TTS4

SUPPLIER
H. S. WALSH & SONS LTD
243 BECKENHAM ROAD
BECKENHAM
KENT. BR3 4TS
TEL. 020 8778 7061
EMERGENCY TEL:

LQ NO 22
UN NO 2031
Pk Grp II
1 Ltr / 4 Ltr

MATERIAL SAFETY DATA SHEET

1. IDENTIFICATION OF PREPARATION and SUPPLIER
Issued 1 April 2000 Revision No. 1
30/6/03

GOLD-BASE TEST FLUID

EMERGENCY TEL:

2. COMPOSITION: MAIN INGREDIENT: Sulphuric Acid H_2SO_4. EINECS: 2316395 Concentration Range > 1% and < 5%. Irritant to eyes and skin..

3. HAZARD IDENTIFICATION: EYES: Irritating on eyes. SWALLOWING: Will cause irritation in mouth, and if left cause corrosion in digestive tract. SKIN: Irritating on skin. INHALATION: Not applicable..

4. FIRST AID MEASURES: SKIN CONTACT – Wash well with water. EYE CONTACT – Immediately wash out with water for 10-15 minutes holding eye open, then obtain medical attention. INGESTION – Wash out mouth with plenty of water, but do NOT swallow the mouthwash. However if the chemical has been swallowed, quickly drink 300ml water/milk to dilute the chemical in the stomach. Obtain medical attention and show label or sheet. NOTES FOR MEDICAL PERSONNEL – Quantity is small – see container

5. FIRE FIGHITNG MEASURES: EXPOSURE HAZARD – If involved in fire may decompose to emit toxic fumes of sulphuric oxides. . SUITABLE EXTINGUISHER – whatever method is appropriate to surrounding fire conditions

6. ACCIDENTAL RELEASE MEASURES: CLEAN UP PROCEDURE –Dilute and wash the spillage site with water. Sodium bicarbonate is a neutralizer.

7. HANDLING AND STORAGE STORAGE: Keep bottle closed and locked in its wooden box, away from heat and sunlight and persons not familiar with the product. STORAGE TEMPERATURE 8°C - 15°C. HANDLING: The chemical must be used and transported with its Assay-test box.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION: PERSONAL PROTECTION – For continuous working have good out-draught, wear surgical type gloves, eye glasses and have a water source nearby ENG. CONTROL MEASURE: Observe the basic tenets of laboratory hygiene

9. PHYSICAL & CHEMICAL PROPERTIES: CHEMICAL FORMULA H_2SO_4 pH VALUE Acidic APPEARANCE AND ODOUR Colourless liquid solubility:Miscible with water

10. STABILITY AND REACTIVITY STABILITY – Stable under normal conditions. CONDITIONS TO AVOID –Heat and Sunlight. MATERIALS TO AVOID –Organic materials. Finely powdered metals or metallic salts may react very quickly giving off acrid fumes..

11. TOXICOLOGICAL INFORMATION : IRRITANCY – EYES This material is an irritant if in contact with eyes. IRRITANCY – SKIN This material is an irritant if in contact with skin, CARCINOGENICITY: None known REPRODUCTIVE/DEV: None known

12. ECOLOGICAL EFFECTS: ECOTOXICITY – It should not be introduced into drains or sewers unless it is a small amount and has first been neutralized/diluted, because of possible effects on water organisms, sewage bacteria or any resident rats.

13. DISPOSAL CONSIDERATIONS: SUBSTANCE AND CONTAINER - Return to Supplier when purchasing a replacement. Or dispose of with your hazardous trade waste to a chemical disposal company, showing this sheet. Alternatively (as the amount(s) are very small) when empty or finished with and wearing eye and skin protection, cut the transparent nozzle off, close to its base using cutters or tin snips. Pour any liquid into a beaker of water containing a tablespoon of baking soda (sodium bicarbonate). Rinse bottle as well then flush liquid with more water down the drain. The washed out bottle can now be disposed of as normal waste

14 TRANSPORT INFORMATION UN No: 2796 Packaging Group: II Class Item: 8 Hazard ID № 80

15. REGULATORY INFORMATION Contains dilute Sulphuric acid. EINECS: 2316395 IRRITANT - Irritating to eyes. Irritating to skin SAFETY PHRASES –.Keep locked up and out of reach of children. In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. In case of accident or if you feel unwell, seek medical advice immediately (show label/sheet where possible. OTHER INFORMATION This data sheet is only available to a professional user under Chip Regulation 5(2/3)2002.

16. ADDITIONAL INFORMATION APPLICATION: This preparation is a component of an Assay-test™ set to be used a drop at a time to determine the type of jewellery metal or its caratage. DATA SOURCES: R, Jackson A.T.C./ Substances SDS/HS Regs. LEGAL DISCLAIMER: The above information is believed to be correct and useful but does not purport to be all inclusive and shall be used only as a guide. The supplier will not accept liability arising out of the use/misuse of the preparation or the information herein. If in doubt obtain further advice.

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1. IDENTIFICATION OF PREPARATIONS and SUPPLIER

Issued Date 19/9/2002
9st AND 14th – 15TH GOLD TEST FLUIDS

EMERGENCY TEL:

2. COMPOSITION: Includes Nitric Acid class C. Conc Range: 45 % < 65%.R.35. CAS № 7697-37-2 EINECS № 231-714-2

3. HAZARD IDENTIFICATION: Causes severe burns. Liquid or mist can cause severe damage to eyes. Will cause severe burning to skin (unless washed off timely). Swallowing will cause corrosion of mouth, throat and digestive tract. Exposure to vapour at high concentrations may cause severe irritation to nose, throat and respiratory system.

4. FIRST AID MEASURES: SKIN CONTACT –In the case of skin contact, flood the splashed area with running water. EYE CONTACT –If the substance has entered the eyes immediately wash out with water or eye wash solution for at least 15 minutes. INGESTION – If the chemical has been confined to the mouth, give large quantities of water as a mouth wash. Ensure the mouth wash is not swallowed. If the chemical has been swallowed, give about 250ml water to dilute it in the stomach. Seek immediate medical attention. INHALATION – Remove from exposure and seek medical advice. NOTES FOR MEDICAL PERSONNEL – The maximum amount involved is 3ml, see container label

5. FIRE FIGHITNG MEASURES: EXPOSURE HAZARD – If involved in a fire, the material decomposes to emit toxic fumes of nitrogen oxides, plus any toxic fumes from the polypropylene container. SUITABLE EXTINGUISHER – Use extinguishing media appropriate to the surrounding fire conditions as quantity involved is very small SPECIAL EQUIPMENT FOR FIRE FIGHTING - As appropriate, if appropriate

6. ACCIDENTAL RELEASE MEASURES: PERSONAL PRECAUTIONS – Wear gloves if handling damaged dropper bottle which might still contain some liquid, consider also glasses if you have to clean up. LEAKS, SPILLS AND CLEAN UP PROCEDURE - Swab up using water. A small amount of Sodium Bicarbonate (baking soda) neutralizes the acid, but do not use on 'eye splashes'. ENVIRONMENTAL PRECAUTIONS Always dilute with water and neutralize if disposing of any unused liquid.

7. HANDLING AND STORAGE: HANDLING – Wear surgical gloves for constant bench use to avoid accidental skin marking. PROHIBITED EQUIPMENT AND PROCEDURES - Do not eat, drink when using product RECOMMENDED PROCEDURES – store in a cool dry place and out of sunlight. STORAGE TEMPERATURE LIMITS 5°– 15° C. SPECIFIC USE: - Use only to test for gold in metallic form. See instruction sheet for specific uses. INCOMPATIBLE MATERIALS – Organics and combustibles. base metals, metallic salts, powdered metals, ammonia and bleaching products HUMIDITY LIMIT - SPECIAL REQUIREMENTS - No

8. EXPOSURE CONTROLS/PERSONAL PROTECTION: EXPOSURE LIMITS - 2ppm (5mg/m3) – TWA; 4 ppm (10 mg/m3) – 15min TOXICITY – 430 mg/kg ORL-HMN LDLO. The above is based on 69% HNO_3. See label for acid %. PERSONAL PROTECTION –For good working practice have a water source nearby and for continuous working have good 'out draught' or fume chamber. GLOVES : If using gloves the thin PVC or the surgical type are best. EYE PROTECTION : Wear any glasses if possible to prevent eye contact ENVIRONMENTAL EXPOSURE CONTROLS Refer to main headings 12-13

9. PHYSICAL & CHEMICAL PROPERTIES: CHEMICAL FORMULA HNO_3 APPEARANCE AND ODOUR – Slightly pungent, colourless liquid SOLUBILITY - miscible with water, BOILING POINT RANGE – 110-120°C MELTING POINT RANGE - –3.8°C @ 69% FLASH POINT - Not Applicable FLAMMABILITY - Not Applicable VAPOUR PRESSURE - 9hPa @ 20°C for 69%HNO3 AUTOFLAMMABILITY - RELATIVE DENSITY - 1.42 @ 20°C for 69% conc OXIDISING PROPERTIES – $HNO_3 \geq 70\%$ is (R.8) contact with combustible material may cause fire EXPLOSIVE PROPERTIES – None known VISCOSITY No data EVAPORATION RATE – No data pH VALUE – 1, as supplied in the 45%-65% concentration range VAPOUR DENSITY

10. STABILITY AND REACTIVITY STABILITY –Stable under normal conditions. CONDITIONS TO AVOID- heat. Vapours may be given off when using at very warm room temperature. MATERIALS TO AVOID – Alkalis, bases, reducing agents. Corrosive and reactive to lots of metals., even more so to powdered or finely divided metals or metallic salts which may react extremely fast releasing brownish fumes of nitrogen dioxide. HAZARDOUS DECOMPOSITION PRODUCTS - Proximity to fire or heating may involve oxides of nitrogen. ENVIRONMENTAL – See (12) Ecological Information.

11. TOXICOLOGICAL INFORMATION : CHRONIC EFFECTS FROM SHORT/LONG TERM EXPOSURE Danger to health from exposure to: INHALATION –Symptoms of exposure may include burning sensation, coughing, shortness of breath, headache and nausea. Material is destructive to mucous membranes and respiratory tract. INGESTION – Toxic if swallowed and could be fatal.. There is immediate severe irritation and damage. Symptoms include headache, nausea and vomiting. SKIN –The liquid is extremely destructive to skin tissue. Contact with skin causes severe burns if not washed off immediately. . EYES – The liquid is extremely destructive to eyes IMMEDIATE/ DELAYED EFFECTS – The given symptoms/effects take place fairly immediately. REPEATED-DOSE TOXICITY –No data found OTHER DATA Not classified in the A.S.L. as sensitizing mutagenic/carcinogenic or affecting reproductiveness

12. ECOLOGICAL INFORMATION : MOBILITY – The product is involatile and water soluble and will partion to the aqueous phase. ECOTOXICITY Because of harmful effects on water organisms, should not be introduced into a drain unless fully neutralized/diluted and in extremely small quantities such as supplied. PERSISTANCE AND DEGRADABILITY – No data found. BIOACCUMULATIVE POTENTIAL No data found OTHER ADVERSE EFFECTS- No known cause of global warming or ozone depletion.

13. DISPOSAL CONSIDERATIONS: SUBSTANCE AND CONTAINER – Return to Supplier when purchasing a replacement. Or dispose of with your hazardous trade waste. Alternatively (as the amount(s) are very small) when empty or finished with and wearing eye and skin protection, cut the transparent nozzle off, close to its base using cutters or tin snips. Pour any liquid into a beaker of water containing a tablespoon of baking soda (Sodium bicarbonate). Rinse bottle as well then flush liquid with more water down drain. The washed out bottle can now be disposed of as normal waste. Contact your local waste disposal authority for advice and observe local and regional environmental regulations..

14 TRANSPORT INFORMATION Refer to H.S.E. books ISBN 07176161762

IMDG	ADR/RID	IATA/ICAO
UN No and Proper Shipping Name	UN No and Proper Shipping Name	UN No and proper shipping name
2031 Nitric Acid	2031 Nitric Acid	2031 Nitric Acid
Packing Group II	Class/Item No 8	Air Classification 8
Sea class/EMS 8	ADR/ID No 2031	Packaging II
MFAG 2031	Hazard ID No 80	Subsidiary risk

15. REGULATORY INFORMATION CLASSIFICATION – CORROSIVE RISK PHRASE 35 Causes severe burns. SAFETY PHRASES. 1/2 23-26-28-36-37-39-45. Keep locked up and out of reach of children. Do not breathe fumes/vapour In case of contact with eyes rinse immediately with plenty of water and seek medical advice. After contact with skin wash immediately with water. Wear suitable protective clothing gloves and eye protection. In case of accident or if you feel unwell-seek medical advice immediately (show the label where possible).. OCCUPATIONAL EXPOSURE LIMIT –N.A. CORROSIVE INGREDIENT – Nitric Acid Approximate amount used per test is 0.01ml with the dropper bottle holding 200 + tests.

16. ADDITIONAL INFORMATION - Causes severe burns. – For use in the workplace only. This preparation is an acidic component of an 'ASSAY TEST™ set used a drop at a time to determine the type of jewellery metal or carat value. Read instruction sheet and practice on known/hallmarked metals. DATA SOURCES: R Jackson A.T/substances SDS/CHIP/ASL DISCLAIMER The above information is believed to be correct and useful. The supplier will not accept liability arising out of the use/misuse of the information herein. If in doubt obtain further advice.

1. IDENTIFICATION OF PREPARATIONS and SUPPLIER

Issued Date 19/9/2002
18 ^{ct}-24^{ct}/PLAT, TEST FLUID

EMERGENCY TEL:

2. COMPOSITION: Nitric Acid class C. Conc Range: 10 % < 20%.R.34EINECS № 231-714-2 Hydrochloric acid: class Xi. Conc. Range: 10%< 25%. R36/37/38. EINECS: 231-595-7

3. HAZARD IDENTIFICATION: Corrosive and Irritant. Causes burns. Liquid can cause severe damage to eyes. Will cause burning to skin (unless washed off timely). Swallowing will cause corrosion of mouth, throat and digestive tract. Exposure to vapour at high concentrations may cause severe irritation to nose, throat and respiratory system.

4. FIRST AID MEASURES: SKIN CONTACT –In the case of skin contact, flood the splashed area with running water. EYE CONTACT –If the substance has entered the eyes immediately wash out with water or eye wash solution for at least 15 minutes. INGESTION – If the chemical has been confined to the mouth, give large quantities of water as a mouth wash. Ensure the mouth wash is not swallowed. If the chemical has been swallowed, give about 250ml water to dilute it in the stomach. Seek immediate medical attention. INHALATION – Remove from exposure and seek medical advice. NOTES FOR MEDICAL PERSONNEL – The maximum amount involved is 3ml, see container label for concentration.

5. FIRE FIGHTING MEASURES: EXPOSURE HAZARD – If involved in a fire, the material decomposes to emit toxic fumes of nitrogen oxides, hydrogen chloride, plus any toxic fumes from the polypropylene container. SUITABLE EXTINGUISHER – Use extinguishing media appropriate to the surrounding fire conditions as quantity involved is very small SPECIAL EQUIPMENT FOR FIRE FIGHTING - As appropriate, if appropriate

6. ACCIDENTAL RELEASE MEASURES: PERSONAL PRECAUTIONS – Wear gloves if handling damaged dropper bottle which might still contain some liquid, consider also glasses if you have to clean up. LEAKS, SPILLS AND CLEAN UP PROCEDURE - Swab up using water. A small amount of Sodium Bicarbonate (baking soda) neutralizes the acid, but do not use on 'eye splashes'. ENVIRONMENTAL PRECAUTIONS Always dilute with water and neutralize if disposing of any unused liquid.

7. HANDLING AND STORAGE: HANDLING – Wear surgical gloves for constant bench use to avoid accidental skin marking. PROHIBITED EQUIPMENT AND PROCEDURES - Do not eat, drink when using product RECOMMENDED PROCEDURES – store in a cool dry place and out of sunlight. STORAGE TEMPERATURE LIMITS 5°– 15° C, SPECIFIC USE: - Use only to test for precious metals. See instruction sheet for specific uses. INCOMPATIBLE MATERIALS – Organics and combustibles. base metals, metallic salts, powdered metals, ammonia and bleaching products HUMIDITY LIMIT - SPECIAL REQUIREMENTS - No

8. EXPOSURE CONTROLS/PERSONAL PROTECTION: EXPOSURE LIMITS - 2ppm (5mg/m3) – TWA; 4 ppm (10 mg/m3) – 15min TOXICITY – 430 mg/kg ORL-HMN LDLO. The above is based on 69% HNO_3. See label for acid %. PERSONAL PROTECTION –For good working practice have a water source nearby and for continuous working have good 'out draught' or fume chamber. GLOVES : If using gloves the thin PVC or the surgical type are best. EYE PROTECTION : Wear any glasses if possible to prevent eye contact ENVIRONMENTAL EXPOSURE CONTROLS Refer to main headings 12-13

9. PHYSICAL & CHEMICAL PROPERTIES: CHEMICAL/NAME FORMULA Aquai-Regia. NOCL APPEARANCE AND ODOUR – Pungent, colourless/slightly tinted liquid SOLUBILITY - miscible with water. BOILING POINT RANGE –105-110°C MELTING POINT RANGE - --Not Applicable FLASH POINT - Not Applicable FLAMMABILITY - Not Applicable VAPOUR PRESSURE - 9hPa @ 20°C for 69% HNO_3 AUTOFLAMMABILITY - RELATIVE DENSITY - 1.08 to 1.15 @ 20°C OXIDISING PROPERTIES – EXPLOSIVE PROPERTIES – None known VISCOSITY No data EVAPORATION RATE – No data pH VALUE – 1, as supplied in all concentration ranges VAPOUR DENSITY

10. STABILITY AND REACTIVITY STABILITY –Stable under normal conditions. CONDITIONS TO AVOID- heat. Vapours may be given off when using at very warm room temperature. MATERIALS TO AVOID – Alkalis, bases, reducing agents. Corrosive and reactive to lots of metals., even more so to powdered or finely divided metals or metallic salts which may react extremely fast releasing brownish fumes of nitrogen dioxide. HAZARDOUS DECOMPOSITION PRODUCTS - Proximity to fire or heating may involve oxides of nitrogen and hydrogen chloride fumes. ENVIRONMENTAL – See (12) Ecological Information.

11. TOXICOLOGICAL INFORMATION : CHRONIC EFFECTS FROM SHORT/LONG TERM EXPOSURE Danger to health from exposure to: INHALATION –Symptoms of exposure may include burning sensation, coughing, shortness of breath, headache and nausea. Material is destructive to mucous membranes and respiratory tract. INGESTION – Toxic if swallowed and could be fatal.. There is immediate severe irritation and damage. Symptoms include headache, nausea and vomiting. SKIN –The liquid is extremely destructive to skin tissue. Contact with skin causes burns if not washed off immediately. . EYES – The liquid is extremely destructive to eyes IMMEDIATE/ DELAYED EFFECTS – The given symptoms/effects take place fairly immediately. REPEATED-DOSE TOXICITY –No data found OTHER DATA Not classified in the A.S.L. as sensitizing mutagenic/carcinogenic or affecting reproductiveness

12. ECOLOGICAL INFORMATION : MOBILITY – The product is involatile and water soluble and will partion to the aqueous phase. ECOTOXICITY Because of possible immediate harmful effects on water organisms, should not be introduced into a drain unless fully neutralized/diluted and in extremely small quantities such as supplied. PERSISTANCE AND DEGRADABILITY – No data found. BIOACCUMULATIVE POTENTIAL No data found OTHER ADVERSE EFFECTS- No known cause of global warming or ozone depletion.

13. DISPOSAL CONSIDERATIONS: SUBSTANCE AND CONTAINER – Return to Supplier when purchasing a replacement. Or dispose of with your hazardous trade waste. Alternatively (as the amount(s) are very small) when empty or finished with and wearing eye and skin protection, cut the transparent nozzle off, close to its base using cutters or tin snips. Pour any liquid into a beaker of water containing a tablespoon of baking soda (Sodium bicarbonate). Rinse bottle as well then flush liquid with more water down drain. The washed out bottle can now be disposed of as normal waste. Contact your local waste disposal authority for advice and observe local and regional environmental regulations..

14 TRANSPORT INFORMATION Refer to H.S.E. books ISBN 07176161762

IMDG	ADR/RID	IATA/ICAO
UN No and Proper Shipping Name	UN No and Proper Shipping Name	UN No and proper shipping name
2031 Nitric Acid	2031 Nitric Acid	2031 Nitric Acid
Packing Group II	Class/Item No 8	Air Classification 8
Sea class/EMS 8	ADR/ID No 2031	Packaging II
MFAG 2031	Hazard ID No 80	Subsidiary risk

15. REGULATORY INFORMATION CLASSIFICATION – CORROSIVE AND IRRITANT. RISK PHRASES 34-36-37-38. Causes burns. Irritating to eyes. Irritating to respiratory system. Irritating to skin. SAFETY PHRASES. 1/2 23-26-28-36-37-39-45. Keep locked up and out of reach of children. Do not breathe fumes/vapour In case of contact with eyes rinse immediately with plenty of water and seek medical advice. After contact with skin wash immediately with water. Wear suitable protective clothing gloves and eye protection. In case of accident or if you feel unwell-seek medical advice immediately (show the label where possible). OCCUPATIONAL EXPOSURE LIMIT –N.A. CORROSIVE LIQUID – Aqua-Regia Approximate amount used per test is 0.01ml with the dropper bottle holding 200 + tests.

16. ADDITIONAL INFORMATION - Causes burns. Irritating to eyes, respiratory system and skin.– For use in the workplace only. This preparation is an acidic component of an 'ASSAY TEST™ set used a drop at a time to determine the type of jewellery metal or carat value. Read instruction sheet and practice on known/hallmarked metals. DATA SOURCES: R Jackson A.T/substances SDS/CHIP/ASL DISCLAIMER The above information is believed to be correct and

1. IDENTIFICATION OF PREPARATION and SUPPLIER

ISSUED: 1/9/02
"Restricted to professional users".
Silver TEST FLUID

EMERGENCY TEL:

2. COMPOSITION: (Chromic Acid Solution) Sodium Dichromate: Conc. Range >0.5% and < 7% (as Chromate ions) class T.N. R43, 46, 49, 51, 53. EINECS № 234-190-3 Nitric Acid Class C. Conc Range: 20% < 30% R.35 .EINECS № 231-714-2

3. HAZARD IDENTIFICATION: Class.- Toxic, corrosive, environmental. May cause sensitization by skin contact. May cause heritable genetic damage. May cause cancer by inhalation. Causes severe burns. Toxic to aquatic organisms, and may cause long term adverse effects in the aquatic environment.

4. FIRST AID MEASURES: SKIN CONTACT – Wash well with running water and scrub to remove any staining EYE CONTACT – Immediately wash out with water for 10-15 minutes holding eye open, then obtain medical attention. INGESTION – Wash out throat and mouth with water, do not swallow it, and if the preparation has been swallowed drink plenty of water then seek immediate medical help and show test-bottle/label. INHALATION – If you have inhaled fumes from this test bottle due to it being involved in a fire or heating it, or otherwise, remove from exposure and seek medical advice showing test-bottle/sheet. NOTES FOR MEDICAL PERSONNEL – Dropper bottle contains a 3ml preparation delivering a drop at a time.

5. FIRE FIGHTING MEASURES: EXPOSURE HAZARD – If involved in fire, casing and contents may decompose to emit toxic fumes. Preparation is not flammable but casing is combustible. SUITABLE EXTINGUISHER – Use extinguishing media appropriate to the surrounding fire conditions. SPECIAL EQUIPMENT FOR FIRE FIGHTING - As appropriate

6. ACCIDENTAL RELEASE MEASURES: PERSONAL PRECAUTIONS – Wear eye protection and gloves. CLEAN UP PROCEDURE – Mop up with tissue or use absorbent granules/earth and package up for trade special waste disposal. Then wash area down thoroughly with water and adding some bicarbonate of soda. . ENVIRONMENTAL PRECAUTIONS – Avoid release to the environment especially streams and ponds

7. HANDLING AND STORAGE: HANDLING – Wear surgical gloves for constant bench use to avoid accidental skin marking. PROHIBITED EQUIPMENT AND PROCEDURES - Do not eat, drink or smoke when using product RECOMMENDED PROCEDURES – store in a cool dry place and out of sunlight. STORAGE TEMPERATURE LIMITS 5°– 15 C, SPECIFIC USE: - Use only to test for silver in metallic form. See instruction sheet. INCOMPATIBLE MATERIALS – Combustibles, base metals, metallic salts, powdered metals. HUMIDITY LIMIT - Not applicable SPECIAL REQUIREMENTS –

8. EXPOSURE CONTROLS/PERSONAL PROTECTION: EXPOSURE LIMITS - 0.05 $_{mg/m3}$ – TWA (as in M S D S supplied by manufacturer 99% pure powder form) TOXICITY – 50 $_{mg/kg}$ ORL-MUS LD50 (As in M S D S supplied by manufacturer of 99%pure Sodium Dichromate Powder) PERSONAL PROTECTION – For good working practice have a water source nearby GLOVES : If using gloves, the surgical type is best as they need to be thin for hand control of bottle EYE PROTECTION : A contained, not a splashable preparation, but wear glasses if possible to prevent eye contact. SKIN PROTECTION: RESPIRATOR Not applicable ENVIRONMENTAL EXPOSURE CONTROLS: Refer to main headings 3-12-13

9. PHYSICAL & CHEMICAL PROPERTIES: APPEARANCE AND ODOUR – Bright orange/red. Acidic liquid odourless. SOLUBILITY – Soluble in water VISCOSITY : BOILING POINT RANGE - MELTING POINT RANGE – EXPLOSIVE PROPERTIES – none known FLASH POINT - Not applicable FLAMMABILITY - Not applicable VAPOUR PRESSURE - VAPOUR DENSITY - EVAPORATION RATE- AUTOFLAMMABILITY – Not applicable RELATIVE DENSITY –Range -1.20 – 1.30 @20°C OXIDISING PROPERTIES – pH VALUE – 1 (24%HNO_3) OTHER INFORMATION Toxic for aquatic and animal species by reason of the sodium Dichromate Constituent

10. STABILITY AND REACTIVITY STABILITY – Stable under normal conditions. CONDITIONS TO AVOID – Heat, slight vapour may be given off when using at very high room temperature. MATERIALS TO AVOID - Alkalis, bases, reducing agents, organic combustibles. Corrosive and reactive to lots of metals, even more so to powdered or finely divided metals or metallic salts which may react extremely fast releasing brownish fumes of nitrogen dioxide. HAZARDOUS DECOMPOSITION PRODUCTS – Proximity to fire may involve oxides of nitrogen and toxic cromate fumes. ENVIRONMENTAL- See (12) Ecological Information.

11. TOXICOLOGICAL INFORMATION: Danger to health from exposure to: INHALATION – Not applicable – it is a liquid though if preparation is involved in a fire the fumes could be inhaled which would be toxic and damaging to mucous membranes and respiratory tract. INGESTION – Toxic and corrosive if taken by mouth causing severe symptoms in the gastrointestinal area as bloody diarrhea, vomiting spasms, unconsciousness. Antidote for dichromate - Demaval.® SKIN – Causes burns, also may cause sensitization by contact. EYES – Harmful and corrosive to the eyes IMMEDIATE EFFECTS – Corrodibility DELAYED EFFECTS - Toxicity CHRONIC EFFECTS FROM SHORT/LONG TERM EXPOSURE - OTHER DATA – Sodium dichromate the active ingredient is mutagenic CAT.2. Carcinogenic CAT.2. No data found on reproductive toxicity

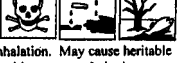
12. ECOLOGICAL INFORMATION: MOBILITY – The preparation is very miscible with other water sources and would dilute into them. DEGRADABILITY - Data not available. BIOACCUMULATIVE POTENTIAL - Data not available. SHORT AND LONG TERM EFFECTS - OTHER ADVERSE EFFECTS - No known cause of global warming or ozone depletion ECOTOXICITY –The Sodium Dichromate content is toxic to mammalian wildlife, toxic to aquatic organisms and may cause long-term effects in the aquatic environment. The following applies to chromium ions in general. BIOLOGICAL EFFECTS – Fish toxic from 52mg/l up; LC50: 29mg/l; Algae: toxic from 5mg/l up; Daphnia toxic from 0.32mg/l up, calculated as sodium Chromate.

13. DISPOSAL CONSIDERATIONS: SUBSTANCE AND CONTAINER – Return to Supplier when purchasing a renewal, or dispose of with your hazardous trade waste. Chemical residues are generally classified as special waste. Contact your local waste disposal authority for advice or pass to a chemical disposal company, showing this sheet.

14 TRANSPORT INFORMATION Refer to H.S.E. books ISBN 0717616762 U.N. Proper Shipping Name CHROMIC ACID SOLUTION

IMDG	IATA/ICO	ADR/RID
UN no 1755	UN No 1755	UN No 1755
Packing Group II	Air Classification 1755	Class 8
Sea class/EMS 8	Packaging II	ADR/ID No 8
MFAG 1755		Hazard ID No 80
IMDG No		

15. REGULATORY INFORMATION CLASSIFICATION - TOXIC – CORROSIVE. DANGER TO ENVIRONMENT. (N) RISK PHRASES –35- 43-46-49-36/38-51-53.



Causes severe burns may cause cancer by inhalation. May cause heritable genetic damage. May cause sensitization by skin contact. Irritating to eyes and skin. Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. SAFETY PHRASES (Keep locked up and out), of reach of children. out of reach of children. Avoid exposure – obtain special instructions before use. In case of contact with eyes rinse immediately with plenty of water and seek medical advice. After contact with skin wash immediately with water. Wear suitable protective clothing gloves and eye protection. In case of accident or if you feel unwell-seek medical advice immediately (show the label where possible). This material and/or its container must be disposed of as hazardous waste. Avoid release to the environment. Refer to special instructions/safety data sheet. OCCUPATIONAL EXPOSURE LIMIT – Not available. TOXIC CONSTITUENT – EC. No. 234-190-3. Sodium Dichromate in solution, Carcinogen Cat.2, Mutagen Cat. 2. Under CHIP Regulations this product is labeled : 'Restricted to Professional Users'

16. ADDITIONAL INFORMATION ADDITIONAL INFORMATION/USES AND RESTRICTIONS – Toxic and Corrosive. For use in the workplace only. Keep in its lockable box. This preparation is a 3ml