

# MATERIAL SAFETY DATA SHEET

## I. MANUFACTURER INFORMATION:

Auric Enterprises, Inc.  
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MSDS# TSL-306

## II. MATERIAL IDENTIFICATION – UNKNOWN NUMBERS 301-320:

Qualitative analysis unknowns are designed for individual student use in chemistry laboratory courses. Each package contains between 0.20 grams and 0.40 grams of solid chemical (pure or mixture) which is sealed in a small plastic vial bearing a code number. In typical use, the instructors of chemistry labs do not reveal the code number or the identity of the contents of any vial to students. Identity of each sample is known to the instructor or stockroom personnel by comparing the “Key” to the code numbers.

## III. ANIONS: INGREDIENTS: EXPOSURE LIMITS AND TOXICITY DATA

Please refer to the Key for the identification of anions for Unknown Numbers 301-320. The anions and corresponding raw materials are as follows:

Anion	Ingredient	CAS	TWA	LD50- Oral	LD50- Dermal	National Fire Protective Association			
			mg/m <sup>3</sup>	mg/kg	mg/kg	H	F	R	
Br <sup>-</sup>	NaBr	7647-15-6		3500 (rat)		0	0	0	
C <sub>2</sub> H <sub>3</sub> O <sub>2</sub> <sup>-</sup>	NaC <sub>2</sub> H <sub>3</sub> O <sub>2</sub>	127-09-3		3530 (rat)		0	1	2	
Cl <sup>-</sup>	KCl	7447-40-7		2600 (rat)		0	0	0	
CO <sub>3</sub> <sup>2-</sup>	NaHCO <sub>3</sub>	144-55-8		4220 (rat)		0	0	0	
PO <sub>4</sub> <sup>3-</sup>	Na <sub>2</sub> HPO <sub>4</sub>	7558-79-4		17 gm/kg		1	0	0	
I <sup>-</sup>	KI	7681-11-0		N/A		1	0	0	
NO <sub>3</sub> <sup>-</sup>	NaNO <sub>3</sub>	7631-99-4		1267 (rat)		1	0	0	oxy
S <sup>2-</sup>	ZnS	1314-98-3		N/A		1	1	2	
SO <sub>3</sub> <sup>2-</sup>	Na <sub>2</sub> SO <sub>3</sub>	7757-83-7		820 (mouse)		1	0	1	
SO <sub>4</sub> <sup>2-</sup>	K <sub>2</sub> SO <sub>4</sub>	7778-80-5		2340 (rat)		0	0	0	cor

N/A = Not Available

NaBr: Sodium bromide  
 NaC<sub>2</sub>H<sub>3</sub>O<sub>2</sub>: Sodium acetate  
 KCl: Potassium chloride  
 Na<sub>2</sub>HPO<sub>4</sub>: Sodium hydrogen phosphate  
 KI: Potassium iodide

NaNO<sub>3</sub>: Sodium Nitrate  
 ZnS: Zinc sulfide  
 Na<sub>2</sub>SO<sub>3</sub>: Sodium sulfite  
 K<sub>2</sub>SO<sub>4</sub>: Potassium sulfate

#### IV. HEALTH HAZARDS:

Due to the small amount of material in each package, the hazard associated with each package is minimal. This information is obtained from the MSDS of the individual raw materials and other reliable sources and may or may not be directly applicable to the small amount of the individual material or mixtures. The unknown vials are to be used under supervision of a chemist or trained laboratory instructor.

#### POTENTIAL HAZARD FROM ACUTE EXPOSURE

Ingredient	Eye Contact	Ingestion	Inhalation	Skin	
				Absorption	Contact
NaNO <sub>3</sub>	Severe eye irritant	Harmful	May be Harmful	May be Harmful	Irritation
Na <sub>2</sub> SO <sub>3</sub>	Irritant	Harmful	May be Harmful	May be Harmful	May cause Irritation
K <sub>2</sub> SO <sub>4</sub>	Irritant	May be Harmful	May be Harmful	May be Harmful	May cause irritation
Na <sub>2</sub> HPO <sub>4</sub>	Irritant				
NaBr	May cause irritation	May be Harmful	May be Harmful	May be Harmful	May cause irritation
NaC <sub>2</sub> H <sub>3</sub> O <sub>2</sub>	May cause irritation	May be Harmful			May cause irritation
KCl	May cause irritation	May be Harmful	May be Harmful		May cause irritation
NaHCO <sub>3</sub>	May cause irritation	May be Harmful	May be Harmful		May cause irritation
KI	May cause irritation	Harmful	Harmful	Harmful	May cause irritation
ZnS	Irritant	May be Harmful	May be Harmful	May be Harmful	May cause irritation

#### V. FIRST AID MEASURES

Skin: Wash hands thoroughly after contact using soap and warm water. If spilled on clothing, flush affected areas with water, remove contaminated clothing as soon as possible and wash before reuse.

Ingestion: Because of the small sample size (400 mg or less), most of the unknowns present little hazard. Rinse out the mouth with plenty of water. If ingested, drink 1-2 glasses of water and induce vomiting. Do NOT induce vomiting for potassium sulfate (K<sub>2</sub>SO<sub>4</sub>). Seek medical attention.

Eye Contact: Immediately flush eyes with running water for at least 15 minutes, keeping eyelids open. Obtain medical attention.

Inhalation: Remove victim to a well ventilated area. Seek medical attention.

## VI. PHYSICAL DATA, STABILITY AND REACTIVITY DATA

Anion	MW	MP °C/°F	Stability	Flammability	Solubility in cold water	Comments
Br <sup>-</sup>	102.91	755/1391	Stable	Non-Flammable	Easily Soluble	Incompatible with acids and heavy metal salts BP: 1390°C (2534°F)
C <sub>2</sub> H <sub>3</sub> O <sub>2</sub> <sup>-</sup>	82.03	324/615.2	Stable	Combustible	Soluble	Highly reactive with oxidizing agents. Slightly react with acids, moisture
Cl <sup>-</sup>	74.55	773.5/1424.3	Stable	Non-Flammable	Soluble	
CO <sub>3</sub> <sup>2-</sup>	84.01	50/122 decomposes	Stable	Non-Flammable	Soluble	Will react with acids and bases
PO <sub>4</sub> <sup>3-</sup>	141.96	decomposes	Stable	Non-Flammable	Soluble	Hygroscopic. Can react with acids
I <sup>-</sup>	166	681/1257.8	Stable	Non-Flammable	Easily Soluble	Incompatible with oxidizing agents, acids
NO <sub>3</sub> <sup>-</sup>	54.99	306.8/584.2	Stable	Non-Flammable	Easily Soluble	Decomposes before boiling. Incompatible with reducing agents, combustible materials, organic materials. Reacts readily with acids
S <sup>2-</sup>	97.43	Sublimes	Stable	Combustible	Insoluble	<b>CONTACT WITH ACID RELEASES H<sub>2</sub>S A POISONOUS GAS.</b> Boiling Point: decomposes Can react with oxidizing agents, acids and moisture
SO <sub>3</sub> <sup>2-</sup>	126.04	decomposes	Stable	Non-Flammable	Partially Soluble	Air and light sensitive Incompatible with strong acids, oxidizing agents
SO <sub>4</sub> <sup>2-</sup>	174.26	1067/1952.6	Stable	Non-Flammable	Partially Soluble	BP: 1689°C (3072°F)

## VII. FIRE AND EXPLOSION HAZARDS

No fire or explosion hazards are known.

## VIII. STORAGE AND DISPOSAL

Store in a well ventilated area and protect unknowns from light. Do not breathe dusts. Avoid contact with eyes, skin, and clothing. Avoid prolonged or repeated exposure. Keep vials closed when not in use. Wash thoroughly after handling. Dispose in accordance with Federal, State and Local regulations.

The information provided in the MSDS is based on available information which is believed to be accurate and reliable. It is the user's responsibility to determine the suitability of this information for the adoption of necessary safety precautions. We make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and assume no liability resulting from its use. We reserve the right to revise Material Safety Data Sheets periodically as new information becomes available.

The following sources were consulted:

1. Material Safety Data Sheets of the individual ingredients.
2. Sigma-Aldrich Library of Chemical Safety Data Ed. II; 1988

Practice good laboratory safety procedures when using chemicals.

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