 08-15-2007

**SAFETY** – This Material Safety Data Sheet (MSDS) is designed to provide chemical, physical, health, and safety information on reagents and supplies used by HOL. While all experiments in HOL LabPaqs are micro-scale or small-scale, which reduces most potential risks, unforeseen risks may still exist. The need to prevent injuries and accidents cannot be over-emphasized! No chemicals should be mixed or used other than as directed in the Lab Manual which accompanies the LabPaq. Make sure to store the LabPaq out of the reach of children and pets. Thoroughly read and review the Basic Safety information in your Lab Manual, the MSDS information, and sign the Safety Contract. Make sure to wear the proper protective equipment and clothing.

## HAZARDOUS INGREDIENTS/IDENTITY INFORMATION

### Hazard: Corrosive, Acids & Bases

<u>COMPOSITION</u>	<u>CAS NUMBER</u>	<u>PEL/TLV</u>	<u>% by Volume</u>	<u>HAZARD</u>
Ammonia	1336-21-6	N/A	10	Corrosive/Burns

### Hazard: Flammable

<u>COMPOSITION</u>	<u>CAS NUMBER</u>	<u>PEL/TLV</u>	<u>% by Volume</u>	<u>HAZARD</u>
Alcohol pads	67-63-0	N/A	N/A	Flammable
Wright's Stain in methanol	N/A	N/A	N/A	Flammable/Toxic
Methyl alcohol	67-56-1	N/A	100	Flammable/Toxic

### Hazard: Toxic, Poison

<u>COMPOSITION</u>	<u>CAS NUMBER</u>	<u>PEL/TLV</u>	<u>% by Volume</u>	<u>HAZARD</u>
Anti-A (murine monoclonal)	N/A	N/A	N/A	Harmful
0.1% sodium azide	26628-22-8	0.1 ppm	0.1	Poison
Anti-B (murine monoclonal)	N/A	N/A	N/A	Harmful
0.1% sodium azide	26628-22-8	0.1 ppm	0.1	Poison
Anti-Rh (monoclonal blend)	N/A	N/A	N/A	Harmful
0.1% sodium azide	26628-22-8	0.1 ppm	0.1	Poison
Antibody to bovine serum	N/A	N/A	N/A	Harmful
0.1% sodium azide	26628-22-8	0.1 ppm	0.1	Poison
Antibody to horse serum	N/A	N/A	N/A	Harmful
0.1% sodium azide	26628-22-8	0.1 ppm	0.1	Poison
Antibody to swine serum	N/A	N/A	N/A	Harmful
0.1% sodium azide	26628-22-8	0.1 ppm	0.1	Poison
Bovine serum albumin	N/A	N/A	N/A	Harmful
0.1% sodium azide	26628-22-8	0.1 ppm	0.1	Poison
Dissection Specimens, Formalin fixed (Fetal pig, sheep heart and kidney)	N/A	N/A	N/A	Harmful
Formaldehyde	50-00-0	0.3 ppm	3.7	Toxic/Irritant
Methanol	67-56-1	200 ppm	1.2	Toxic
Unknown serum albumin	N/A	N/A	N/A	Harmful
0.1% sodium azide	26628-22-8	0.1 ppm	0.1	Poison

### Hazard: Slight or Minimal, Miscellaneous

<u>COMPOSITION</u>	<u>CAS NUMBER</u>	<u>PEL/TLV</u>	<u>% by Volume</u>	<u>HAZARD</u>
Agar, Nutrient w/ 5% saline	N/A	N/A	N/A	Non-Hazardous
BAPNA	911-77-3	N/A	100	Irritant
Bile salts	N/A	N/A	100	Irritant
Bromthymol blue, 0.01%	34722-90-2	N/A	<1	Irritant
Congo red, 0.1%	573-58-0	N/A	<1	Irritant
Food coloring, green	N/A	N/A	100	Non-hazardous
Food coloring, red	N/A	N/A	100	Non-hazardous
Pancreatin Powder	8049-47-6	N/A	100	Irritant
pH test strips, wide range	N/A	N/A	N/A	Harmful
Test strips, glucose/ protein	N/A	N/A	N/A	Harmful
Trypsin Powder	N/A	N/A	100	Irritant
Wright's buffer solution	N/A	N/A	N/A	Irritant
Potassium phosphate monobasic	7778-77-0	N/A	N/A	Irritant
Potassium phosphate dibasic	7758-11-4	N/A	N/A	Irritant

## EMERGENCY OVERVIEW

### **Hazard: Corrosive, Acids & Bases**

DANGER! POISON! CORROSIVE LIQUID AND VAPOR! CAN CAUSE SEVERE BURNS TO ALL BODY TISSUE. MAY BE FATAL IF SWALLOWED OR INHALED. INHALATION MAY CAUSE LUNG DAMAGE.

**SAFETY RATINGS:** Health: 2, Moderate                      Reactivity: 1, Slight  
Flammability: 0, None                      Contact: 3, Severe (Corrosive)

**Protective Equipment:** Goggles, Lab Coat or Apron, Gloves, Local or General Exhaust Ventilation.

### **Hazard: Toxic, Poison**

WARNING! VERY HAZARDOUS IF SWALLOWED. MAY CAUSE MODERATE TO SEVERE IRRITATION TO EYES AND/OR BURNS RESULTING IN CORNEAL INJURY. HARMFUL IF INHALED. CAN CAUSE IRRITATION AND OR BURNS TO SKIN, EYES AND RESPIRATORY TRACT.

**Sodium azide:** May react with lead or copper plumbing to form highly explosive metal azides. If discarded in sinks, flush with large volume of water to prevent azide build-up.

**SAFETY RATINGS:** Health: 3, Severe (Poison)                      Reactivity: 0, None  
Flammability: 0, None                      Contact: 2, Moderate

**Protective Equipment:** Goggles, Lab Coat or Apron and Gloves.

### **Hazard: Flammables:**

Health Hazards/Precautionary Measures:

POISON! VAPOR HARMFUL! MAY BE FATAL OR CAUSE BLINDNESS IF SWALLOWED. HARMFUL IF INHALED OR ABSORBED THROUGH SKIN. CANNOT BE MADE NONPOISONOUS, AFFECTS CENTRAL NERVOUS SYSTEM AND LIVER. CAUSES IRRITATION TO SKIN, EYES AND RESPIRATORY TRACT.

Physical Hazards/Precautionary Measures:

DANGER! FLAMMABLE LIQUID AND VAPOR! KEEP AWAY FROM HEAT, SPARKS, FLAMES, STATIC ELECTRICITY OR OTHER SOURCES OF IGNITION. DO NOT SMOKE IN LABORATORY AREA!

**SAFETY RATINGS:** Health: 3, Severe (Poison)                      Reactivity: 1, Slight  
Flammability: 3, Extreme (Flammable)                      Contact: 1, Slight

**Protective Equipment:** Safety Glasses, Lab Coat or Apron, Gloves, Local or General Exhaust Ventilation.

### **Hazard: Slight or Minimal, Miscellaneous**

WARNING! MAY CAUSE IRRITATION TO EYES, SKIN AND RESPIRATORY TRACT. MAY BE HARMFUL IF SWALLOWED OR INHALED.

**SAFETY RATINGS:** Health: 1, Slight                      Reactivity: 1, None  
Flammability: 0, None                      Contact: 1, Slight

**Protective Equipment:** Safety Glasses, Lab Coat or Apron, Gloves.

## POTENTIAL HEALTH EFFECTS

### **Hazard: Corrosive, Acids & Bases**

**INHALATION:**

Effects from inhalation of vapor vary from mild irritation to serious damage of the upper respiratory tract, depending on severity and length of exposure. Symptoms may include coughing, sneezing, choking, sore throat and irritation to the nasal or respiratory tract.

**INGESTION:**

Corrosive! Ingestion may result in death. Swallowing may cause severe burns of mouth, throat, and stomach. Symptoms may include bleeding, nausea, vomiting, and diarrhea. Asphyxia from throat swelling and perforations of the esophagus and/or stomach can occur.

**SKIN CONTACT:**

Corrosive! Causes severe irritation, redness, pain and burns. Concentrated solutions can cause deep ulcer and discolor skin.

**EYE CONTACT:**

Corrosive! Causes severe redness, pain, blurred vision, eye burns with possibility of permanent eye damage.

**CHRONIC EXPOSURE:**

May cause dermatitis and conjunctivitis. Dental erosion, tooth discoloration, nasal ulceration, laryngitis, bronchitis, pneumonia and gastrointestinal disturbances can occur. Long term exposures seldom occur due to the corrosive properties of the acid.

**AGGRAVATION of PRE-EXISTING CONDITIONS:**

Persons with pre-existing skin disorders, eye problems or impaired respiratory function may be more susceptible to the effects of the substances.

NTP CARCINOGEN

KNOWN  
N/A

ANTICIPATED  
N/A

IARC CATEGORY  
N/A

OSHA REGULATED  
YES

### **Hazard: Toxic/Oxidizer, Nitrates & Poisons**

**INHALATION:**

Effects are expected to be less severe than for exposure to higher concentrations where symptoms include severe irritation to the respiratory tract with coughing, wheezing, shortness of breath, nausea and vomiting. May be absorbed into the body following inhalation, with symptoms paralleling those of ingestion exposure.

**INGESTION:**

Effects are expected to be less severe than for exposure to higher concentrations where symptoms include pain and burning in the mouth, blackening of the skin and mucous membranes, throat, abdomen, diarrhea and shock. Poison in higher concentrations.

**SKIN CONTACT:**

Effects are expected to be less severe than for exposure to higher concentrations where symptoms include redness, pain, irritation and burns.

**EYE CONTACT:**

Effects are expected to be less severe than for exposure to higher concentrations where symptoms include redness, pain, irritation, blurred vision and eye burns with possibility of permanent eye damage.

**CHRONIC EXPOSURE:**

Prolonged or repeated exposure may cause symptoms that parallel those described above for inhalation, ingestion, skin contact and eye contact.

**AGGRAVATION of PRE-EXISTING CONDITIONS:**

Persons with pre-existing skin disorders, eye problems, allergies or known sensitization may be more susceptible to the effects of the substances

<u>NTP CARCINOGEN</u>		<u>IARC CATAGORY</u>	<u>OSHA REGULATED</u>
<u>KNOWN</u>	<u>ANTICIPATED</u>	N/A	YES
N/A	N/A		

### **Hazard: Flammables**

**INHALATION:**

Exposure may cause irritation to the mucous membranes of the upper respiratory tract. Prolonged exposures to high concentrations may cause drowsiness, loss of appetite and inability to concentrate.

**INGESTION:**

Cause headaches, gastritis, intoxication, blindness and, in acute cases, death.

**SKIN CONTACT:**

Causes skin irritation, cracking or flaking due to dehydration and defatting action.

**EYE CONTACT:**

Can cause eye irritation. Splashes may cause temporary pain and blurred vision.

**CHRONIC EXPOSURE:**

Prolonged skin contact causes drying and cracking of skin. May affect the nervous system. May affect liver, blood, reproductive system. Continued ingestion of small amounts could result in blindness.

**AGGRAVATION of PRE-EXISTING CONDITIONS:**

Persons with pre-existing skin disorders or eye problems or impaired liver or kidney function may be more susceptible to the effects of the substance.

<u>NTP CARCINOGEN</u>		<u>IARC CATAGORY</u>	<u>OSHA REGULATED</u>
<u>KNOWN</u>	<u>ANTICIPATED</u>	N/A	YES
N/A	N/A		

### **Hazard: Slight or Minimal, Miscellaneous**

**INHALATION:**

May be harmful. May cause irritation to nasal membranes and respiratory tract.

**INGESTION:**

May be harmful. May cause nausea, vomiting, headache and diarrhea.

**SKIN CONTACT:**

May cause irritation.

**EYE CONTACT:**

May cause irritation.

**POTENTIAL CHRONIC HEALTH EFFECTS:**

Prolonged or repeated exposure may cause symptoms that parallel those described above for inhalation, ingestion, skin contact and eye contact.

**MEDICAL CONDITIONS GENERALLY AGGRAVATED by EXPOSURE:**

Persons with pre-existing skin disorders, eye problems, allergies or known sensitization may be more susceptible to the effects of the substances

<u>NTP CARCINOGEN</u>		<u>IARC CATAGORY</u>	<u>OSHA REGULATED</u>
<u>KNOWN</u>	<u>ANTICIPATED</u>	N/A	YES
N/A	N/A		

## FIRST AID MEASURES

### ***Hazard: Corrosive, Acids & Bases***

**INHALATION:**

Remove to fresh air. If not breathing, give artificial respiration. Call a physician immediately.

**INGESTION:**

DO NOT INDUCE VOMITING unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Call a physician immediately.

**SKIN CONTACT:**

In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. Call a physician for medical advice.

**EYE CONTACT:**

Check for and remove contact lens. Immediately flush eyes with gentle but large stream of water for at least 15 minutes, lifting lower and upper eyelids occasionally. Call a physician immediately.

### ***Hazard: Toxic/Oxidizer, Nitrates & Poisons***

**INHALATION:**

Remove to fresh air. If not breathing, give artificial respiration. Call a physician immediately.

**INGESTION:**

DO NOT INDUCE VOMITING unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Call a physician immediately.

**SKIN CONTACT:**

In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. Call a physician for medical advice.

**EYE CONTACT:**

Check for and remove contact lens. Immediately flush eyes with gentle but large stream of water for at least 15 minutes, lifting lower and upper eyelids occasionally. Call a physician immediately.

### ***Hazard: Flammables:***

**INHALATION:**

Remove to fresh air. If not breathing, give artificial respiration. Call a physician immediately.

**INGESTION:**

DO NOT INDUCE VOMITING unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Call a physician immediately.

**SKIN CONTACT:**

In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. Call a physician for medical advice.

**EYE CONTACT:**

Check for and remove contact lens. Immediately flush eyes with gentle but large stream of water for at least 15 minutes, lifting lower and upper eyelids occasionally. Call a physician immediately.

### ***Hazard: Slight or Minimal, Miscellaneous***

**INHALATION:**

Remove to fresh air if effects occur.

**INGESTION:**

DO NOT INDUCE VOMITING unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Call a physician for medical advice.

**SKIN CONTACT:**

Wash with mild soap and water. Get medical advice if irritation develops.

**EYE CONTACT:**

Immediately flush eyes with gentle but large stream of water for at least 15 minutes, lifting lower and upper eyelids occasionally. Get medical advice if irritation develops.

## FIRE FIGHTING MEASURES

**FIRE:**

Flash Point: N/A Flammable Limits: N/A LEL: N/A UEL: N/A

**EXPLOSION:**

N/A - Use any means suitable for extinguishing surrounding fire.

**SPECIAL INFORMATION:**

N/A

**NFPA RATINGS:** Health: 2 Flammability: 3 Reactivity: 1

**NOTE:** The contents of this LabPac should not be a factor in a fire due to the extremely small quantities.

## HANDLING AND STORAGE

Store in a cool, dry, ventilated area away from flame, sources of ignition and heat. Keep containers tightly closed and upright. Protect from physical damage. Keep out of direct sunlight and separate from incompatible materials. Storage and use areas should be non-smoking. Dispose of waste materials or spills as directed in the Lab Manual.

## PERSONAL PROTECTION

**VENTILATION SYSTEM:**

A system of local and/or general exhaust is recommended to keep exposures below the Airborne Exposure Limits.

**PERSONAL RESPIRATORS (NIOSH) APPROVED:**

N/A

**SKIN PROTECTION:**

Wear protective clothing, gloves, lab coat or apron, as appropriate, to prevent skin contact.

**EYE PROTECTION:**

Use chemical safety glasses or goggles.

## PHYSICAL AND CHEMICAL PROPERTIES

<b>APPEARANCE:</b>	N/A
<b>ODOR:</b>	N/A
<b>SOLUBILITY:</b>	N/A
<b>SPECIFIC GRAVITY:</b>	N/A
<b>pH:</b>	N/A
<b>% VOLATILES by VOLUME:</b>	N/A
<b>BOILING POINT:</b>	N/A
<b>MELTING POINT:</b>	N/A
<b>VAPOR DENSITY (Air =1):</b>	N/A
<b>VAPOR PRESSURE (mm Hg):</b>	N/A
<b>EVAPORATION RATE (BuAc=1):</b>	N/A

## STABILITY AND REACTIVITY

**STABILITY:**

Stable under ordinary conditions of use and storage

**HAZARDOUS DECOMPOSITION PRODUCTS:**

N/A

**HAZARDOUS POLYMERIZATION:**

N/A

**INCOMPATIBILITIES:**

No chemicals should be mixed or used other than as directed in the Lab Manual which accompanies the LabPag.

**CONDITIONS to AVOID:**

Heat, flames, ignition sources and incompatibles

## OTHER INFORMATION

**TRANSPORT (Land, DOT):**

Small Quantity Exception. Complies with 49 CFR 173.4 and IATA 2.7

**PRODUCT USE:**

Laboratory Reagent

Hands-On Labs, Inc. provides the information contained herein in good faith but makes no representation as to its comprehensiveness or accuracy. This document is intended only as a guide to the appropriate precautionary handling of the material by a properly trained person using this product. Individuals receiving the information must exercise their independent judgment in determining its appropriateness for a particular purpose. HANDS-ON LABS, INC. MAKES NO REPRESENTATIONS OR WARRANTIES, EITHER EXPRESSED OR IMPLIED, INCLUDING WITHOUT LIMITATION ANY WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE WITH RESPECT TO THE INFORMATION SET FORTH HEREIN OR THE PRODUCT TO WHICH THE INFORMATION REFERS, ACCORDINGLY, HANDS-ON LABS, INC. WILL NOT BE RESPONSIBLE FOR DAMAGES RESULTING FROM USE OF OR RELIANCE UPON THIS INFORMATION.