Econo-QUICK™ As+3 As+5

Rapid Arsenic Test Kit

Kit Part #481298
300 Tests

FOR WATER ANALYSIS

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Uses same technology as our ETV test kits.

Information on the performance characteristics of our kits 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.

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.

481298-INST
Revision: 09/02/20

ABOUT KIT # 481298:

Part Number: 481298, 300 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 1000µg/L (up to 5000µg/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 (72°F to 82°F). The color chart was standardized at 25°C (77°F). 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 10ml (lower) and 50ml (upper) lines
- 2 White Caps, with white turret, for holding test strip
- 3 Plastic Spoons (one large pink spoon- 1.25cc for First Reagent; one smaller red spoon- 0.15cc for Second Reagent; and one smaller white spoon 0.15cc for Third Reagent)
- 1 Large Bottle of First Reagent (395 gm)
- 1 Bottle of Second Reagent (78 gm)
- 1 Bottle of Third Reagent (140 gm)
- 3 Bottles of Arsenic Test Strips (300 total) with waterproof color chart label - **Caution:** Each test strip pad contains about 1mg 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 for best result. As reflected in the color chart, the border color differs from the inside color of the test strip, this is normal. In some cases, an exact color match will not be available. Do not estimate a value not on the color chart. First, identify the color block closest to the pad color. It is customary to add a plus (+) or a minus (-) to the recorded result; if the pad color is darker than the color block report the result as "color block value" (+) or if the pad color is lighter report the result "color block value" (-). For example, the pad color is slightly lighter than the 10 color block. Record Result as 10- (ppb)
6. 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.	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 expecte OR Pad is darker than color chart.	1. Possible interference, check for sulfide. If hydrogen sulfide is confirmed, allow sample to sit at room temperature, exposed to airfor 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.	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.

Econo-QUICK™ As^{+3} As^{+5} Arsenic Test Kit

TEST PROCEDURE:

Part Number: 481298, 300 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 (50 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 H_2S 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 (see Figure 1).
   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 10 minutes**.
9. **After the 10 minute wait (no longer than 12 minutes)**, 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

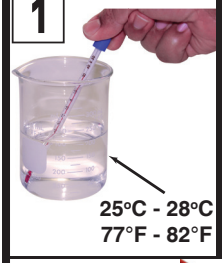
(Mercuric Bromide strips (Arsenic test strips) will not react with arsine gas if they are wet!)

NOTE: For best accuracy above 500µg/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 (50mL) of the bottle and then run steps 2 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 ($HgBr_2$) Test Strips". Keep used test strips away from children and pets, and dispose according to local environmental regulations.

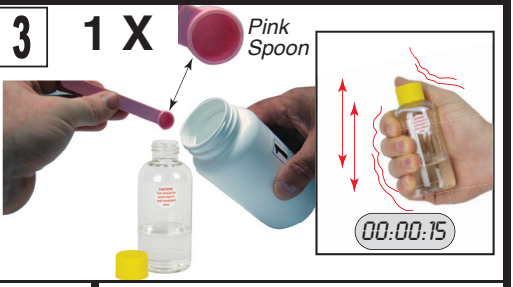
WARNING: Hydrogen and Arsine gases are generated during the test.
Work in a well-ventilated area away from open flames and other sources of ignition.
Review the Material Safety Data Sheet before handling any chemicals.

1



2

3 1 X *Pink Spoon*



4 1 X *Red Spoon*

Wait

5 1 X *White Spoon*

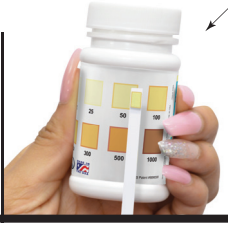
6 Firmly tighten cap

7

8 Wait

9

Match color within *30 SECONDS*



10 Record Result

SDS 1
Safety Data Sheet

Section 1 Product and Company Information

Product Name: First Reagent **Product Number**: 481298-D
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): Not hazardous: food grade tartaric acid, less than 1% of other ingredients.
Required labeling: Not applicable

Section 3 Composition/Information on Ingredients

Reagent	CAS	TSCA#	RTECS#	%	Hazard
L-Tartaric Acid	87-69-4	N/A	N/A	98.9	Food grade, N/A

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	Rinse with large amounts of water for 15 minutes. Remove contaminated clothing.
Ingestion	If swallowed, wash out mouth with water. Do not induce vomiting. Call a physician.
Inhalation	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: Use that which is appropriate for the surrounding fire.
Explosion Hazard: Not flammable or combustible.
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. Use in well ventilated area. Handle carefully to limit dust.

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: Water soluble **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**: Acidic
Partition coefficient: N/A **Relative density**: No data
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

No data. Do not breathe dust.

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: 10-10-16
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.

SDS 2
Safety Data Sheet

Section 1 Product and Company Information

Product Name: Second Reagent **Product Number**: 481298-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 LD_{50}: 2,000 mg/kg (rats)
- Inhalation LC_{50}: >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 3
Safety Data Sheet

Section 1 Product and Company Information

Product Name: Third Reagent **Product Number**: 481298-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#	RTECS#	%	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.
Antidote: Calcium disodium edetate/dextrose, intravenous; Calcium disodium edetate/procaine, intramuscular
Inhalation 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 4
Safety Data Sheet

Section 1 Product and Company Information

Product Name: Arsenic Quick Strip **Product Number**: 481298-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
RTECS#: OV7415000 **%**: Approx. 1mg **Hazard**: Oral LD_{50} (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 Arsenic Econo Quick™ 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 to a major research and development effort to provide better and safer arsenic test kits. For these efforts US Patent# 6696300 was granted for the acceleration of arsenic detection through the addition of iron and nickel salts. This innovation permits arsenic field tests to be completed in less time. The test was made safer by using tartaric acid, instead of liquid acids, for the reduction of inorganic arsenic (As^{+3}/As^{+5}) to arsine gas. The Quick™ II series of kits use a modified turret/aperture cap, allowing detection of arsenic below 5ppb (µg//L). The reduction reactions utilized in all kits are as follows:

$Zn + 2H^+ \rightarrow Zn^{+2} + H_2$ (gas) and $As_4O_6 + 12\ Zn + 24H^+ \rightarrow 4AsH_3$(gas) + $12\ Zn^{+2} + 6H_2O$ (pH 1.6)

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.

Inorganic Arsenic Kits Available:

US Patent # 6696300

PRODUCT NAME (PART NUMBER)	OPTIMUM RANGE* ppb (µg/L)	TYPICAL COLOR CHART DETECTION LEVELS ppb (µg/L)	TYPICAL ACCURACY** USING QUICK™ ARSENIC SCAN	# OF TESTS
Arsenic Quick™ **(481396)**	10 to 200	0, 5, 10, 20, 60, 100, 300, 500, >500, >>500	+/-18 ppb or +/-30%	**100**
Arsenic Quick™ II **(481303)**	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%	**50**
Arsenic Low Range Quick™ II **(481301)**	1 to 10	<0.5, 1, 1.5, 2, 3, 4, 5, 6, 7, 8, 12, >20, >30, >50	+/-0.8 ppb or +/-14%	**50**
Arsenic Ultra-Low Quick™ II **(481300)**	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%	**25**
Quick™ Arsenic Scan Instrument **(481305)**	—	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. 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.

** As with any test, actual results will fall within a range around the actual value. The Typical Accuracy listed is from data generated by a technician in our lab using the Quick™ Arsenic Scan instrument measuring interference-free aqueous arsenic standards. Kit expected accuracy is the larger of the two values listed. {Example using Quick™: 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 when stored in a cool, dry place away from direct sunlight. 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 contain 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; this precaution becomes more urgent if the water sample has high arsenic levels.

Cordially yours,

Ivars Jaunakais, Analytical Chemist

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