

SAFETY DATA SHEET

1. SUBSTANCE AND SOURCE IDENTIFICATION

Product Identifier

SRM Number: 1514
SRM Name: Thermal Analysis Purity Set
SRM Parts: Phenacetin
 Nominal 0.7 mole % *p*-Aminobenzoic Acid in Phenacetin
 Nominal 2.0 mole % *p*-Aminobenzoic Acid in Phenacetin
 Nominal 5.0 mole % *p*-Aminobenzoic Acid in Phenacetin

Other Means of Identification: Not applicable.

Recommended Use of This Material and Restrictions of Use

This Standard Reference Material (SRM) is intended for use in evaluating methods of determining purity by differential scanning calorimetry. A unit of SRM 1514 consists of a set of four vials each containing approximately 0.5 g of material. One vial contains "pure" phenacetin and each additional vial contains phenacetin doped with *p*-aminobenzoic acid at a given mole percent, see Certificate of Analysis.

Company Information

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2. HAZARDS IDENTIFICATION

Classification

Physical Hazard:	Not classified.	
Health Hazard:	Acute Toxicity, Oral Carcinogenicity	Category 4 Category 1A

Label Elements

Symbol:



Signal Word: DANGER

Hazard Statement(s):

H302 Harmful if swallowed.
 H350 May cause cancer.

Precautionary Statement(s):

P201 Obtain special instructions before use.
 P202 Do not handle until all safety precautions have been read and understood.
 P264 Wash hands thoroughly after handling.
 P270 Do not eat, drink or smoke when using this product.
 P280 Wear eye protection, protective gloves and clothing.

P301 + P312 If swallowed: Call a doctor if you feel unwell.
 P330 Rinse mouth.

P308 + P313 If exposed or concerned: Get medical attention.
P405 Store locked up.
P501 Dispose of contents and container according to local regulations.

Hazards Not Otherwise Classified: Not applicable.

Ingredients(s) with Unknown Acute Toxicity: Not applicable.

3. COMPOSITION AND INFORMATION ON HAZARDOUS INGREDIENTS

Substance: Phenacetin and phenacetin doped with *p*-aminobenzoic acid

Other Designations:

Phenacetin (acetophenetidin; sinutab; *n*-(4-ethoxyphenyl) acetamide)
p-Aminobenzoic acid (4-aminobenzoic acid; paraminol, pabamine; PABA; vitamin BX; amben)

NOTE: Components are listed in compliance with OSHA's 29 CFR 1910.1200. For actual values, see the NIST Certificate of Analysis.

Hazardous Component(s)	CAS Number	EC Number (EINECS)	Nominal Mass Concentration (%)
Phenacetin	62-44-2	200-533-0	≥95
<i>p</i> -Aminobenzoic acid	150-13-0	205-753-0	≤5

4. FIRST AID MEASURES

Description of First Aid Measures:

Inhalation: If adverse effects occur, remove to uncontaminated area. If not breathing, give artificial respiration or oxygen by qualified personnel. Seek immediate medical attention.

Skin Contact: Wash skin with soap and water for at least 15 minutes. If necessary, seek medical attention.

Eye Contact: Flush eyes with water for at least 15 minutes. If necessary, seek medical attention.

Ingestion: If a large amount is swallowed, seek medical attention.

Most Important Symptoms/Effects, Acute and Delayed: Blood damage, cancer hazard (in humans).

Indication of any immediate medical attention and special treatment needed, if necessary: If any of the above symptoms are present, seek medical attention if needed.

5. FIRE FIGHTING MEASURES

Fire and Explosion Hazards: Negligible fire hazard. See Section 9, "Physical and Chemical Properties" for flammability properties.

Extinguishing Media:

Suitable: Regular dry chemical, carbon dioxide, water, regular foam.

Unsuitable: Not applicable.

Specific Hazards Arising from the Chemical: None listed.

Special Protective Equipment and Precautions for Fire-Fighters: Avoid inhalation of material or combustion byproducts. Wear full protective clothing and NIOSH approved self-contained breathing apparatus (SCBA).

NFPA Ratings (0 = Minimal; 1 = Slight; 2 = Moderate; 3 = Serious; 4 = Severe)

Health = 1 Fire = 0 Reactivity = 0

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment and Emergency Procedures: Keep unnecessary personnel away. Use suitable protective equipment; see Section 8, "Exposure Controls and Personal Protection".

Methods and Materials for Containment and Clean up: Notify safety personnel of spills. Collect spilled material in appropriate container for disposal. Isolate hazard area and deny entry. Subject to California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65). Keep out of water supplies and sewers.

7. HANDLING AND STORAGE

Safe Handling Precautions: See Section 8, “Exposure Controls and Personal Protection”.

Storage: Store and handle in accordance with all current regulations and standards. Keep separated from incompatible substances (see Section 10, “Stability and Reactivity”).

8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

Exposure Limits: This material is a particulate matter and adequate inhalation/respiratory protection should be used to minimize exposure. No occupational exposure limits have been established for phenacetin or *p*-aminobenzoic acid. The exposure limits for Particulates Not Otherwise Regulated are applicable.

OSHA (PEL): 15 mg/m³ (TWA, total particulates not otherwise regulated)
5 mg/m³ (TWA, respirable particulates not otherwise regulated)

Engineering Controls: Provide local exhaust or process enclosure ventilation system. Ensure compliance with applicable exposure limits.

Personal Protection: In accordance with OSHA 29 CFR 1910.132, subpart I, wear appropriate Personal Protective Equipment (PPE) to minimize exposure to this material.

Respiratory Protection: If workplace conditions warrant a respirator, a respiratory protection program that meets OSHA 29CFR 1910.134 must be followed. Refer to NIOSH 42 CFR 84 for applicable certified respirators.

Eye/Face Protection: Wear chemical resistant safety goggles. An eyewash station should be readily available near areas of use.

Skin and Body Protection: Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. Chemical-resistant gloves should be worn at all times when handling chemicals.

9. PHYSICAL AND CHEMICAL PROPERTIES

Descriptive Properties	Phenacetin (≥95 % of this SRM)	<i>p</i> -Aminobenzoic acid (≤5 % of this SRM)
Appearance (physical state, color, etc.)	colorless solid	colorless to yellow solid
Molecular Formula	C ₁₀ H ₁₃ NO ₂	H ₂ NC ₆ H ₄ COOH
Molar Mass (g/mol)	179.24	137.14
Odor	odorless	odorless
Odor Threshold	not available	not available
pH	not available	3.5 at 0.5 %
Evaporation Rate	not available	(negligible, butyl acetate = 1)
Melting Point/Freezing Point	134 °C (273.2 °F)	187 °C to 189 °C (368.6 °F to 372.2 °F)
Relative Density as specific gravity (water = 1)	not available	1.374
Vapor Pressure	not available	not available
Vapor Density (air = 1)	not available	not available
Viscosity	not available	not available
Solubility(ies)	slightly soluble in water; soluble in alcohol, ether, chloroform, and pyrimidines.	soluble in ethanol, ether, acetic acid, ethyl acetate, alkali hydroxide solutions, and carbonate solutions; insoluble in petroleum ether
Partition Coefficient (n-octanol/water)	not available	not available
Thermal Stability Properties		
Autoignition Temperature	not available	not available
Thermal Decomposition	not available	not available
Initial Boiling Point and Boiling Range	decomposes	not available
Explosive Limits, LEL	not available	not available
Explosive Limits, UEL	not available	not available
Flash Point	not available	>93.3 °C (>199.94 °F)
Flammability (solid, gas)	not available	not available

10. STABILITY AND REACTIVITY

Reactivity: Stable at normal temperatures and pressure.

Stability: X Stable Unstable

Possible Hazardous Reactions: No data available.

Conditions to Avoid: Avoid heat, flames, sparks and other sources of ignition. Avoid contact with incompatible materials.

Incompatible Materials: Oxidizing materials.

Fire/Explosion Information: See Section 5, "Fire Fighting Measures".

Hazardous Decomposition: Oxides of carbon, nitrogen.

Hazardous Polymerization: Will Occur X Will Not Occur

11. TOXICOLOGICAL INFORMATION

Route of Exposure: Inhalation Skin X Ingestion

Symptoms Related to the Physical, Chemical and Toxicological Characteristics: Blood damage, cancer hazard (in humans).

Potential Health Effects (Acute, Chronic and Delayed):

Inhalation: Exposure may result in irritation.

Skin Contact: Exposure may result in irritation and allergic photosensitization with skin eruptions.

Eye Contact: Contact with may cause eye irritation.

Ingestion: The symptoms resulting from the ingestion of this material vary depending on the dosage and duration of use. Symptoms may include nausea, vomiting, hemolytic anemia, acidosis, arrhythmias, and cardiac arrest. Carcinoma of the renal pelvis and bladder has been reported to increase after chronic ingestion of phenacetin.

Numerical Measures of Toxicity:

Acute Toxicity: Category 4, Oral.

Phenacetin: Rat, Oral LD50: 1650 mg/kg

p-Aminobenzoic acid: Rat, Oral LD50: 6 g/kg

Skin Corrosion/Irritation: Not classified.

p-Aminobenzoic acid: Human, skin 10 %; Human skin 5 % (negligible)

Serious Eye Damage/Eye Irritation: Not classified; no data available.

Respiratory Sensitization: Not classified; no data available.

Skin Sensitization: Not classified; no data available.

Germ Cell Mutagenicity: Not classified; no data available.

Carcinogenicity: Category 1B

Listed as a Carcinogen/Potential Carcinogen X Yes No

Phenacetin is listed by NTP as reasonably anticipated to be a human carcinogen and IARC as Group 1 (carcinogenic to humans); it is not listed by OSHA.

p-Aminobenzoic acid is listed by IARC as Group 3 (not classifiable); it is not listed by NTP or OSHA.

Reproductive Toxicity: Not classified

p-Aminobenzoic acid: Rat, Oral TDLo: 2500 mg/kg (pregnant 122 d)

Phenacetin: Rat, Oral TDLo: 57200 mg/kg (20 week)

Specific Target Organ Toxicity, Single Exposure: Not classified; no data available.

Specific Target Organ Toxicity, Repeated Exposure: Not classified; no data available.

Aspiration Hazard: Not applicable.

12. ECOLOGICAL INFORMATION

Ecotoxicity Data: No ecotoxicity data available.

Persistence and Degradability: No data available.

Bioaccumulative Potential: No data available.

Mobility in Soil: No data available.

Other Adverse effects: No data available.

13. DISPOSAL CONSIDERATIONS

Waste Disposal: Dispose of waste in accordance with all applicable federal, state, and local regulations. Phenacetin U. S. EPA 40 CFR 262 Hazardous Waste Number(s): U187.

14. TRANSPORTATION INFORMATION

U.S. DOT and IATA: Not regulated by DOT or IATA.

15. REGULATORY INFORMATION

U.S. Regulations:

CERCLA Sections 102a/103 (40 CFR 302.4): Phenacetin, 100 lb (45.4 kg) final RQ.

SARA Title III Section 302 (40 CFR 355.30): Not regulated.

SARA Title III Section 304 (40 CFR 355.40): Not regulated.

SARA Title III Section 313 (40 CFR 372.65): Not regulated.

OSHA Process Safety (29 CFR 1910.119): Not regulated.

SARA Title III Sections 311/312 Hazardous Categories (40 CFR 370.21):

ACUTE HEALTH: Yes.

CHRONIC HEALTH: Yes.

FIRE: No.

REACTIVE: No.

PRESSURE: No.

State Regulations:

California Proposition 65:

WARNING! This product contains a chemical (phenacetin) known to the state of California to cause cancer.

U.S. TSCA Inventory: Phenacetin and *p*-aminobenzoic acid are listed.

TSCA 12(b), Export Notification: Section 5, 0.1 % de minimis concentration for phenacetin.

Canadian Regulations:

WHMIS Information: Not provided for this material.

16. OTHER INFORMATION

Issue Date: 26 March 2015

Sources: ChemAdvisor, Inc., SDS *Phenacetin*, 15 December 2014.

ChemAdvisor, Inc., SDS *p-Aminobenzoic Acid*, 15 December 2014.

CDC; NIOSH; *NIOSH Pocket Guide to Chemical Hazards*; Department of Health and Human Services (DHHS), Centers for Disease Control and Prevention (CDC), National Institute for Safety and Health; *Particulates not otherwise regulated*, 04 April 2011; available at <http://www.cdc.gov/niosh/npg/npgd0480.html> (accessed Mar 2015).

Hazardous Substances Data Bank (HSDB), National Library of Medicine's TOXNET system, *p-Aminobenzoic Acid* CAS No. 150-13-0; available at <http://toxnet.nlm.nih.gov> (accessed Mar 2015).

International Agency for Research on Cancer (IARC); *Phenacetin* CAS No. 62-44-2; available at <http://monographs.iarc.fr/ENG/Monographs/vol100A/mono100A-25.pdf> (accessed Mar 2015).

Key of Acronyms:

ACGIH	American Conference of Governmental Industrial Hygienists	NTP	National Toxicology Program
CAS	Chemical Abstracts Service	OSHA	Occupational Safety and Health Administration
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act	PEL	Permissible Exposure Limit
CFR	Code of Federal Regulations	RCRA	Resource Conservation and Recovery Act
DOT	Department of Transportation	REL	Recommended Exposure Limit
EINECS	European Inventory of Existing Commercial Chemical Substances	RQ	Reportable Quantity
EPCRA	Emergency Planning and Community Right-to-Know Act	RTECS	Registry of Toxic Effects of Chemical Substances
IARC	International Agency for Research on Cancer	SARA	Superfund Amendments and Reauthorization Act
IATA	International Air Transportation Agency	SCBA	Self-Contained Breathing Apparatus
IDLH	Immediately Dangerous to Life and Health	SRM	Standard Reference Material
LC50	Lethal Concentration	STEL	Short Term Exposure Limit
LD50	Median Lethal Dose or Lethal Dose, 50 %	STOT	Specific Target Organ Toxicity
LEL	Lower Explosive Limit	TLV	Threshold Limit Value
MSDS	Material Safety Data Sheet	TPQ	Threshold Planning Quantity
NFPA	National Fire Protection Association	TSCA	Toxic Substances Control Act
NIOSH	National Institute for Occupational Safety and Health	TWA	Time Weighted Average
NIST	National Institute of Standards and Technology	UEL	Upper Explosive Limit
n.o.s.	Not Otherwise Specified	WHMIS	Workplace Hazardous Materials Information System

Disclaimer: Physical and chemical data contained in this SDS are provided only for use in assessing the hazardous nature of the material. The SDS was prepared carefully, using current references; however, NIST does not certify the data in the SDS. The certified values for this material are given in the NIST Certificate of Analysis.

Users of this SRM should ensure that the SDS in their possession is current. This can be accomplished by contacting the SRM Program: telephone (301) 975-2200; fax (301) 948-3730; e-mail srmmsds@nist.gov; or via the Internet at <http://www.nist.gov/srm>.