

As⁺³ Low Range QUICK As⁺⁵™

Rapid Arsenic Test Kit

Kit Part #481297-I
50 Tests



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Information on the performance characteristics of this kit can be found at www.epa.gov/etv/verifications/-verification-index.html, or call ITS at 803-329-9712 for a copy of the ETV verification report. The use of the ETV® Name or Logo does not imply approval or certification of this product nor does it make any explicit or implied warranties or guarantees as to product performance.

FOR BEST RESULTS, FOLLOW KIT INSTRUCTIONS.



WARNING:

Hydrogen and Arsine gases are generated during the test. Work in a well-ventilated area away from open flames and other sources of ignition. Review the Material Safety Data Sheet before handling any chemicals.

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Do not store kit in direct sunlight or above 90°F/32°C.

481297-INST

Revision: 05/20/20



ABOUT KIT # 481297-I:



Part Number: 481297-I, 50 Tests

This test detects total inorganic Arsenic (As^{+3} and As^{+5})

This Arsenic Test Kit provides a safe, simple, and reliable way to test for Arsenic from 0 to 16 $\mu\text{g/L}$ (up to 80 $\mu\text{g/L}$ when using 1/5 dilution method). Follow the instructions carefully to get reliable results. All components are supplied in the kit except for a timer and thermometer. This test tolerates up to 2 mg/L Hydrogen Sulfide without interference. No interference was found for this test kit for Antimony up to 0.5mg/L. No interference from Iron or Sulfate was found. It is recommended that the water sample be 22°C to 28°C. For best results, record the temperature at which the sample was run. Use all reagents and test strips within the allowed shelf life as marked on each container.

Kit Components:

- 2 Reaction Bottles, clear PVC, with 50ml (lower) and 250ml (upper) lines
- 2 White Caps, with white turret, for holding test strip
- 3 Plastic Spoons (one large pink spoon- 5cc for First Reagent; one smaller red spoon- 1cc for Second Reagent; and one smaller white spoon- 1cc for Third Reagent)
- 1 Large Bottle of First Reagent (350gm)
- 1 Bottle of Second Reagent (78gm ea.)
- 1 Bottle of Third Reagent (168gm ea.)
- 1 Bottle of Arsenic Test Strips (50 total) with waterproof color chart label - **Caution:** Each test strip pad contains about 1 mg Mercuric Bromide (HgBr_2)
- This Instruction Booklet
- Plastic Bag for Used Test Strips (*Not pictured*)
- 2 Yellow Caps for mixing
- Plastic Case for Components

Options:

- Thermometer - mercury free (*US \$3.99 each - sold separately, Order # 481196-T*)
- Stopwatch (*US \$14.99 each - sold separately, Order # 481660*)

About the Patented Reaction (Modified Gutzeit method):

Inorganic Arsenic compounds in the water sample are converted to Arsine (AsH_3) gas by the reaction of Zinc Dust and Tartaric Acid. Ferrous and Nickel salts have been added to accelerate this reaction. The Arsine reacts with the Mercuric Bromide on the test strip to form mixed Mercury halogens (such as AsH_2HgBr) that appear with a color change from white to yellow or brown. Potassium Peroxymonosulfate (second reagent) is added to oxidize Hydrogen Sulfide to Sulfate.

PRECAUTIONS: Hydrogen gas and Arsine gas are generated during the reaction. Work in a well-ventilated area away from fire and other sources of ignition. All reagents are unsuitable for human consumption and must be kept away from children and pets.

US Patent # 6696300

BEST ACCURACY & TROUBLESHOOTING

1. Perform a “practice run” of the test to familiarize yourself with all of the procedures and color matching to ensure accurate testing results. To gain confidence in using this test kit for unknown samples, it is highly recommended that you use the kit on a sample with a known inorganic Arsenic concentration, or with a sample that has been prepared using an Arsenic standard. Run the test in duplicate for better accuracy.
2. Run the test within 24 hours of collecting a fresh water sample. The water sample must not be preserved with Nitric Acid or any other preservation method as it will interfere with the test results. The water sample should also not contain any significant amount of buffers. If you are planning to send a duplicate sample for ICP laboratory verification, follow preservation requirements for that sample only.
3. Best test results are obtained when the water and room temperature are 22° – 28°C (72° - 82°F). The color chart is calibrated at 25°C/77°F. Cold and Warm water will cause low readings resulting in a false low reading. When the water is cold, make sure to warm the water sample to proper range prior to testing (using a microwave is acceptable). If the water temperature is above 28°C your result may read low (accelerator chemistry reacts too fast). Consideration must also be made for the air temperature when running the test.
4. Wash the reaction bottle with clean tap water before and after each test. When the reagents are allowed to sit in the bottle after the test, Reagent 3 may begin to adhere to the bottom of the bottle and will require more advanced cleaning with a bottlebrush.
5. Careful color matching will assure the best possible result. In some cases, an exact color match will not be available. Following these easy steps can make color matching more precise. When matching your test strip to the color chart, find a color that is clearly lighter than the test strip. Next, find a color that is clearly darker than the test strip. By defining a lowest and highest possible value range we can get closer to the correct color match.
7. Do not use components from other kits. Interchanging components will result in inaccurate results since each kit since the test kits are calibrated with all components.

Problem	Possible Causes/Solutions
Low or no color development on reaction pad after 10 minute reaction time.	<ol style="list-style-type: none"> 1. Incorrect temperature sample. Proper range 22°C-28°C (72°F-82°F) 2. The strip may not have been inserted correctly (see image 6). Run test again. 3. Correct amount of reagents may not have been added. Run test again. 4. The reaction cap may have been loose. Run test again. 5. The sample may contain organic arsenic or the arsenic is bound. Kit only tests for soluble inorganic arsenic. 6. Interference due to elevated nitrate, nitrite, or Lead in water sample. 7. Test strip pad is very wet, which inhibits colorimetric reaction. Moist pad at end of test is normal.
Color on the pad suggests more arsenic is present than expected OR Pad is darker than color chart.	<ol style="list-style-type: none"> 1. Possible interference, check for sulfide. If hydrogen sulfide is confirmed, allow sample to sit at room temperature, exposed to air for up to 8 hours (typically 50% of the hydrogen sulfide gas is dissipated every 8 hours). 2. Dilute sample 1:5 and run test again to bring results within range (see NOTE on page 4).
Little or no Hydrogen gas bubbles occur after Reagent 3 addition.	<ol style="list-style-type: none"> 1. Addition of Reagent 1 could have been omitted, run test again. 2. Excess oil and grease will hinder or suppress rate of gassing, dilute sample and run test again. 3. Strong acid may be present in sample as a preservative or from sample source because of where and how the sample was collected. Strong acids interfere with test. 4. pH of water sample is too alkali.

WARNING: Hydrogen and Arsine gases are generated during the test. Work in a well-ventilated area away from open flames and other sources of ignition. Review the Material Safety Data Sheet before handling any chemicals.



TEST PROCEDURE:

Part Number: 481297-I, 50 Tests

FOLLOW CAREFULLY FOR BEST RESULTS.

- 1 For best results, the water temperature should be 22°C to 28°C (72°F to 82°F). Use a thermometer to verify the temperature of the sample.
- 2 To the Reaction Bottle, slowly add the water sample to the upper marked line on the bottle (250 mL).
- 3 Add 1 level pink spoon of First Reagent to the Reaction Bottle. Cap securely with the yellow cap and shake vigorously, with bottle upright, for **15 seconds**.
- 4 Uncap the Reaction Bottle and add 1 level red spoon of the Second Reagent. Recap securely with the yellow cap and shake vigorously, with bottle upright, for **15 seconds**.
NOTE: To minimize H₂S interference, allow the sample to sit for **2 minutes** before performing Step 5.
- 5 Uncap the Reaction Bottle and add 1 level white spoon of Third Reagent. Cap securely with yellow cap and shake vigorously with bottle upright for **5 seconds**.
- 6 Immediately uncap and recap securely using the white turret cap. Turret cap must be dry.*
- 7 Remove one Arsenic test strip from its bottle (immediately recap the test strip bottle). Insert the test strip into the turret as illustrated in Figure A:
 - a) Position the strip so that the test pad and red line are facing the back of the white cap.
 - b) Insert the strip into the turret until the red line is even with the top of the turret, and now close (flip down) the turret. This will hold the test strip in place.
 - c) Allow the reaction to occur in an undisturbed, well-ventilated area.
(NOTE: the test strip must be inserted and oriented correctly, and to the correct depth, in order for the results to be accurate).
- 8 **Wait 12 minutes.**
- 9 **After the 12 minute wait**, pull up the turret and carefully remove the test strip (**do not let it fall into the bottle liquid**). Use the Arsenic Test Kit Color Chart label to match the test strip pad color **within the next 30 seconds** (colors oxidize when exposed to light). For best color matching, use natural daylight, but not direct sunlight.
- 10 Record your results.



Figure A

***(Mercuric Bromide strips (Arsenic test strips) will not react with arsine gas if they are wet!)**

NOTE: For best accuracy above 30 ppb (µg/L) dilute the sample 1 to 5 and repeat the test as follows: fill the reaction bottle to the bottom line with the sample to be tested. Add arsenic-free water to the top line (250mL) of the bottle and then run steps 3 to 9. Multiply the result by 5 to determine the actual arsenic value and record your result.

ATTENTION: After testing is completed, pour the reacted liquid down a drain not used for food preparation, and flush well with water. Rinse the bottle, yellow cap, and white turret cap with clean water. Shake off excess water from the caps: it is important that the White Turret Caps are dry before the next test. Store used test strips in a plastic bag marked "Used Mercuric Bromide (HgBr₂) Test Strips". Keep used test strips away from children and pets, and dispose according to local environmental regulations.

WARNING: Hydrogen and Arsine gases are generated during the test.
Work in a well-ventilated area away from open flames and other sources of ignition.
Review the Material Safety Data Sheet before handling any chemicals.

1

25°C - 28°C
77°F - 82°F

2

250 mL

3

1 X

Pink Spoon

00:00:15

4

1 X

Red Spoon

00:00:15

5

1 X

White Spoon

00:00:15

6

Firmly tighten cap

7

Back of cap

00:12:00

8

Wait

9

Match color within
30 SECONDS

10

Record Result

20 µg/L

MSDS 1

Material Safety Data Sheet

Section 1 Chemical Identification

Category # / Description: Part Number 481297-LR
Name: First Reagent (Low Range)

Section 2 Composition / Information on Ingredients

CAS#: 87-69-4	L-Tartaric Acid	98.8%
CAS#: 7720-78-7	Iron (II) Sulfate • 7H ₂ O	0.9%
CAS#: 10101-97-0	Nickel (II) Sulfate • 6H ₂ O	0.3%

Section 3 Hazards Identification

Precautionary Statements:

- May be irritating to eyes and nasal passages.
- Low toxicity orally, moderately toxicity intravenously.
- Tartaric Acid is reported to have an oral rabbit LD50 at

5000 mg/kg, and a dermal rat LD50 at 485 mg/kg. Tartaric Acid Reagent has minimal toxicological effect. However, inhalation may cause irritation of respiratory tract; ingestion in large amounts may cause gastrointestinal upset; skin or eye contact may cause mild irritation; prolonged exposure may cause allergic reaction. Wash hands after use.

- Iron (II) Sulfate is harmful if swallowed or inhaled. Causes irritation to skin, eyes, and respiratory tract. Affects the liver. Oral mouse LD50: 1520 mg/kg.

- Nickel Sulfate is toxic. Harmful if swallowed. Possible risk of irreversible effects. May cause sensitization by inhalation and skin contact. Possible carcinogen.

Toxicity data: oral rat LD50: 264 mg/kg.

Section 4 First-Aid Measures

- If swallowed, wash out mouth with water. Call a physician or the Poison Control Center as a precaution.
- In case of skin contact, flush with copious amounts of water for at least 15 minutes.
- In case of contact with eyes, flush with copious amounts of water for at least 15 minutes.
- If inhaled, remove to fresh air. If breathing is difficult, give oxygen and seek medical advice.

Section 5 Fire Fighting Measures

Not Applicable since the amount of First Reagent per kit is negligible.

Section 6 Exposure Controls / Personal Protection

Do not expose to eyes, skin, or clothing. Keep away from children and pets. Wash hands thoroughly after handling. Maintain general hygienic practices when using this product.

Section 7 Physical and Chemical Properties

Appearance and Odor:

- Solid/semi-solid, white powder. Soluble in water.

Physical Properties:

- | | |
|---------------------|----------------|
| • Melting Point: | Not Applicable |
| • Vapor Pressure: | Not Applicable |
| • Specific Gravity: | Not Applicable |
| • Vapor Density: | Not Applicable |

Stability:

- Stable when stored under proper conditions.

Hazardous Polymerization:

- Will not occur.

Incompatibilities:

- Reaction with silver, zinc, aluminum in the presence of water or moisture will release explosive Hydrogen gas.

Section 8 Toxicological Information

Acute Effects:

- Do not breathe dust! Avoid contact with eyes, skin, and clothing. Avoid prolonged or repeated exposure.

Section 9 Other Information

The above information is believed to be correct but does not purport to be all-inclusive and shall be used ONLY as a guide. Keep away from children and pets. Store in a dry, cool place. Keep container tightly closed.

SDS 1

Safety Data Sheet

Section 1 Product and Company Information

Product Name: Second Reagent	Product Number: 481196-E
Recommended use: Used to detect arsenic in water	
Restricted use: Not applicable	
Mfg. name: Industrial Test Systems, Inc.	
Mfg. address: 1875 Langston Street, Rock Hill, SC	
Emergency Telephone (poison control): 1-800-222-1222	
Mfg. Telephone: 1-803-329-9712	

Section 2 Hazard Identification

Hazard(s): DANGER: CORROSIVE. Causes skin and eye damage. May be fatal if swallowed. Irritation to nose and throat.

Required labeling: N/A

Section 3 Composition/Information on Ingredients

Reagent: Potassium Peroxymonosulfate	CAS: 10058-23-8	TSCA#: N/A
RTECS#: N/A	%: 43	Hazard: N/A
Reagent: Potassium Bisulfate	CAS: 7646-93-7	TSCA#: N/A RTECS#: N/A
%: 23	Hazard: N/A	
Reagent: Potassium Sulfate	CAS: 7778-80-5	TSCA#: N/A RTECS#: N/A
%: 29	Hazard: N/A	
Reagent: Potassium Peroxydisulfate	CAS: 7727-21-1	TSCA#: N/A RTECS#: N/A
%: 3	Hazard: N/A	
Reagent: Magnesium Carbonate	CAS: 546-93-0	TSCA#: N/A RTECS#: N/A
%: 2	Hazard: N/A	

Section 4 First-Aid Measures

Contact Area First-aid

Eyes Flush with large amounts of cold water for 15 minutes.
Skin Rinse with large amounts of water for 15 minutes. Remove contaminated clothing.

Ingestion If swallowed, do not induce vomiting. Drink 1-2 glasses of water to dilute the stomach contents. Do not give water to the victim if they are unconscious. Call a physician immediately.

Inhalation If inhaled, remove person to fresh air source. If breathing is still difficult, have a trained person administer oxygen. If not breathing, give artificial respiration. Call a physician immediately.

Most likely effect Irritation

Section 5 Fire Fighting Measures

Extinguishing media: Water **Explosion Hazard:** Not flammable or combustible.

Will release oxygen when heated, acidic mist may be present **Flash Point:** N/A

Special fire fighting procedures: N/A

Section 6 Accidental Release Measures

Sweep up and dispose in normal trash. Do not breathe dust. Wash hands.

Section 7 Handling and Storage

Use standard hygienic practices (no eating, drinking, or smoking) around the product. Wash hands after use. Keep away from children and pets. Keep container tightly closed. Mixing with compounds containing halides or active halogens can cause release of the respective halogen in the presence of moisture. Mixing with cyanides can cause release of hydrogen gas. Mixing with heavy metal salts such as those of cobalt, nickel, copper, or manganese can cause decomposition with release of oxygen and heat.

Section 8 Exposures Controls/Personal Protection

OSHA Permissible Limits: No data **Engineering controls:** Adequate ventilation.

Use dust mask if there is a large spill. **Personal Protective Equipment (PPE):** Use PPE appropriate for the surroundings. **Other:** Use gloves to prevent contact irritation. Use eye protection to prevent droplets from entering the eye. Ensure an eyewash station is available.

Section 9 Physical and Chemical Properties

Appearance: White, granular free-flowing solid **Melting/Freezing point:** N/A
Decomposition temperature: No data **Upper/Lower flammability limit:** No data
Solubility: N/A **Viscosity:** N/A **Odor:** odorless **Initial boiling point/range:** N/A
Vapor Pressure: Not volatile **Flash point:** No data **Odor threshold:** N/A
Evaporation rate: N/A **Vapor density:** N/A **Flammability:** flammable
pH: 2.3 (1% in water) **Partition coefficient:** N/A **Relative density:** 1.1 – 1.4
Auto-ignition temperature: No data

Section 10 Stability and Reactivity

Product is stable under normal conditions. Hazardous polymerization will not occur. Reacts with zinc, silver, and/or aluminum in the presence of water or moisture to rapidly release explosive hydrogen gas.

Section 11 Toxicological Information

Acute Effects:

- Skin Absorption: >11,000 mg/kg (rabbits)
- Oral LD₅₀: 2,000 mg/kg (rats)
- Inhalation LC₅₀: >5 mg/L (rats) (4 hour)

Section 12 Ecological Information

Data not available.

Section 13 Disposal Considerations

Dispose in normal trash. Do not breathe dust. At no time should First Reagent, Second Reagent, and Third Reagent be mixed together in dry (powder) form!

Section 14 Transport Considerations

Not applicable - material is not hazardous

Section 15 Regulatory Information

The above information is believed to be correct but does not purport to be all-inclusive and shall be used ONLY as a guide. Keep away from children and pets. Store in a dry, cool place. Keep container tightly closed.

Section 16 Other Information

Preparer: H. R. **Date Prepared:** 5-3-17 **Supersedes Revision:** 12-16-15

Disclaimer: The information in this Safety Data Sheet is accurate to the best of our knowledge. It is designed only as a guidance for safe use, handling, storage, and disposal. This information is not considered to be a warranty or a quality specification.

SDS 1
Safety Data Sheet

Section 1 Product and Company Information

Product Name: Third Reagent **Product Number:** 481196-F
Recommended use: Used to detect arsenic in water
Restricted use: Not applicable
Mfg. name: Industrial Test Systems, Inc.
Mfg. address: 1875 Langston Street, Rock Hill, SC
Emergency Telephone (poison control): 1-800-222-1222
Mfg. Telephone: 1-803-329-9712

Section 2 Hazard Identification

Hazard(s): TOXIC: May be fatal if swallowed. **IRRITANT:** Irritation to nose and throat.
Required labeling: Not applicable

Section 3 Composition/Information on Ingredients

Reagent	CAS	TSCA#	RTCS#	%	Hazard
Zinc	7440-66-6	N/A	N/A	>99	Toxic, Irritant

Section 4 First-Aid Measures

Contact Area First-aid
Eyes Flush with large amounts of cold water for 15 minutes. Call a physician immediately.
Skin Wash with soap and water for 15 minutes. Remove contaminated clothing.
Ingestion If swallowed, wash out mouth with water. If a large amount is swallowed, call a physician.
Inhalation Antidote: Calcium disodium edetate/dextrose, intravenous; Calcium disodium edetate/procaine, intramuscular
If inhaled, remove person to fresh air source. Call a physician.
Most likely effect Irritation of skin and nose.

Section 5 Fire Fighting Measures

Extinguishing media: Dry chemical, sand, lime, soda ash.
Explosion Hazard: Very fine dust may form explosive mixtures with air.
Flash Point: N/A **Special fire fighting procedures:** Do not use water or foam

Section 6 Accidental Release Measures

Do not touch spilled material. Avoid heat, flames, sparks, and other sources of ignition. Remove sources of ignition. Collect material into suitable, loosely covered container for disposal. Do not get water directly on material.

Section 7 Handling and Storage

Use standard hygienic practices (no eating, drinking, or smoking) around the product. Wash hands after use. Keep away from children and pets. Keep container tightly closed. Use in well ventilated area. Handle carefully to limit dust. Store in a cool, dry place.

Section 8 Exposures Controls/Personal Protection

OSHA Permissible Limits: N/A
Engineering controls: Adequate ventilation. Use dust mask if there is a large spill.
Personal Protective Equipment (PPE): Use PPE appropriate for the surroundings.
Other: Use gloves to prevent contact irritation. Use eye protection to prevent droplets from entering the eye. Ensure an eyewash station is available.

Section 9 Physical and Chemical Properties

Appearance: Grayish, powdery solid **Melting/Freezing point:** 420°C/N/A
Decomposition temperature: No data **Upper/Lower flammability limit:** No data
Solubility: reacts **Viscosity:** N/A **Odor:** odorless
Initial boiling point/range: N/A **Vapor Pressure:** 1mmHg @ 487°C
Flash point: No data **Odor threshold:** N/A **Evaporation rate:** N/A
Vapor density: N/A **Flammability:** flammable **pH:** N/A
Partition coefficient: N/A **Relative density:** 7.14
Auto-ignition temperature: No data

Section 10 Stability and Reactivity

Product is stable under normal conditions. Hazardous polymerization will not occur. Finely divided powder may react with water. Keep away from acids, bases, metals, oxidizers, reducing agents, combustible materials.

Section 11 Toxicological Information

Eye Contact: Dust may cause mechanical irritation or injury to the surface of the eye, with discomfort, reddening, and tearing. Direct contact may cause serious corneal burns.
Skin Contact: Dust may cause mechanical irritation and mild dermatitis.
Ingestion: Large oral doses may cause gastrointestinal distress with stomach cramps, dehydration, electrolyte imbalance, abdominal pain, nausea, vomiting, hematemesis, diarrhea, lethargy, immune system effects, fever, dizziness, tightness in the throat, shock, collapse, renal failure, and death.

Section 12 Ecological Information

Data not available.

Section 13 Disposal Considerations

Dispose in normal trash. Do not breathe dust. At no time should First Reagent, Second Reagent, and Third Reagent be mixed together in dry (powder) form!

Section 14 Transport Considerations

Not applicable - packaged as part of a reagent set.

Section 15 Regulatory Information

The above information is believed to be correct but does not purport to be all-inclusive and shall be used ONLY as a guide. Keep away from children and pets. Store in a dry, cool place. Keep container tightly closed.

Section 16 Other Information

Preparer: H. R.
Date Prepared: 10-10-16
Supersedes Revision: 12-16-15
Disclaimer: The information in this Safety Data Sheet is accurate to the best of our knowledge. It is designed only as a guidance for safe use, handling, storage, and disposal. This information is not considered to be a warranty or a quality specification. This company shall not be held liable for any damage resulting from handling or from contact with the above product.

SDS 1
Safety Data Sheet

Section 1 Product and Company Information

Product Name: Arsenic Quick Strip **Product Number:** 481196-G
Recommended use: Used to detect arsenic in water
Restricted use: Not applicable
Mfg. name: Industrial Test Systems, Inc.
Mfg. address: 1875 Langston Street, Rock Hill, SC
Emergency Telephone (poison control): 1-800-222-1222
Mfg. Telephone: 1-803-329-9712

Section 2 Hazard Identification

Hazard(s): Pad contains Mercury.

Required labeling: N/A

Section 3 Composition/Information on Ingredients

Reagent: Mercuric Bromide **CAS:** 7789-47-1 **TSCA#:** N/A
RTCS#: OV7415000 **%:** Approx. 1mg **Hazard:** Oral LD₅₀ (rat) 40mg/kg

Section 4 First-Aid Measures

Contact Area First-aid
Eyes Flush with copious amounts of cold water for 5 minutes.
Skin Rinse with large amounts of water for 2 minutes. Remove contaminated clothing.
Ingestion Rinse mouth with water. As a precaution, call a physician or Poison Control.
Inhalation Evacuate to fresh air. If breathing is difficult, give oxygen and seek medical advice.

Most likely effect Irritation

Section 5 Fire Fighting Measures

Extinguishing media: Use that which is appropriate for the surrounding fire.
Explosion Hazard: None found **Flash Point:** N/A
Special fire fighting procedures: N/A

Section 6 Accidental Release Measures

Sweep up strips and put into a plastic bag labeled "Used Test Strips." Dispose of used strips per local environmental and regulatory requirements. Wash hands after use.

Section 7 Handling and Storage

Use standard hygienic practices (no eating, drinking, or smoking) around the product. Wash hands after use. Keep away from children and pets. Keep container tightly closed.

Section 8 Exposures Controls/Personal Protection

OSHA Permissible Limits: N/A **Engineering controls:** N/A
Personal Protective Equipment (PPE): Use PPE appropriate for the surroundings.
Other: Use gloves to prevent contact irritation. Use eye protection to prevent droplets from entering the eye. Ensure an eyewash station is available.

Section 9 Physical and Chemical Properties

Appearance: Off-white pad on plastic handle **Melting/Freezing point:** N/A
Decomposition temperature: No data **Upper/Lower flammability limit:** No data
Solubility: N/A **Viscosity:** N/A **Odor:** odorless **Initial boiling point/range:** N/A
Vapor Pressure: N/A **Flash point:** No data **Odor threshold:** N/A
Evaporation rate: N/A **Vapor density:** N/A **Flammability:** flammable
pH: N/A **Partition coefficient:** N/A **Relative density:** N/A
Auto-ignition temperature: No data

Section 10 Stability and Reactivity

Product is stable. Hazardous polymerization will not occur. Firefighters should wear full protective clothing and self-contained breathing apparatus when fighting fires involving plastic and PVC materials.

Section 11 Toxicological Information

Each strip contains about 1mg Mercuric Bromide so toxicological effects are minimal because of the low exposure. Material, however, is toxic and should be handled carefully to minimize exposure. Place all used test strips into a plastic bag labeled "Used Test Strips." Dispose of used strips per local environmental and regulatory requirements. Wash hands after use.

Section 12 Ecological Information

Data not available.

Section 13 Disposal Considerations

Dispose of the test strips according to regulatory requirements.

Section 14 Transport Considerations

Not applicable - the strips are not hazardous

Section 15 Regulatory Information

This strip is considered an article under OSHA rules (CFR29, 1910.1200). "Article means a manufactured item other than a fluid or particle: (i) which is formed to a specific shape or design during manufacture; (ii) which has end use function(s) dependent in whole or in part upon its shape or design during end use; and (iii) which under normal conditions of use does not release more than very small quantities, e.g., minute or trace amounts of a hazardous chemical (as determined under paragraph (d) of this section), and does not pose a physical hazard or health risk to employees".

A Safety Data Sheet (SDS) is not required for articles. This SDS is provided as a courtesy.

Section 16 Other Information

Preparer: H. R. **Date Prepared:** 5-3-17 **Supersedes Revision:** 9-21-16
Disclaimer: The information in this Safety Data Sheet is accurate to the best of our knowledge. It is designed only as a guidance for safe use, handling, storage, and disposal. This information is not considered to be a warranty or a quality specification.

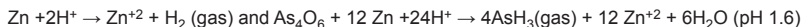
Our products are compliant with all
49CFR and IATA rules and regulations.

LETTER FROM THE KIT INVENTOR

Thank you for purchasing our U.S. Patented (# 6,696,300) Arsenic Quick™ II Kit. Our company has trademarked the kits Quick™ because of the short 14 minute time for analysis.

The Drinking Water standard of the US EPA and the World Health Organization (WHO) allows a maximum contaminant level of 10 ppb (µg/L) for Arsenic. The old US EPA level of 50 ppb (µg/L) remains as the maximum contaminant level for many countries in the world.


For several years, Industrial Test Systems, Inc. (ITS) committed a major research & development effort to provide better and safer arsenic test kits. The goal was achieved. The test was made safer by using tartaric acid, instead of strong acids, for the reduction of inorganic arsenic (As³⁺/As⁵⁺) to arsine gas. For these efforts a US Patent was granted for the acceleration of the arsenic detection chemistry by the addition of metal enhancers, iron and nickel salts. This permits Arsenic field tests to be completed faster. The Quick™ II series of kits use a modified Turret cap which allows detection of arsenic below 10 ppb (µg/L). The reduction reactions utilized in all kits are as follows:



The analysis is performed in a closed reaction bottle (plastic) with an appropriate volume of sample (50 to 500 ml). After the 10 minute reduction reaction, the mercuric bromide strip or testing pad is removed and matched to the color chart or color analyzed by the Quick™ Arsenic Scan instrument. A light yellow to brown color change indicates that arsenic is present. The color intensity is proportionately related to the concentration of arsenic in the sample. NOTE: ITS test kits detect free inorganic arsenic only. ICP-MS methods detect inorganic and organic arsenic. If organic arsenic is present, ITS kit results can be expected to give lower values when compared to ICP-MS results.

Quick™ Arsenic Test Kits Available:

US Patent # 6696300

PRODUCT NAME (PART NUMBER)	NO. OF TESTS		OPTIMUM RANGE* ppb (µg/L)	TYPICAL COLOR CHART DETECTION LEVELS ppb (µg/L)	TYPICAL ACCURACY** OF DUPLICATES USING QUICK™ ARSENIC SCAN
Arsenic Quick™ Mini Kit (481396-5) (Can also be used for soil analysis.)	5	YES	10 to 200	0, 5, 10, 20, 60, 100, 300, 500, >500, >>500	+/-18 ppb or +/-30%
Arsenic Quick™ Mini Kit (481396-W) (for wood analysis only.)	5	N/A	10 to 200	0, 5, 10, 20, 60, 100, 300, 500, >500, >>500	+/-18 ppb or +/-30%
Arsenic Quick™ II Mini Kit (481303-5)	5	YES	3 to 20	<1, 2, 3, 4, 5, 6, 7, 8, 10, 13, 20, 25, 30, 40, >50, >80, >120, >160	+/-1.2 ppb or +/-16%
Arsenic Low Range Quick™ II Mini Kit (481301-5)	5	YES	1 to 10	<0.5, 1, 1.5, 2, 3, 4, 5, 6, 7, 8, 12, >20, >30, >50	+/-0.8 ppb or +/-14%
Arsenic Ultra-Low Quick™ II Mini Kit (481300-5)	5	YES	0.5 to 6	0, 0.3, 0.7, 1.0, 1.5, 2, 2.5, 3, 3.5, 4, 5, 6, 8, 10, 13, 20, >20	+/-0.4 ppb or +/-12%
Arsenic Quick™ Kit (481396) (Can also be used for soil analysis.)	100	YES	10 to 200	5, 10, 20, 30, 40, 50, 60, 80, 100, 150, 200, 250, 300, 400, 500, >500	+/-18 ppb or +/-30%
Arsenic Low Range Quick™ (481297-I)	50	YES	7 to 80	<2, 4, 10, 15, 20, 25, 30, 40, 50, 60, 70, 80, 100, >150, >300	+/-8 ppb or +/-25%
Arsenic Quick™ II (481303)	50	YES	3 to 20	<1, 2, 3, 4, 5, 6, 7, 8, 10, 13, 20, 25, 30, 40, >50, >80, >120, >160	+/-1.2 ppb or +/-16%
Arsenic Low Range Quick™ II (481301)	50	YES	1 to 10	<0.5, 1, 1.5, 2, 3, 4, 5, 6, 7, 8, 12, >20, >30, >50	+/-0.8 ppb or +/-14%
Arsenic Ultra-Low Quick™ II (481300)	25	YES	0.5 to 6	0, 0.3, 0.7, 1.0, 1.5, 2, 2.5, 3, 3.5, 4, 5, 6, 8, 10, 13, 20, >20	+/-0.4 ppb or +/-12%
Quick™ Arsenic Scan Instrument (481305)	1 meter	YES	N/A	0.01 to >1.00 color density ppb (µg/L) (as low as 0.2 ppb (µg/L) arsenic)	(see above)

Information on the performance characteristics of Quick™ can be found at www.epa.gov/etv, or call ITS at 1-800-861-9712 for a copy of the ETV verification report. The use of the ETV® Name or Logo does not imply approval or certification of this product nor does it make any explicit or implied warranties or guarantees as to product performance.

*Accuracy was not stated on the label for the kit which is a strip around the actual value. The Typical Accuracy listed is data generated by a technician in our lab using the Quick™ Arsenic Scan instrument measuring reference solutions. The typical accuracy is the range of the values listed. Example: using Quick™ II, if the mean is 40 ppb, then the typical accuracy is +/-18 ppb which is larger than +/-12 ppb (40 ppb x 30%).

Where precision is important, ITS recommends that you run the water sample in duplicate, since the typical color matching is within one color block. For best precision consider the purchase of our Quick™ Arsenic Scan instrument. This unit is ideal for use with all test kits. Please contact our sales department at 803-329-9712 for more information or to order the Quick™ Arsenic Scan instrument.

Typical shelf life of kits is over 12 months. The kit includes First Reagent (Tartaric acid with iron and nickel salts); Second Reagent (MPS, an oxidizer); Third Reagent (zinc dust); and mercuric bromide strips, which contains about 1mg mercury per strip. After use, the strips should be discarded according to local environmental regulations. Valuable safety information about the kit is in the MSDS literature. As a safeguard to minimize the operator's exposure to arsine and hydrogen gas, please run all tests in a well-ventilated area away from open flames and other sources of ignition. Arsine gas is highly toxic; and this precaution becomes more urgent if the water sample has high arsenic levels.

Cordially yours,

Ivars Jaunakais, Analytical Chemist

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