

COLOUR CODING REQUIREMENTS OF PIPELINES AND ANCILLIARY EQUIPMENT

Document number	TPL-TECH-MECH-SPEC-PL877
Version number	1.0
Effective date	30 November 2020
Review date	30 November 2024

SUMMARY VERSION CONTROL

[illegible]

Note: Only latest amendments and/or additions will be reflected in italics in the body of the document.

DOCUMENTATION SIGN-OFF SHEET

I, the undersigned hereby approve this procedure.


ROLE	CAPACITY/ FUNCTION	SIGNATURE	DATE
Revised By:	Mechanical Specialist Transnet Pipelines		
Accepts document for adequacy and practicability. Comments:			
Approval: <i>Thershni Pillay</i>	Mechanical Manager Transnet Pipelines		23/07/2021
Approves document for use. Comments by :			
Errol Pilusa:			
Mxolisi Phiri:			

TABLE OF CONTENTS

1. PURPOSE.....	5
2. APPLICABILITY	5
3. REFERENCE DOCUMENTS	5
4. DEFINITIONS.....	5
5. ACCOUNTABILITY, RESPONSIBILITY AND AUTHORITY	6
6. LABELLING APPLICATION	6-8
7. EQUIPMENT IDENTIFICATION.....	8-9
8. ANNEXURE A	10-11
9. ANNEXURE B	12-14

1. PURPOSE

The purpose of this document is to provide the specification for the uniform colour coding of equipment, distinctive identification of equipment and pipeline contents.

2. APPLICABILITY

The scope of this document covers Transnet Pipelines (TPL) colour coding, labelling and banding requirements for pipelines, ancillary equipment and pipeline contents.

3. REFERENCE DOCUMENTS

All national and international standards referred to in this document shall form part of this specification. Where reference is made to a code, specification or standard the reference shall be taken to mean the **latest edition** of the code, specification or standard, including addenda, supplements and revisions thereto.

SANS 10140-3

SANS 1091

SANS 1186-1

TPL Specification No PL 407

Tech-Servitude-Manual-PCRS Element 1 (Module CRS)

4. DEFINITIONS

Basic colour of a Pipeline

This is a colour used to identify the basic nature of the pipeline contents. It is painted along the peripheral area of a pipeline.

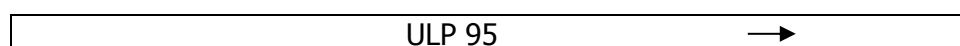
Colour Code Indicator

A pipeline display of colour indicators used to identify the specific nature of the pipeline contents. Refer to Appendix B

Descriptive Code Indicator

Descriptive code indicators are chemical formulae, words, flow direction arrows and other signs that can be used in conjunction with colour code indicators if required by TPL. Descriptive code indicators must be black in Colour. Yellow Colour can be used to obtain a better contrast to the background if black is not appropriate (Refer to SANS 10140-1).

Example: Descriptive code indicator (ULP 95) and flow direction arrow:



5. ACCOUNTABILITY, RESPONSIBILITY AND AUTHORITY

TPL Technical department is responsible for updating this specification and other related paint specifications.

6. LABELLING APPLICATION

6.1 Labelling Methods

Labels may be applied by means of stencilling or sticker banding. Labels must be visible from the indicative walkways access point.

6.1.1 Labelling Requirements

Piping and equipment shall be labelled as follows:

- ❖ On the lower side of the pipe if a person has to look up to the pipe.
- ❖ On the upper side of the pipe if a person has to look down towards the pipe.
- ❖ Directly facing the person if on the same level as the pipe.
- ❖ Labels should be UV resistant.

6.1.2 Colour Banding

Colour bands can be applied as follows:

- ❖ Every 50 metres of straight pipe sections.
- ❖ Less than 50 metres is required when the next stencil is not visible or unclear.
- ❖ On straight segments, spacing between labels can be increased such that it allows for easy identification.
- ❖ On header lines.
- ❖ Before or after pipebends and T-pieces, 100mm or less from the weld of existing elbow or tee.
- ❖ Combined size of colour band shall be 300mm for a pipe length of 700mm weld to weld.
- ❖ Combined size of colour band shall be 150mm for a pipe length less than 700mm weld to weld.
- ❖ No product names for single products are required, only colour banding.
- ❖ No operational pressures are required.
- ❖ Directional arrows are not required at colour banding.

For any other products not defined in the Transnet specification, such as cooling water, it will have a colour band as defined in SANS 10140-3 Dialogic Pipeline Colour Coding.

6.1.3 Stenciling

- ❖ Font to be used: Tahoma Bold Capital Letters.
- ❖ All stencilling to be single line with the indication arrow at the centre bottom of the letters.
- ❖ Double lines are allowed where space limitations are present but should be limited.
- ❖ Placing of stencilling are to be at all direction changes and where spacing runs longer than 50m. This must be confirmed during a detailed site walk.
- ❖ Less than 50m is required when the next stencil is not visible or unclear.
- ❖ Stencilling for vertical lines to be bottom up.
- ❖ All stencilling to be visible from at least two directions.
- ❖ As a rule, the arrow should be in the centre of the pipe dependant on angle of view.
- ❖ Letter size of 89mm must be used on all pipes over 250mm. Font size: 400pt.
- ❖ Letter size of 64mm must be used on all pipes 200mm to 250mm. Font size: 250pt. Line spacing: if double line is used must be 10mm.
- ❖ The arrow size for 64mm letters to be 64mm high at the arrowhead and the total length of the arrow to be 200mm.
- ❖ Letter size of 32mm must be used on all pipes 64mm to 150mm. Font size: 125 pt. Line spacing: if double line is used must be 5mm.
- ❖ The arrow size for 32mm letters to be 32mm high at the arrowhead and the total length of the arrow to be 100mm.

Example: The wording for stencilling should be as follows:

First word: To be Source, Destination or Function as defined below:

CODE	NAME
SEC	Secunda
CBK	Coalbrook
ALR1	Alrode 1
VLR	Villiers
KEN	Kendal
HP4	HP Manifold 4
VLR BYPASS	Villiers Bypass

Second word: to be per Product as follows:

- MULTI PRODUCT
- INTERMIX

Drain lines: Drain lines shall be stencilled only at the sump tank turrets and on the headers. Wording to be:

- OPEN DRAIN
- CLOSED DRAIN
- CLOSED VENT

7. EQUIPMENT IDENTIFICATION

The following equipment must be painted/marked as follows:

7.1 Fire Piping (Refer to Appendix B for pipe material)

1	Water ring mains and sprinklers	Signal Red
2	Reservoir feed-pipe	Signal Red
3	Fire pump feed-pipe	Signal Red
4	Hydrant pipes	Signal Red
5	Foam Premix	Signal Red and White
6	Foam Concentrate	Royal Blue

7.2 Mechanical Equipment

1	Critical valves	White
2	Petroleum pipe (High Pressure /Low Pressure /Drain piping)	French Grey

7.3 Servitude Equipment

1	Local and Remote chamber lids	Galvanized/Silver or Concrete Casting
2	Chamber lids labelling	See Drawings PL 1071 87-90 For: Size, Shape Colours, Text, Quantity and Orientation
3	Line markers	White (See PCRS Element 1 Module CRS)
4	Block Valve chambers (Exterior)	White

7.4 Electrical Equipment

1	Rectifier casing	White / Admiralty Grey
2	Rectifier top cover	Oxford Blue
3	Transformers	Battleship Grey
4	Transformer conservator tank	White
5	Mainline and Booster motors	White
6	Out door high voltage equipoment	Grey
7	Rail Bond	Oxford Blue

7.5 Petroleum Liquid Storage Tanks

1	Tank Shell Exterior	Refer to TPL Spec PL838/2D
2	Tank Shell Interior	Refer to TPL Spec PL838/1C
3	Tank label/number	800h X 180w mm Black Arial Font on a 1000 X 1000mm Golden Yellow background
4	Prover Transfer Tanks	French Grey




8. ANNEXURE A






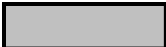



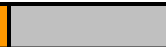















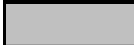
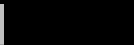
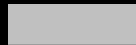




APPENDIX A- COLOUR IDENTIFICATION TABLE








<u>Pipeline Contents and Equipment Identification</u>	<u>Colour Code Indicator</u>	<u>SANS 10140-3: 2003</u>
Manifold low/high pressure and drain lines	French Grey	H30
Pumps	French Grey	H30
Critical valves	White	White
Mainline and Booster Motors	White	White
Insulating flanges	Signal Red Insulating varnish (Glyptol Red –Such as Insuldyn). Paint from weld to weld. Wrap once dried	A11
Walkways and platforms	Galvanized State or Black	Galvanize/Black
Stair and Platform Rails	Hand and Knee Railing: Golden Yellow Stanchions: Black	B49 Black
Unleaded petrol 95	Lime Green	H41
Unleaded petrol 93	Lime Green/Canary Yellow/Lime Green	H41/C61/H41
Diesel 500	Middle buff	B33
Diesel 50	Middle buff/Dark Violet/Middle buff	B33/F06/B33
Jet A1	Black	Black
Air Compressed	Arctic Blue	F28
Air Instrument	Arctic blue /Salmon pink/ Arctic Blue	F28 / A40 / F28
Air Vacuum	Arctic blue/Primrose/Arctic Blue	F28 / C67 / F28
Acetylene	Light stone/Maroon/Light Stone	C37 / A01 / C37
Hydrogen	Light Stone /Poppy Red/ Light Stone	C37 / A14 / C37
Argon	Light Stone / Peacock Blue / Light Stone	C37 / F08 / C37
Oxygen	Light stone / White / Light Stone	C37/White /C37

Nitrogen	Light stone / Light Grey / Light Stone	C37 / G29 / C37
Water Potable Cold	Brilliant Green / Cornflower / Brilliant Green	H10 / F29 / H10
Water Potable Hot	Brilliant Green / Crimson / Brilliant Green	H10 / B49 / H10
Drainage Water	Black	Black
Firefighting water/equipment	Signal Red	A11
Fire foam premix	Signal Red / White /Signal Red	A11/White/A11
Fire foam concentrate	Royal Blue	F01

9. ANNEXURE B. PIPELINE COLOR CODE CHART (SANS 1091 : 2004)

WATER LINES	
1. Water  Drinkable Cold	Cornflower A03 Brilliant Green H10 
2. Water  Drainage Sewage	Black 
3. Water  Industrial	Golden Yellow B49 Brilliant Green H10 
4. Water  Fire Fighting	Signal Red A11  Carbon Steel Pipe
5. Foam Concentration  Fire Fighting	Royal Blue F01  (In Carbon Steel Pipe)
6. Foam Premix Fire Fighting	Red White Red White Red  (In Carbon Steel Pipe)
9. Cooling Ring  Fire Fighting	Signal Red A11 (Every 2 Meters)  (Stainless Steel Pipe)

PETROLEUM PRODUCTS AND OIL Basic Color is French Grey H30	
10.Diesel 500 	Middle Buff B33 French Grey H30    French Grey H30
11. Diesel 50 	Middle Buff B33 Dark Violet F06 Middle Buff B33     
14.ULP 95 	Lime Green H41   
15.ULP 93 	Lime Green H41 Canary Yellow C61 Lime Green     
16.Crude Oil 	Dark Brown B01   
17.Jet Fuel 	Black   
18.Lubricating Oil 	Verdigris Green E22   

AIR	
19.Compressed Air 	Arctic Blue F28 (Entire Line Blue) 
20.Instruments Air 	Salmon Pink A40 
21.Oxygen 	White Light Stone C37 
22.Acetylene 	Maroon A01 