Safety Data Sheet
Periodic Acid Schiff (PAS) Stain Kit (OSHA)

SECTION 1: Identification

1.1 GHS Product identifier

Product name	Periodic Acid Schiff (PAS) Stain Kit (OSHA)
Product number	KT027
Brand	Periodic Acid Schiff (PAS) Stain Kit

1.2 Other means of identification

Kit Component	Volume	Storage
1. Periodic Acid Solution	250 ml	2-8° C
2. Schiff's Solution	250 ml	2-8° C
3. Hematoxylin, Mayer's	125 ml	18-25°C
4. Bluing Reagent	125ml	18-25°C
5. Light Green Solution	125ml	18-25°C

1.3 Recommended use of the chemical and restrictions on use
In Vitro Diagnostic Use

1.4 Supplier's details

Name	Diagnostic Biosystems
Address	6616 Owens Drive Pleasanton CA 94588 USA
Telephone	(888) 896-3350
email	customersupport@dbiosys.com

1.5 Emergency phone number

(925) 484-3350 (9AM-6PM, Monday - Friday, Pacific Standard Time)

SECTION 2: Hazard identification

General hazard statement
For Professional Users Only

2.1 Classification of the substance or mixture

GHS classification in accordance with: OSHA (29 CFR 1910.1200)

- Acute toxicity, inhalation (chapter 3.1), Cat. 5
- Carcinogenicity (C.4.9), Cat. 1B
- Eye damage/irritation (C.4.5), Cat. 1
- Skin corrosion/irritation (C.4.4), Cat. 2

2.2 GHS label elements, including precautionary statements

Pictogram

1. Exclamation mark; 2. Health hazard; 3. Corrosion

Signal word	**Danger**

Hazard statement(s)

H315	Causes skin irritation
H317	May cause an allergic skin reaction
H318	Causes serious eye damage
H332	Harmful if inhaled
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.
P261	Avoid breathing dust/fume/gas/mist/vapors/spray.
P264	Wash hands thoroughly after handling.
P271	Use only outdoors or in a well-ventilated area.
P272	Contaminated work clothing should not be allowed out of the workplace.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P302+P352	IF ON SKIN: Wash with plenty of water.
P304+P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308+P313	IF exposed or concerned: Get medical advice/attention.
P310	Immediately call a POISON CENTER/doctor.
P333+P313	If skin irritation or rash occurs: Get medical advice/attention.
P362+P364	Take off contaminated clothing and wash it before reuse.
P405	Store locked up.
P501	Dispose of contents/container to a licensed disposal company.

SECTION 3: Composition/information on ingredients

3.2 Mixtures

Components

Component 1 (Periodic Acid Solution).
1. Periodic acid

Concentration	< 1 % (volume)

Other names / synonyms	Periodic acid (H5IO6)
CAS no.	10450-60-9

Component 2 (Schiff's Solution).
1. Sodium metabisulfite

Concentration	<= 2 % (weight)
Other names / synonyms	Disodium disulphite; Disulfurous acid, sodium salt (1:2); Sodium disulfite; sodium metabisulphite; Sodium pyrosulfite
EC no.	231-673-0
CAS no.	7681-57-4
Index no.	016-063-00-2

- Acute toxicity, oral (C.4.1), Cat. 4
- Eye damage/irritation (C.4.5), Cat. 1

H302	Harmful if swallowed
H318	Causes serious eye damage

2. Hydrochloric acid

Concentration	<= 1 % (volume)
Other names / synonyms	Acidum hydrochloricum; hydrogen chloride; HYDROGEN CHLORIDE (gas)
EC no.	231-595-7
CAS no.	7647-01-0
Index no.	017-002-01-X

- Skin corrosion/irritation (C.4.4), Cat. 1
- Eye damage/irritation (C.4.5), Cat. 1
- Acute toxicity, inhalation (C.4.3), Cat. 3

H314	Causes severe skin burns and eye damage
H318	Causes serious eye damage
H331	Toxic if inhaled
SCLs/M-factors/ATEs	Skin Corr. 1B; H314: C ≥ 25 %
	Skin Irrit. 2; H315: 10 % ≤ C < 25 %
	Eye Irrit. 2; H319: 10 % ≤ C < 25 %
	STOT SE 3; H335: C ≥ 10 %

3. PARAROSANILINE HYDROCHLORIDE

Concentration	<= 0.5 % (weight)
Other names / synonyms	Benzenamine, 4-[(4-aminophenyl)(4-imino-2,5-cyclohexadien-1-ylidene)methyl]-, monohydrochloride; C.I. Basic Red 9 monohydrochloride;
EC no.	209-321-2
CAS no.	569-61-9
Index no.	611-031-00-X

- Carcinogenicity (C.4.9), Cat. 1B

H350	May cause cancer

4. Aluminum sulfate

Concentration	<= 5 % (weight)
Other names / synonyms	Aluminii sulfas; Aluminium sulfate; Aluminium sulphate; Sulfuric acid, aluminum salt (3:2)
CAS no.	10043-01-3

Component 3 (Hematoxylin, Mayer's).

1. Acetic acid

Concentration	<= 2 % (volume)
Other names / synonyms	acetic acid; ACETIC ACID; ACETIC ACID, GLACIAL; ACETICACID; Acidum aceticum; ETHANOIC ACID; ETHYLIC ACID; GLACIAL ACETIC ACID; METHANECARBOXYLIC ACID; UN 2789; UN 2790; VINEGAR ACID
EC no.	200-580-7
CAS no.	64-19-7
Index no.	607-002-00-6

- Flammable liquids (C.4.19), Cat. 3
- Skin corrosion/irritation (C.4.4), Cat. 1A

H226	Flammable liquid and vapor
H314	Causes severe skin burns and eye damage
SCLs/M-factors/ATEs	Skin Corr. 1A; H314: C ≥ 90 % Skin Corr. 1B; H314: 25 % ≤ C < 90 % Skin Irrit. 2; H315: 10 % ≤ C < 25 % Eye Irrit. 2; H319: 10 % ≤ C < 25 %

2. HEMATOXYLIN

Concentration	<= 1 % (weight)
Other names / synonyms	Benz[b]indeno[1,2-d]pyran-3,4,6a,9,10(6H)-pentol, 7,11b-dihydro-, cis-(++)-;
CAS no.	517-28-2

Component 4 (Bluing Reagent).

1. Sodium hydroxide

Concentration	<= 2 % (weight)
Other names / synonyms	Caustic soda; Natrii hydroxidum; Sodium hydroxide ; Sodium hydroxide (Na(OH));
EC no.	215-185-5
CAS no.	1310-73-2
Index no.	011-002-00-6

- Skin corrosion/irritation (C.4.4), Cat. 1A

H314	Causes severe skin burns and eye damage
SCLs/M-factors/ATEs	Skin Corr. 1A; H314: C ≥ 5 % Skin Corr. 1B; H314: 2 % ≤ C < 5 % Skin Irrit. 2; H315: 0,5 % ≤ C < 2 % Eye Irrit. 2; H319: 0,5 % ≤ C < 2 %

Component 5 (Light Green Solution).
1. Acetic acid

Concentration	<= 0.05 % (volume)
Other names / synonyms	acetic acid; ACETIC ACID; ACETIC ACID, GLACIAL; ACETICACID; Acidum aceticum; ETHANOIC ACID; ETHYLIC ACID; GLACIAL ACETIC ACID; METHANECARBOXYLIC ACID; UN 2789; UN 2790; VINEGAR ACID
EC no.	200-580-7
CAS no.	64-19-7
Index no.	607-002-00-6

- Flammable liquids (C.4.19), Cat. 3
- Skin corrosion/irritation (C.4.4), Cat. 1A

H226	Flammable liquid and vapor
H314	Causes severe skin burns and eye damage
SCLs/M-factors/ATEs	Skin Corr. 1A; H314: C ≥ 90 % Skin Corr. 1B; H314: 25 % ≤ C < 90 % Skin Irrit. 2; H315: 10 % ≤ C < 25 % Eye Irrit. 2; H319: 10 % ≤ C < 25 %

SECTION 4: First-aid measures

4.1 Description of necessary first-aid measures

General advice	Consult a physician. Show this safety data sheet to the doctor in attendance.
If inhaled	If breathed in, move person into fresh air. If not breathing, give artificial respiration. Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.
In case of skin contact	Rinse with plenty of water. Get medical attention if irritation develops and persists.
In case of eye contact	Rinse thoroughly with plenty of water for at least 15 minutes. Get medical attention if symptoms occur.
If swallowed	Call a poison center or doctor if you feel unwell. If vomiting occurs naturally, have victim lean forward to reduce the risk of aspiration. Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person.

Acute and delayed symptoms and effects: May cause gastrointestinal irritation. Signs/symptoms may include abdominal pain, stomach upset, nausea, vomiting and diarrhea.

Personal protective equipment for first-aid responders

Ensure adequate ventilation. Use personal protective equipment. For personal protection see section 8.

4.2 Most important symptoms/effects, acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of immediate medical attention and special treatment needed, if necessary
No data available

SECTION 5: Fire-fighting measures

5.1 Suitable extinguishing media
Use extinguishing media appropriate for surrounding fire.

5.2 Specific hazards arising from the chemical
Hydrogen chloride gas

5.3 Special protective actions for fire-fighters
Wear self-contained breathing apparatus for firefighting if necessary.

Further information
No data available.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures
Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas. For personal protection see section 8.

Ensure adequate ventilation. Use personal protective equipment. For personal protection see section 8.

Use personal protective equipment. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas. For personal protection see section 8.

6.2 Environmental precautions
Should not be released into the environment. See Section 12 for additional ecological information.

6.3 Methods and materials for containment and cleaning up
Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13).

Reference to other sections
For disposal see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Further processing of solid materials may result in the formation of combustible dusts. The potential for combustible dust formation should be taken into consideration before additional processing occurs. Provide appropriate exhaust ventilation at places where dust is formed. For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Keep container tightly closed in a dry and well-ventilated place.

Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

CAS: 1310-73-2

Sodium hydroxide

ACGIH (USA): (C) 2 mg/m3 TLV® inhalation; Cal/OSHA (USA): (C) 2 mg/m3 PEL inhalation; NIOSH (USA): (C) 2 mg/m3 REL inhalation; OSHA (USA): 2 mg/m3 PEL inhalation

CAS: 64-19-7 (EC: 200-580-7)

Acetic acid

ACGIH (USA): 15 ppm STEL inhalation; 10 ppm, (ST) 15 ppm TLV® inhalation; 10 ppm TWA inhalation; Cal/OSHA (USA): 40 ppm C inhalation; 10 ppm, (ST) 15 ppm, (C) 40 ppm PEL inhalation; 10 ppm, 25 mg/m3 PEL inhalation; 15 ppm, 37 mg/m3 STEL inhalation; NIOSH (USA): 10 ppm, (ST) 15 ppm REL inhalation; 15 ppm, 37 mg/m3 ST inhalation; 10 ppm, 25 mg/m3 TWA inhalation; OSHA (USA): 25 mg/m3 PEL inhalation; 10 ppm PEL inhalation; 10 ppm, 25 mg/m3 TWA inhalation

CAS: 7647-01-0

Hydrochloric acid

ACGIH: 2 ppm (C) TLV® inhalation; NIOSH: 5 ppm, 7 mg/m3 REL-C inhalation; OSHA: 5 ppm, 7 mg/m3 PEL-C inhalation

CAS: 7681-57-4 (EC: 231-673-0)

Sodium metabisulfite

ACGIH: 5 mg/m3 (STEL) STEL inhalation; NIOSH: 5 mg/m3 REL-TWA inhalation

8.2 Appropriate engineering controls

Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.

8.3 Individual protection measures, such as personal protective equipment (PPE)

Pictograms

Eye/face protection

Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Body protection

Choose body protection in relation to its type, to the concentration and amount of dangerous substances, and to the specific work-place., The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Respiratory protection is not required. Where protection from nuisance levels of dusts are desired, use type N95 (US) or type P1 (EN 143) dust masks. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Thermal hazards
No data available

Control banding approach
No data available.

Environmental exposure controls
Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

SECTION 9: Physical and chemical properties and safety characteristics

Physical state	Liquid
Appearance	Clear
Color	Not Applicable
Odor	Odorless
Odor threshold	No data available.
pH	Not Applicable
Melting point/freezing point	No data available.
Boiling point or initial boiling point and boiling range	No data available.
Flash point	No data available.
Evaporation rate	No data available.
Flammability	No data available.
Lower and upper explosion limit/flammability limit	No data available.
Vapor pressure	No data available.
Relative vapor density	No data available.
Density and/or relative density	No data available.
Solubility	No data available.
Partition coefficient n-octanol/water (log value)	No data available.
Auto-ignition temperature	No data available.
Decomposition temperature	No data available.
Kinematic viscosity	No data available.
Explosive properties	No data available.
Oxidizing properties	No data available.

Particle characteristics
No data available.

Supplemental information regarding physical hazard classes
No data available.

Further safety characteristics (supplemental)
No data available.

SECTION 10: Stability and reactivity

10.1 Reactivity

None under normal use conditions.

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
None under normal use conditions.

10.4 Conditions to avoid
Exposure to moisture.

Avoid storing in direct sunlight and avoid extremes of temperature.

Heat, flames and sparks.

10.5 Incompatible materials

Acetic acid: Oxidizing agents, Soluble carbonates and phosphates, Hydroxides, Metals, Peroxides, permanganates, e.g. potassium
permanganate, Amines, Alcohols, Nitric acid

Sodium hydroxide : Caustic soda reacts with all the mineral acids to form the corresponding salts. It also reacts with weak-acid gases, such as hydrogen sulfide, sulfur dioxide, and carbon dioxide. Caustic soda reacts with amphoteric metals (Al, Zn, Sn) and their oxides to form complex anions such as AlO2(-), ZnO2(-2), SNO2(-2), and H2 (or H2O with oxides). All organic acids also react with sodium hydroxide to form soluble salts. Another common reaction of caustic soda is dehydrochlorination.

10.6 Hazardous decomposition products
Other decomposition products - No data available In the event of fire: see section 5

Acetic acid: Hazardous decomposition products formed under fire conditions. - Carbon oxides
Other decomposition products - No data available
In the event of fire: see section 5

Sodium hydroxide : Sodium oxides

SECTION 11: Toxicological information

Information on toxicological effects

Acute toxicity
The ATE (gas inhalation) of the mixture is: 70000 ppmV

Acetic acid
LD50 Oral - Rat - 3,310 mg/kg

Sodium metabisulfite
LD50 Oral - Rat - 1,540 mg/kg

Skin corrosion/irritation

Acetic acid
LD50 Skin - Rat - 1,112 mg/kg

Sodium metabisulfite
LD50 Skin - Rat - > 2,000 mg/kg

Serious eye damage/irritation
Causes serious eye irritation.

Sodium metabisulfite
- Rabbit
Result: Risk of serious damage to eyes.

Respiratory or skin sensitization
Sodium metabisulfite

Result: Prolonged or repeated exposure may cause allergic reactions in certain sensitive individuals

Germ cell mutagenicity
Based on available data, classification data are not met

Carcinogenicity
May cause cancer

Reproductive toxicity
Based on available data, classification data are not met

STOT-single exposure
No data available.

STOT-repeated exposure
No data available.

Aspiration hazard
Acetic acid
LC50 Inhalation - Mouse - 5620 ppm - 1 h
Remarks: Sense Organs and Special Senses (Nose, Eye, Ear, and Taste):Eye:Conjunctive irritation. Sense Organs and Special Senses (Nose, Eye, Ear, and Taste):Eye:Other. Blood:Other changes.

Acetic acid
LC50 Inhalation - Rat - 11.4 mg/l - 4 h

Additional information
No data available.

SECTION 12: Ecological information

Toxicity
Acetic acid
LC50 - Oncorhynchus mykiss (rainbow trout) - >1,000 mg/l - 96 h
Citation: (OECD Test Guideline 203)

Acetic acid
EC50 - Daphnia magna (water flea) - >300.82 mg/l - 48 h
Citation: (OECD Test Guideline 202)

Sodium hydroxide solid or pellets
LC50 - Gambusia affinis (Mosquito fish) - 125 mg/l - 96 h
Citation: Sigma SDS

Sodium hydroxide solid or pellets
LC50 - Oncorhynchus mykiss (rainbow trout) - 45.4 mg/l - 96 h
Citation: Sigma SDS

Sodium hydroxide solid or pellets
EC50 - Daphnia magna (water flea) - 40.38 mg/l - 48 h
Citation: Sigma SDS

Sodium hydroxide solid or pellets
LC50 - Poecilia reticulata (guppy) - 196 mg/l - 96 h
Citation: Ecotox, 63143 Adema,D.M.M., 1985

Sodium metabisulfite
LC50 - Oncorhynchus mykiss (rainbow trout) - 150 - 220 mg/l - 96 h

Sodium metabisulfite
EC50 - Daphnia magna (water flea) - 89 mg/l - 24 h

Sodium metabisulfite
IC50 - Desmodesmus subspicatus (chodat) - 48 mg/l - 72 h

Persistence and degradability
No data available.

Bioaccumulative potential
No data available.

Mobility in soil
No data available.

Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

Endocrine disrupting properties
No data available.

Other adverse effects
No data available.

SECTION 13: Disposal considerations

Disposal methods

Product disposal
Offer surplus and non-recyclable solutions to a licensed disposal company.

Packaging disposal
Dispose of as unused product.

Waste treatment
No data available

Sewage disposal
Do not let product enter drains

Other disposal recommendations
Dispose of contents/ container in accordance with the local/regional/national/international regulations.

SECTION 14: Transport information

DOT (US)
Not dangerous goods

IMDG
Not dangerous goods

IATA
Not dangerous goods

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations specific for the product in question

California Prop. 65 components
Chemical name: PARAROSANILINE HYDROCHLORIDE
CAS number: 569-61-9
07/01/1989 - Cancer

Canadian Domestic Substances List (DSL)
Chemical name: Periodic acid (H5IO6)
CAS: 10450-60-9

Chemical name: Hydrochloric acid
CAS: 7647-01-0

Chemical name: Benzenamine, 4-[(4-aminophenyl)(4-imino-2,5-cyclohexadien-1-ylidene)methyl]-, monohydrochloride
CAS: 569-61-9

Chemical name: Sulfuric acid, aluminum salt (3:2)
CAS: 10043-01-3

Chemical name: Acetic acid
CAS: 64-19-7

Chemical name: Benz[b]indeno[1,2-d]pyran-3,4,6a,9,10(6H)-pentol, 7,11b-dihydro-, cis-(++)-
CAS: 517-28-2

Chemical name: Sodium hydroxide (Na(OH))
CAS: 1310-73-2

Massachusetts Right To Know Components
Sodium metabisulfite
CAS number: 7681-57-4

Chemical name: Hydrochloric acid

CAS number: 7647-01-0

Chemical name: Aluminum sulfate
CAS number: 10043-01-3

Acetic acid
CAS number: 64-19-7

Chemical name: Sodium hydroxide
CAS number: 1310-73-2

New Jersey Right To Know Components
Sodium metabisulfite
CAS number: 7681-57-4

Common name: HYDROGEN CHLORIDE
CAS number: 7647-01-0

Common name: C.I. BASIC RED 9, MONOHYDROCHLORIDE
CAS number: 569-61-9

Common name: ALUMINUM SULFATE
CAS number: 10043-01-3

Acetic acid
CAS number: 64-19-7

Common name: SODIUM HYDROXIDE
CAS number: 1310-73-2

Pennsylvania Right To Know Components
Sodium metabisulfite
CAS number: 7681-57-4

Chemical name: Hydrochloric acid
CAS number: 7647-01-0

Chemical name: Sulfuric acid, aluminum salt (3:2)
CAS number: 10043-01-3

Acetic acid
CAS number: 64-19-7

Chemical name: Sodium hydroxide
CAS number: 1310-73-2

SARA 302 Components
No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 311/312 Hazards
Acute Health Hazard

Fire Hazard, Acute Health Hazard, Chronic Health Hazard

SARA 313 Components
This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

15.2 Chemical Safety Assessment
The supplier of this product has not conducted any Chemical Safety Assessment

HMIS Rating

Duplicate of: Periodic Acid Schiff (PAS) Stain Kit (OSHA)	
HEALTH	2
FLAMMABILITY	0
PHYSICAL HAZARD	0
PERSONAL PROTECTION	C

NFPA Rating

SECTION 16: Other information

SDS-0088, Rev. C

16.1 Further information/disclaimer
DISCLAIMER: The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigation to determine the suitability of information for their particular purposes. In no event shall Diagnostic BioSystems be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, whatsoever arising, even if Diagnostic BioSystems has been advised of the possibility of such damages.