

**TECHNICAL GUIDELINE**

Guide to the requirements and specifications for

**THE PAINTING AND COATING OF  
MECHANICAL PLANT**



Issued by:                      Manager Engineering Services

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## Major Changes Incorporated In the February 2007 Edition

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The following lists the major changes to the March 2004 edition of TG 25, which have been incorporated in this edition:

1. April 2005 - Modification of Section 10: Colours - incorporating deletion of requirements and inclusion of reference to current Australian Standard.
2. February 2007 – Complete review of document resulted in a number of minor update changes and addition of TS98 and TS99. Modification of Section 10: Colours – changes deleted and previous format reinstated.

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## Referenced Documents

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<b>AS 1345</b>	<b>APAS 0029</b>
<b>AS 1627</b>	<b>APAS 0059</b>
<b>AS/NZS 2311</b>	<b>APAS 0060</b>
<b>AS/NZS 2312</b>	<b>APAS 0035/2</b>
<b>AS 2700</b>	<b>APAS 0162/2</b>
<b>AS 3894</b>	<b>APAS 0163/1</b>
<b>AS 4680</b>	<b>APAS 0280/1</b>
<b>APAS Document D-184</b>	<b>APAS 2921</b>
<b>APAS 0024/1</b>	

## Section 1: Scope

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These Clauses cover the general requirements for painting and coating of all mechanical plant. This document provides guidance on the use and selection of common painting systems used for mechanical plant.

**This document is not a specification**, but should be used **only** as a guide in the preparation of specifications. Clauses from this guide may be inserted in specifications where appropriate. Users should check the edition date and confirm that the latest edition is being used.

## Section 2: General Requirements

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Protective coatings, not specified in this guide or in Corporation Standard Specifications, shall be approved by the Australian Paint Approvals Scheme (APAS) for the particular environment they are intended. Alternative coatings shall not be specified without the approval of the Principal Materials Scientist. Authorisation will only be given if the particular coating has been satisfactorily tested by the Material Sciences Unit, which would normally require a minimum of 2 years. The same manufacturer shall supply all products in a coating system.

All steel, cast iron, ductile iron and SG iron surfaces shall be coated. The surfaces of all other metals and plastics should be coated if they will be subject to deterioration or are required to be painted for identification purposes. Stainless steel surfaces shall not be painted. Protective coating systems for the protection of iron and steel surfaces, which are not specified in this guide, shall be selected from AS/NZS 2312 'Guide to the protection of structural steel against atmospheric corrosion by the use of protective coatings'. Paint for building surfaces, which are not specified in this guide, shall be selected from AS/NZS 2311 'Guide to the painting of buildings'.

Direct contact of aluminium with concrete shall be prevented as damp concrete has sufficient alkalinity to cause significant corrosion of the aluminium. Plastic insulation material (ie PVC or polyethylene) not less than one millimetre thick shall be used to separate the materials.

The manufacturer's written instructions shall be followed in the application of coatings. The materials shall be delivered to the site in the manufacturer's unopened containers. The surface temperature of the plant shall be at least 3°C above dew point. Coating shall not be applied to any surface, which will have a temperature of less than 10°C or more than 55°C during the cure period. Each coat shall be applied in accordance with the manufacturer's written instructions, including drying times.

On site spray painting shall only be performed under controlled conditions and the Contractor shall be responsible for any overspray damage to adjacent work or property. Use of drop sheets and masking of equipment is required to protect floors, walls and other equipment from overspray.

## **Section 3: Coating Contractor and Quality Assurance**

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The Contractor shall be certified under the 'Painting Contractor Certification Program' for the appropriate class of work or an approved equivalent. The Contractor shall submit, to the Superintendent's Representative, documentation in accordance with their Quality Assurance Plan. However the minimum requirement for Quality Assurance shall be completion of AS 3894.10, AS 3894.11 and AS 3894.12, 'Site Testing of Protective Coatings' equipment and inspection reports.

## **Section 4: Instructions for Supply of Material**

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An Australian Paint Approvals Scheme (APAS) 'APAS Record of Supply' shall be obtained for APAS approved products. The purchaser shall request an 'APAS Record of Supply' from the manufacturer at the time the paint is ordered. A 'Manufacturer's Certificate of Test' can then be obtained if problems in the application of the coating subsequently occur. Information and procedures concerning Records of Supply and Certificate of Test are set out in APAS Document D-184 'Guide to Specifications, Supply and Quality Assurance' ([www.apas.gov.au](http://www.apas.gov.au)). Returns as required by APAS Document D-184 instructions shall be completed by the manufacturer and submitted to the Superintendent's Representative for forwarding to and retention in the Material Sciences Unit.

## **Section 5: Safety and Environment**

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The Contractor shall conduct the operations (including blast cleaning and coating application) in accordance with the standards of safety laid down in the South Australian Occupational Health, Safety and Welfare Act and all regulations thereunder. All operations shall be conducted in accordance with the Environment Protection Act. All operations conducted outside the state of South Australia shall meet all local safety and environmental requirements. Contractors are responsible for obtaining all necessary approvals and disposal of all waste.

## **Section 6: Coating Reinstatement**

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All damaged or defective areas of coating, including runs, overspray, under thickness and over thickness shall be repaired or recoated. The coating reinstatement shall provide the same corrosion protection and appearance as the original coating system. The surface preparation and coating reinstatement method must be approved by the Superintendent's Representative.

## Section 7: Pipework Coating

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All iron and steel pipework shall be coated. Plastic pipework shall also be painted except that where the natural pipe colour corresponds to or closely resembles the required colour the pipe need not be painted. However, all plastic pipework exposed to direct sunlight shall be painted, unless approved otherwise by the Superintendent's Representative.

All pipework and conduits shall be finish painted for identification of the fluid conveyed, in accordance with Clause 10. The basic identification system and the location and sizing of bands shall be in accordance with AS 1345 'Identification of the contents of pipes, conduits and ducts'. The colours specified are compatible as far as possible with AS 1345 and are specified in accordance with AS 2700 'Colour standards for general purposes'.

Pipes shall be top coated with the base colour and the bands of specified size and colour shall be superimposed on the base colour. Alternatively, 'Scotch' brand (3M Company) No 471 tapes, or an approved accepted alternative of appropriate colours may be used to mark coloured bands on internal pipework. Use of self adhesive tape for marking external pipework is not acceptable.

- All iron and steel pipework inside buildings such as pump stations and plant rooms should be top coated with alkyd gloss enamel. (Clause 9.1.3).
- Exposed pipework outside of buildings should be top coated with acrylic latex gloss. (Clause 9.1.7)
- Iron and steel pipework exposed to wet, corrosive and aggressive environments should be coated with a high performance corrosion resistant system top coated with polyurethane gloss, 2-pack solvent borne or catalysed acrylic gloss, 2-pack solvent borne. (Clause 9.1.8)
- PVC and ABS pipework should be finished with acrylic latex gloss. (Clause 9.1.4)

Below ground pipework should be in accordance with 'SA Water Construction Documentation'. Steel pipes should be protected with Tyco 'Sintakote' low-density polyethylene coating, which is a very high performance long life factory applied coating. Factory made specials should be repaired using Sintakote, which can only be applied by Tyco. Repair of this coating and sections of steel pipe and associated fittings should be protected with bitumen mastic tapes and compounds. (Clause 9.3.2)

## Section 8: Plant and Machinery Coatings (External Surfaces)

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The surface preparation and protective coatings applied by the manufacturer should provide adequate corrosion protection for the particular environment in which the equipment is installed.

All machinery should have a top coat in accordance with this guide and of the colour specified or selected by the Superintendent's Representative. The colour, if not specified otherwise, shall be Green Grey, N32, in accordance with AS 2700.

Special colour requirements should be specified if required by a Statutory Authority or in the absence of any other direction, in accordance with Clause 10.

- Equipment installed in a dry internal environment such as a water supply pump station should be coated with an alkyd gloss enamel system. (Clause 9.1.3)
- Equipment installed outside or exposed to wet, corrosive and aggressive environments should be coated with a high performance corrosion resistant system top coated with polyurethane gloss 2-pack solvent borne or catalysed acrylic gloss 2-pack solvent borne. (Clause 9.1.8)

## Section 9: Coating Systems

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The following range of coatings should be used and specified where they are appropriate.

### 9.1 ATMOSPHERIC - INTERIOR AND EXTERIOR

#### 9.1.1 Hot-dip Galvanizing

Hot-dip galvanizing provides excellent performance both indoors and outdoors. It is not suitable for immersion in water, burial in soil or in areas where it may be exposed to acid splashes or spills. Electroplated components are not acceptable as an alternative to hot-dip galvanising as they are very thin and provide only short-term protection. They may be acceptable in mild indoor environments.

Hot dip galvanizing shall be in accordance with AS 4680 'Hot-dip galvanised (zinc) coatings on fabricated ferrous articles'. Electroplated, (electro-galvanised) and mechanical plated components are not acceptable alternatives.

#### 9.1.2 Zinc Phosphate Metal Primer

This coating is a metal primer for the protection of iron and steel within buildings and for maintenance painting of steelwork in mild atmospheric environments. Surfaces can be prepared by hand, power tool cleaning or abrasive blasting. This coating needs to be top coated with an alkyd enamel or acrylic latex topcoat. This system is easy to apply and maintain and will provide good performance on steelwork such as pipework, fixed plant and steel framework within buildings, which are not subjected to constant moisture and atmospheric contaminants. It will provide only short term protection in outdoor environments and therefore should only be used for maintenance of steelwork where only hand cleaning is possible.

All surfaces to be primed shall be free from rust, weld spatter, weld scale, oil, grease, dust and any other matter likely to impair the adhesion of the coating. Surfaces shall be cleaned by power or hand tool cleaning in accordance with AS1627.2 to achieve minimum cleanliness of St2.

The paint shall be approved to APAS-0162/1, APAS-0162/2 or APAS-2921. Approved products include International Interprime 198 or Interprime 164, Solver

Line 4120 Zinc phosphate Metal Primer, Watty P162 ZP Primer or Superprime ZP Primer and Jotun Jotaprime 200 or Jotaprime 250.

Two coats shall be applied in accordance with the manufacturer's technical data sheet to achieve a minimum dry film thickness of 50 microns.

### 9.1.3 Alkyd Gloss Enamel on Steel and Galvanised Steel

This is an oil resistant coating for top coating iron and steel within buildings. It would typically be specified for pipework, pumps, fixed plant and steel framework within buildings which are not subjected to constant moisture and atmospheric contaminants.

The primer for plain steel or cast iron surfaces shall be zinc phosphate metal primer in accordance with Clause 9.1.2. Galvanised surfaces shall be degreased prior to application of one thin coat of one pack metal etch primer approved to APAS-0035/2. Approved products include Solver Self Etch Primer and Watty Super Etch Primer.

Apply two coat of oil and petrol resistant alkyd high gloss enamel approved to APAS-0024/1 or alkyd full gloss spraying enamel approved to APAS-0060. Approved products include Dulux Super Enamel, Watty Sigma Enamel and Solver Supergloss.

### 9.1.4 Acrylic Latex Gloss for PVC and ABS Pipes

- Clean the pipe surface to remove dust and dirt using water and clean rags and lightly abrade using 180 - 300 grade abrasive paper.
- Apply one coat of exterior latex undercoat approved to APAS-0163/1. Approved products include Solver Oil Latex Undercoat and Dulux Acrylic Primer Undercoat.
- Apply two coats of acrylic latex gloss approved under APAS-0280/1. Approved products include Solver Duraguard and Dulux Weathershield. Light colours should be used for outside exposure to minimise thermal expansion.

### 9.1.5 Epoxy Non-slip Surfaces

May be specified where a high performance non slip surface is required. It is resistant to oil and grease and will not be damaged by forklifts or movement of equipment.

The system shall comprise a base coat of Ameron Amercoat CC21 epoxy followed by a light broadcast of fine silica sand. When touch dry the excess silica sand shall be swept off and a further 1 to 2 coats of Amercoat CC21 applied. Concrete will require pre-treatment such as acid etching and the first coat of epoxy should be thinned 10%. Materials shall be applied in accordance with the manufacturer's written recommendations as detailed on the product data sheet.

### 9.1.6 TS 12 - Inorganic Zinc Silicate

This specification covers the surface preparation, application and repair of inorganic zinc silicate.

This system is a single coat protective coating designed to provide protection for steelwork in mild and rural atmospheric environments. The colour of the coating is grey, they resist high temperatures, have excellent UV resistance and very good abrasion resistance. It can be top coated with a range of products to alter the colour and further enhance its performance. Structural steelwork and above ground pipelines are where this system can be specified. It is often used on structures that are too large for hot dip galvanising as it has comparable performance properties.

### 9.1.7 TS 82 – Zinc / Acrylic Latex Gloss System

This specification covers the surface preparation, application and repair of inorganic zinc silicate (or hot dip galvanising) and acrylic system.

This system is a medium to long life coating system designed to provide protection in mild, metropolitan and country atmospheric environments where a coloured topcoat is required. The acrylic topcoat is easy to recoat, but provides poor graffiti and solvent resistance. This can be specified for steel tanks, pipework and structural steelwork.

### 9.1.8 TS 24 – Zinc / Epoxy High Build, 2-pack Micaceous Iron Oxide / Gloss 2-pack Topcoat System

This specification covers the surface preparation, application and repair of inorganic zinc silicate (or hot dip galvanising), epoxy high build 2-pack micaceous iron oxide and gloss 2-pack topcoat.

This system is a high performance protective coating system designed to provide long life protection for iron and steel in aggressive atmospheric environments. Sewage treatments works, water filtration plants, constantly damp and humid environments and marine environments are locations where this system should be specified.

## **9.2 IMMERSION – WATER, WASTE WATER AND SEAWATER**

### 9.2.1 TS 84 – Epoxy 2-pack Mineral Flake Filled

This specification covers the surface preparation, application and repair of epoxy high build, 2-pack mineral flake filled coating. One product is micaceous iron oxide pigmented while the other is glass flake pigmented.

The micaceous iron oxide pigmented product (natural steel grey) is a long life product primarily for protection of steelwork exposed to a combination of water and atmospheric exposure such as river structures where the water level may vary significantly. Epoxy coatings chalk when exposed to UV, but the MIO pigmentation reduces the affect of this and provides a sparkling effect on the paint surface. The MIO pigments also reduce the water permeability and increase abrasion resistance.

The glass flake reinforced product is a long life product primarily for the protection of steelwork exposed to water and sewage. It also offers good performance for the protection of steelwork exposed to a combination of water and atmospheric exposure such as river structures where the water level may vary significantly. The product is available in grey or off white. The mineral glass flakes provide excellent abrasion resistance.

A specific product should be specified for a particular project as each product has distinct differences and advantages over the other in different situations.

#### 9.2.2 TS 97 – Potable Water Approved Epoxy High Build, 2-pack Solventless

This specification covers the surface preparation, application and repair of potable water approved epoxy high build, 2-pack solventless coatings.

This system is a long life protective coating designed to provide corrosion protection for steelwork immersed in potable water. Often cathodic protection is used in conjunction with these products to prevent corrosion at defects. White or near white are normally used as the coloured pigments can affect the potability of the water. These coatings can be used in steel tanks, surge vessels, pipework, steelwork and pumps. A specific product may be specified for a particular project as one product will have advantages over another in different situations.

#### 9.2.3 TS 98 – Potable Water Approved Epoxy Ceramic Filled, 2-pack Solventless

This specification covers the surface preparation, application and repair of potable water approved epoxy high build, 2-pack solventless ceramic filled coatings for water supply pumps.

This system is a long life protective coating designed to provide corrosion protection, abrasion resistance and erosion resistance for cast iron and ductile iron pump bodies exposed to potable water. These products comply to AS/NZS 4020 “Products for use in contact with drinking water.” Where good corrosion resistance is required, but abrasion resistance is not so critical a significantly more economical system in accordance with TS97 can be specified.

#### 9.2.4 TS 13 – Epoxy Ultra-high Build, 2-pack Solventless

This specification covers the surface preparation, application and repair of potable water approved epoxy ultra-high build, 2-pack solventless coating.

This system is a very high performance long life coating designed to provide corrosion protection to steelwork immersed in potable water, sewage or buried in soil. Often cathodic protection is used to further extend the coating life by preventing corrosion at defects. The product can be applied up to 2.5 millimetres thick in a single coat, is available in white and grey and both have potable water approval. This product can be specified for steelwork in water and sewage tanks, marine structures (ie steel piles in seawater) and buried pipelines. Field application to existing pipelines and pipeline gulleys after the removal of failed coatings has been a major use of this product in the oil and gas industry over many years. On larger projects it is likely to be more cost effective than tape wrapping. Although not covered by this specification, the product can be used on concrete in sewers and sewage treatment works.



9.2. TS 99 – Epoxy High Build, 2-pack

This specification covers the surface preparation, application and repair of epoxy high build, 2-pack coating

This system is a black protective coating designed to provide corrosion protection for steelwork immersed in seawater water. Often cathodic protection is used in conjunction with this product to prevent corrosion at defects. This coating is primarily used for the protection of steelwork exposed to seawater, particularly barrage, weir and lock structures. It has the advantage that it can be applied to damp surfaces which may not have optimum surface preparation and it will continue to cure when immersed in water.

## 9.3 SOIL BURIAL

### 9.3.1 TS 13 – Epoxy Ultra-high Build, 2-pack Solventless

Refer to Clause 9.2.3.

### 9.3.2 TS 81 – Denso Bitumen Mastic Tape Wrapping System

This specification covers the surface preparation and application of bitumen mastic based anti-corrosion tapes and compounds for all below ground steel pipelines. Included are sections for the repair of fusion bonded polyethylene (Sintakote), welded joints and bends in steel (Sintakote) pipelines, steel fittings for all pipelines and all uncoated steel pipes.

This system is a very long life high performance protective coating for the protection of below ground pipelines and is designed to complement 'Sintakote' which is a very long life high performance protective coating. Usually cathodic protection would be installed to protect any defects in the pipeline coating. Good surface preparation is required and it would normally be applied in the field. Although workshop application is satisfactory, transport damage is possible and it must be carefully inspected prior to final installation. This product should also be used on new ductile iron and cast iron where high performance or very aggressive environments are encountered. This product has performed very well in sewage and aggressive soil environments.

### 9.3.3 TS 29 – Denso Petrolatum Tape Wrapping System

This specification covers the surface preparation and application of petrolatum based anti-corrosion tape and compounds for cast and ductile iron specials for all pipelines.

This system is designed for corrosion protection of cast and ductile iron fittings and specials buried in soil. Minimal surface preparation is required to achieve good performance from these products as they have corrosion inhibitors incorporated into the primer. Surface moisture can also be tolerated as the primer can displace surface moisture when applied correctly. This product will not perform as well as the TS 81 system, but is ideal for previously buried fittings and situations where optimum surface preparation is not practical. Typical uses include corrosion protection at pipe cut ins, bolted flanges which may need to be dismantled at a later date and protection of iron fittings used to repair a burst.

## Section 10: Colours

The colour listed shall be used for new works and equipment. Where a different colour code is used in an existing plant this should continue to be used for any modifications or additions to the plants. Refer also to Section 7.

### 10.1 GENERAL PIPEWORK, DUCTING AND CONDUIT COLOURS

Table 10.1 - Pipework, Ducting & Conduit Colours to AS2700 (Clause 7)

FLUID	BASE COLOUR	BAND COLOUR
1 Ventilation and air conditioning ducts	white (1)	-
2 Compressed air (2)	B25, aqua	-
3 Vacuum	B25, aqua	black
4 Alkalis (3)	P23, lilac	black
5 Acids (3)	P23, lilac	R13, signal red
6 Electricity (4)	X15, orange	-
7 Telephone	X15, orange	G14 moss green
8 Steam (5)	silver grey	-
9 Refrigerant (6)	Y44, sand	G14 moss green
10 Gases (2) (6)	Y44, sand	-
11 Fuels, combustible liquids	X53, golden tan	-
12 Lubricating fluids	X53, golden tan	R13, signal red
13 Mains supply water (7)	G21, jade	-
14 Potable water (8)	G21, jade	B15, mid blue
15 Distilled water	G21, jade	white
16 Chilled water	G21, jade	B21, ultramarine
17 Hot water	G21, jade	R13, signal red
18 Polluted water (9)	G21, jade	Y14, golden yellow
19 Fire control water (10)	R13, signal red	-
20 Drains & waste fluids (11)	black	-

#### Notes:

- (1) ventilation and air conditioning duct colours may be varied to suit architectural requirements.
- (2) high pressure compressed air and gases shall be indicated by putting the pressure on the pipe in red letters.
- (3) the acid or alkali shall be identified by letters on the pipe in black or red respectively.
- (4) high voltage installations shall have voltage indicated on the conduit.
- (5) steam pressure shall be indicated on pipe.
- (6) the refrigerant or gas type shall be indicated on the pipe.
- (7) mains supply water is that generally supplied by the South Australian Water Corporation whether treated or untreated.

- (8) potable water may at times require to be separately distinguished from mains water, eg adjacent to taps.
- (9) polluted water is contaminated water or water subject to possible contamination such as process products, machinery cooling and circulating water, water for chemicals preparation, etc.
- (10) where a water pipe is exclusively for fire fighting purposes, e.g. sprinkler system.
- (11) low pressure water may be distinguished by the letter "L" on the pipe in black.
- (12) two or more bands may be combined to give a full description, e.g. hot polluted water. Either two bands beside each other or a wide band with a central band may be used.
- (13) flow direction may be shown by arrows in red on any pipe or duct.
- (14) where the pipes or ducts are visible in inhabited areas they may be painted to suit the decor provided the identifying colours are located in appropriate positions.

## 10.2 WATER FILTRATION PLANT COLOURS

Table 10.2 - Water Filtration Plant Colours.

FLUID	BASE COLOUR	BAND COLOUR
1 activated carbon (1)	G33, lettuce	pale blue
2 sodium silicate (1)	G33, lettuce	X31, raffia
3 activated silica (1)	G33, lettuce	X31, raffia plus Y14, golden yellow (2)
4 alum (1)	G33, lettuce	Y25, deep cream
5 lime slurry (1) alternatively	G33, lettuce transparent pipe	white G33, lettuce plus white (2)
6 polyelectrolytes (1)	G33, lettuce	G14, moss green
7 potassium permanganate (1)	G33, lettuce	B21, ultramarine
8 caustic soda (1)	P23, lilac	black
9 fluoride (1)	P23, lilac	R13, signal red
10 chlorine gas and chlorine liquid	Y14, golden yellow	-
11 chlorine solution with fluoride	G21, jade	Y14 golden yellow P23, lilac
12 untreated water (3)	G21, jade	black
13 sedimentation tank sludge, thickened sludge or supernatant	X41, buff	-
14 return or waste water from filter backwash	G21, jade	black plus X41, buff (2)
15 treated water (4)	G21, jade	T24, blue jade
16 chlorine solution	G21, jade	Y14 golden yellow
17 aqua ammonia (1)	G21, jade	X31, raffia plus P23, lilac (2)
18 settled water or filter bypass water (4)	G21, jade	X41, buff
19 drains	black	
<u>Additional colours used in Desalination Plants</u>		
20 sea water	G21, jade	black
21 rinse water (4)	G21, jade	T24, blue jade
22 potable water (6)	G21, jade	

### Notes:

- (1) identifications in black letters, either in full or with the following abbreviations:
- |                  |      |
|------------------|------|
| aqua ammonia     | A.A. |
| activated carbon | A.C. |
| sodium silicate  | S.S. |
| activated silica | A.S. |
| alum             | A    |
| lime slurry      | L    |

- |  |                        |      |
|--|------------------------|------|
|  | polyelectrolytes       | P.E. |
|  | potassium permanganate | P.P. |
|  | caustic soda           | C.S. |
|  | fluoride               | F    |
- (2) wide colour band in first named colour with a central band on the second named colour.
- (3) untreated water is the works inflow or raw water.
- (4) treated water is equivalent to mains water, but provision is made to identify it if necessary with a band. In a desalination plant this will also be rinse water, which is un-chlorinated product water.
- (5) all pipelines with fluids 4,5,7,8,9,10,11,16,17 shall have yellow/black danger bands in addition to the specified band colour.
- (6) Potable water, which has been fully treated including chlorination will not have a colour band.

### 10.3 WASTE WATER TREATMENT PLANTS

Table 10.3 - Waste Water Treatment Colours.

FLUID	BASE COLOUR	BAND COLOUR
1 Raw sewage	N42, storm grey	-
2 Sewage effluent	N42, storm grey	T24, blue jade
3 Supernatants	N42, storm grey	G14, moss green
4 Raw sludge	X41, buff	-
5 Circulating sludge	X41, buff	-
6 Humus sludge	X41, buff	G14, moss green
7 Activated sludge	X41, buff	X55, nut brown
8 Digested sludge	X41, buff	T24, blue jade
9 Grit	X41, buff	black
10 Digester Gas	Y44, sand	
11 Hot water	G21, jade	R13, signal red
12 Chilled water	G21, jade	B21, ultramarine

### 10.4 SPECIAL REQUIREMENT COLOURS

Table 10.4 - Special Requirement Colours.

<b>1. EMERGENCY EQUIPMENT</b>	
Fire Fighting Equipment, Stop Buttons, Emergency Strips etc. Note: Foam Extinguishers are blue	R13, Signal Red
<b>2. HAZARDS</b>	
Crane Blocks (crane should match ceiling), steps, projections, etc.	Y14, Golden Yellow & Black Diagonal strips
<b>3. SAFETY EQUIPMENT</b>	
First Aid Boxes, stretcher cases, etc.	G22, Serpentine Green with Red Cross