



Ref: - IWL/BIS/SPEC/JULY-22/5E

**To**  
M/s. Bureau of Indian Standards (BIS)  
9, Bahadur Shah Zafar Marg,  
New Delhi – 110002

**Date:** - 27<sup>th</sup> July'2022

**Subject: - Removal of Petrol Dip Test from IS: 15337: 2003 Coal Tar Based Anticorrosion  
Tape for  
Protection of Underground Mild Steel Pipelines [MTD 7:  
Light Metals and their Alloys]**

Dear Sir,

Greetings from IWL India Limited!

We, IWL India Ltd (Incorporated in 1988), are pioneers in manufacturing of Prefabricated Bituminous Waterproofing membranes, Construction Chemicals, Liquid Waterproofing membranes, prefabricated membranes, Preformed Anti-Corrosive Tapes and Primers for buried pipelines in India. Our Bituminous based anti-corrosive tapes have been extensively used in all major pipeline projects and approved by all major consultants all over India.

The main purpose of this letter is to achieve the following objective:

1. Removal of Petrol Dip Test from IS: 15337: 2003, Annexure C (Clause 7.5) C-2.

We, at IWL India Ltd feel that the usage of pure coal tar tapes does not benefit the end customer. As IS 15337:2003 has been drafted through the inspiration of the AWWA C-203 standard, we would like to point out that there is no petrol solubility test in the AWWA C-203 standard which helps the manufacturers to improve the product.

The removal of Petrol Dip Test and the freedom to choose the coal tar content in manufacture of the membranes will find the below advantages to both the users and the manufacturers:

- Increased number of manufacturers
- Higher Availability of raw materials
- Enhanced flexibility, hence easy and quick application
- Greater resistance to corrosion, water seepages
- Greater usability
- Reduced Health risks
- Less exposure to carcinogenic substances present in pure coal tar tapes.
- Improved Adhesion to mild Steel
- Reduced Costs both in maintenance and manufacturing.
- Higher resistance to acids.
- Increased resistance to weathering.
- Reduced exposure to high pungent fumes of pure coal tar.

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We wish to draw your kind attention to the following paragraphs in the IS: 15337: 2003 standard in Annexure C (Clause 7.5) C-1:

#### QUOTE

“There are anti-corrosive tapes based on coal tar as well as bitumen. There are sulphate bacteria under the soil. This is a natural phenomenon. These bacterial adversely affect a bitumen tape; but coal tar tapes are not adversely affected by these bacteria, so only, coal tar tape is suitable for underground application. Coal tar tape has got much better adhesion than bitumen tape. For underground pipeline only coal tar tape (and not bitumen tape) shall be used”.

“In order to differentiate between a coal tar tape and a bitumen tape, the solubility in petrol may be tested. Bitumen has a straight chain structure, so it is readily soluble in petrol. But coal tar has a ring structure, so it is only sparingly soluble in petrol, so, this test may please be included in the standard for coal tar tape”.

#### UNQUOTE

The above statement highlights the drawbacks of Bitumen based tapes and focuses to discard the usage of bitumen-based tapes for coating of underground pipelines. However, the flaws mentioned are incorrect and are solely stated to gain unfavourable advantage over bitumen-based tapes. The subsequent points will explain and invalidate the statements used in the Annexure C:

1. Bitumen based tapes are by no means adversely affected by any bacteria in the soil solely because it is mainly composed of cyclic aromatic compounds consisting of Alkenes and Alkynes which are stable under many reactions to acids and corrosive materials including all types of bacteria due to Aromaticity. This is not the case with Coal Tar as it usually consists of Polycyclic Aromatic hydrocarbons due to improper combustion of coal along with chains of Alkanes which easily combine with different matters in the soil to disintegrate and contaminate the soil\*.
2. Coal tar has poor adhesion to MS pipes (around 300 psi) \*\* and gets easily disbonded due to environmental conditions as seen in the reports.
3. Petrol test needs to be removed from this annexure as there is no need to differentiate between Coal tar Tapes and Bitumen based tapes.

\*Reference: (Encyclopedia of toxicology, 3rd Edition, Pg. 993-995)

\*\*Reference: (Research and Development Office Science and Technology Program Final Report ST-2017-1546-01)

#### Drawbacks of pure Coal Tar Tapes

Coal Tar tapes are quite harmful for both the environment and humans alike. Coal Tar tapes on average contain 30 to 50% of PAH compounds. Studies have shown that people who have been exposed to PAHs at high amounts for long durations when interacting with coal tar materials have a high chance to contract various diseases such as Jaundice, Cataract including Kidney and Liver damage. Short term health issues include dizziness, vomiting, nausea, skin and eye irritation. Apart from that, Coal Tar is known to be Carcinogenic which can cause various types of cancer such as Lung, Kidney and Skin Cancer. Special attention should be given to soil

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contamination and aquatic organisms\*. The substance may cause long-term effects in the aquatic environment due to the presence of aromatic compounds.

\*Reference: (The Use, Impact, and Ban of Coal Tar-Based Sealants, Hannah Needleman, William & Mary Law School, Class of 2016)

### Conclusion

The above drawbacks can be mitigated by using a higher percentage of bitumen in Coal Tar tapes subsequently enhancing the quality of the product and improving the application at site.

We request you to please consider and implement our proposal of removing the petrol dip test included in IS: 15337:2003 standard. The removal of petrol dip test will allow for hybrid tapes made of coal tar and bitumen to be used which will be far superior to pure Coal Tar tapes.

Thanking You,

Yours sincerely,

Sumit Kumar Pal

Head – Specification

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