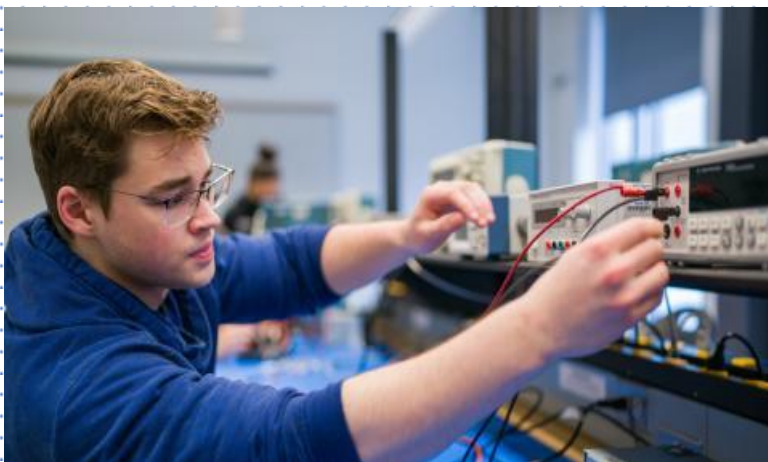
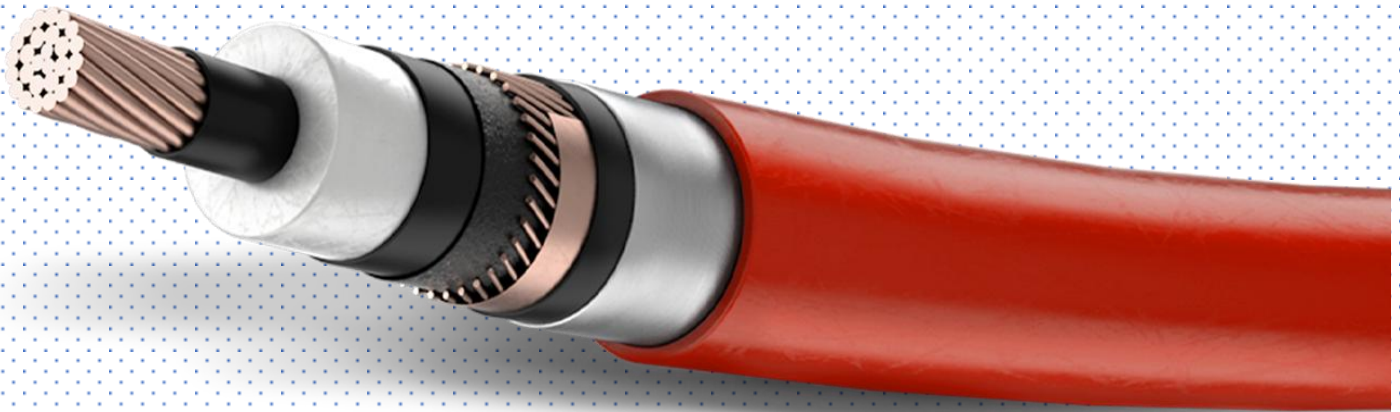


Where Your Cables Meet Our Expertise



CabLab



## Accredited Specialist Cable Testing Laboratory



CabLab Pty. Ltd.

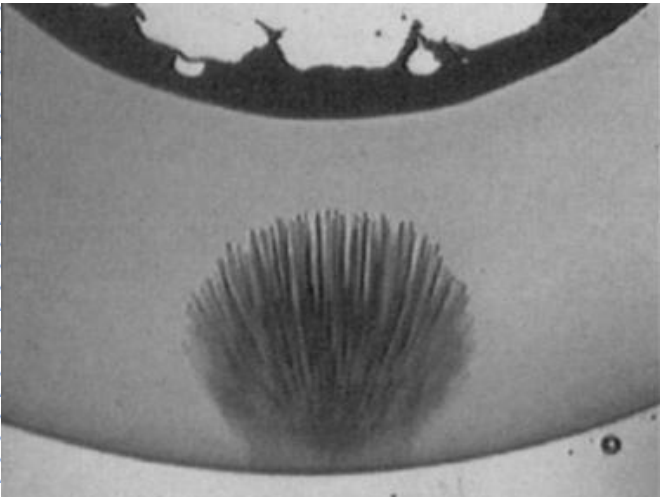
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*Test Before The Worst.  
Prevention Is Better Than Cure!*



### Useful Quality Assurance Tests

- Insulation and Sheath Thickness
- Vertical Flammability Test
- Tensile and Elongation
- Cable Ageing
- Conductor Resistance
- Conductor Properties
- Determination of Voids and Contaminants in Insulation

### Asset Qualification

- The purchase and installation of electric cables is an expensive purpose that carries a lot of risk. Cables have a long service lifespan, and the end user could face safety and legal issues if they fail.
- The premature failure of cables has serious consequence with safety breakdowns like electrical fires damaging operators and equipment, shutdown of operations leading to loss of profit and legal liability for non-compliant cables. Replacing failed cables also carries enormous cost.
- CabLab's qualification services ensures your cables comply with Australian standards, are safe to be installed and their service lifespan is as long as you expect.

### Inspect before you Trust.

- Our experience has shown us that you should be suspicious. Overseas manufacturers are under tremendous pressure to provide more competitive prices.
- This encourages them to cut corners during production, resulting in major non-compliance issues. Most of these cables are supplied with test reports and certificates by the manufacturer.
- The unfortunate truth is these documents are technically invalid.
- The industry practice is to manufacture a short length of cable called "the golden sample". This sample is used to obtain the test report and certificate.
- However, once the purchasing company approves production, changes are made.
- The mass-produced cable will be of lower quality. These changes are not necessarily visible but can be identified with measurements.

The most commonly detected manufacturer alterations are:

- Decreased insulation and sheath thickness to save polymer.
- Smaller wires or different bunching process to save copper.
- Extensive use of reclaimed materials.
- The use of completely new, untested raw material from a different, cheaper supplier.

On rare instances, we have even seen cases where the results on manufacture provided test report were completely false.

### How do we evaluate the quality of your cables?

To ensure the quality of your cables request the supplier to obtain test reports from CabLab, a NATA accredited Australian laboratory.

Inform the supplier that once they deliver the ordered cables, samples will be selected randomly by your team and the supplier will be required to get those tested too. This way they are forced to mass produce the same cable and bear all the testing costs.

For the second round of tests, instead of full testing, We can tailor a partial test procedure to your needs including only the most critical tests. CabLab will carry out the tests and compare the results with the first test report. Any findings will be reported back to you promptly.

*Verify, Validate, Certify.*  
*Elevate Your Cable's Reputation*



### International Recognition

- Our laboratory complies with ISO/IEC 17025 standard which sets general requirements for competence of testing laboratories.
- We are accredited by NATA which is the formal recognition of our organisation's competence to perform specific types of conformity assessment activities.
- Accreditation delivers confidence in reports, certificates and conformity statements. It underpins the quality of results by ensuring their traceability, comparability and validity.
- A NATA endorsed test report is crucial to get your cable certified for sale and use in Australia. Our test reports are widely accepted as high-quality independent documents in Australia and through the ILAC MRA agreement in most countries of the world.



### Accredited Compliance Testing Service

We have the scope to test cables of numerous constructions and sizes upto 19/33 (36)kV.

#### Main Standards

- AS/NZS 5000.1 - Electric cables - polymeric insulated. Part 1 - For working voltages up to and including 0.6 /1 (1.2) kV
- AS/NZS 5000.2 - Electric cables - polymeric insulated. Part 2 - For working voltages up to and including 450/750 V
- AS/NZS 5000.3 - Electric cables - polymeric insulated. Part 3 - Multicore control cables
- AS/NZS 1429.1 - Electric cables - Electric cables - Polymeric insulated - For working voltages 1.9/3.3 (3.6) kV up to and including 19/33 (36) kV
- AS/NZS 3191 - Electric flexible cords
- AS/NZS 1972 - Electric cables - Underground coal mines - Other than reeling and trailing
- AS/NZS 1995:2003
- AS/NZS 4026
- AS/NZS 1026

#### Underlying Test Methods

- AS/NZS 3808 - Insulating and sheathing materials for electric cables
- AS/NZS 1125 - Conductors in insulated electric cables and flexible cords
- AS/NZS 1660.1 - Test methods for electric cables, cords and conductors. Method 1: Conductors and metallic components
- AS/NZS 1660.2.1 - Test methods for electric cables, cords and conductors. Method 2.1: Insulation, extruded semi-conductive screens and non-metallic sheaths - Methods for general application.
- AS/NZS 1660.2.2 - Test methods for electric cables, cords and conductors. Method 2.2: Insulation, extruded semi-conductive screens and non-metallic sheaths - Methods specific to elastomeric, XLPE and XLPVC materials.
- AS/NZS 1660.2.3 - Test methods for electric cables, cords and conductors. Method 2.3: Insulation, extruded semi-conductive screens and non-metallic sheaths - Methods specific to PVC and halogen free thermoplastic materials.
- AS/NZS 1660.2.5 - Test methods for electric cables, cords and conductors. Method 2.5: Insulation, extruded semi-conductive screens and non-metallic sheaths—Methods specific to cables above 1 kV
- AS/NZS 1660.3 - Test methods for electric cables, cords and conductors. Method 3 - Electrical tests.
- AS/NZS 1660.5.6 - Test methods for electric cables, cords and conductors. Method 5.6 - Fire tests. Test for vertical flame propagation for a single insulated wire or cable.



Need to ensure cable safety and compliance? Contact us today! +61 3 9798 4452 [sales@cablab.com.au](mailto:sales@cablab.com.au) [www.cablab.com.au](http://www.cablab.com.au)



## Quality Assurance for Mining Cables

- Underground coal mining is a hazardous and expensive operation. Cables must endure harsh conditions with the consequences of failure posing extremely serious risks to anyone inside.
- Australia and New Zealand have some of the safest underground mines in the world. This safety record is built on strict legislation and safety controls to ensure cables for mining operations are of a particularly high quality.
- We understand that reeling and trailing cables have a broad set of applications that have different demands within a mining operation. Cable performance will vary based on environmental conditions, cable construction, materials and use.
- Cablab offers an accredited testing service with scope to test numerous mining cables according to Australian and New Zealand standards. We offer tailored service to establish procedures and technical expertise to meet your specific needs.
- Our engineers are experienced in conducting numerous preliminary safety tests such as flame propagation, tensile strength, insulation defect detection, environmental stress cracking resistance and UV resistance to ensure your cable can endure the harsh conditions underground.
- We can conduct electrical testing for conductor and insulation resistance, high voltage test and volume resistivity. We also offer full electrical performance testing through our partners.

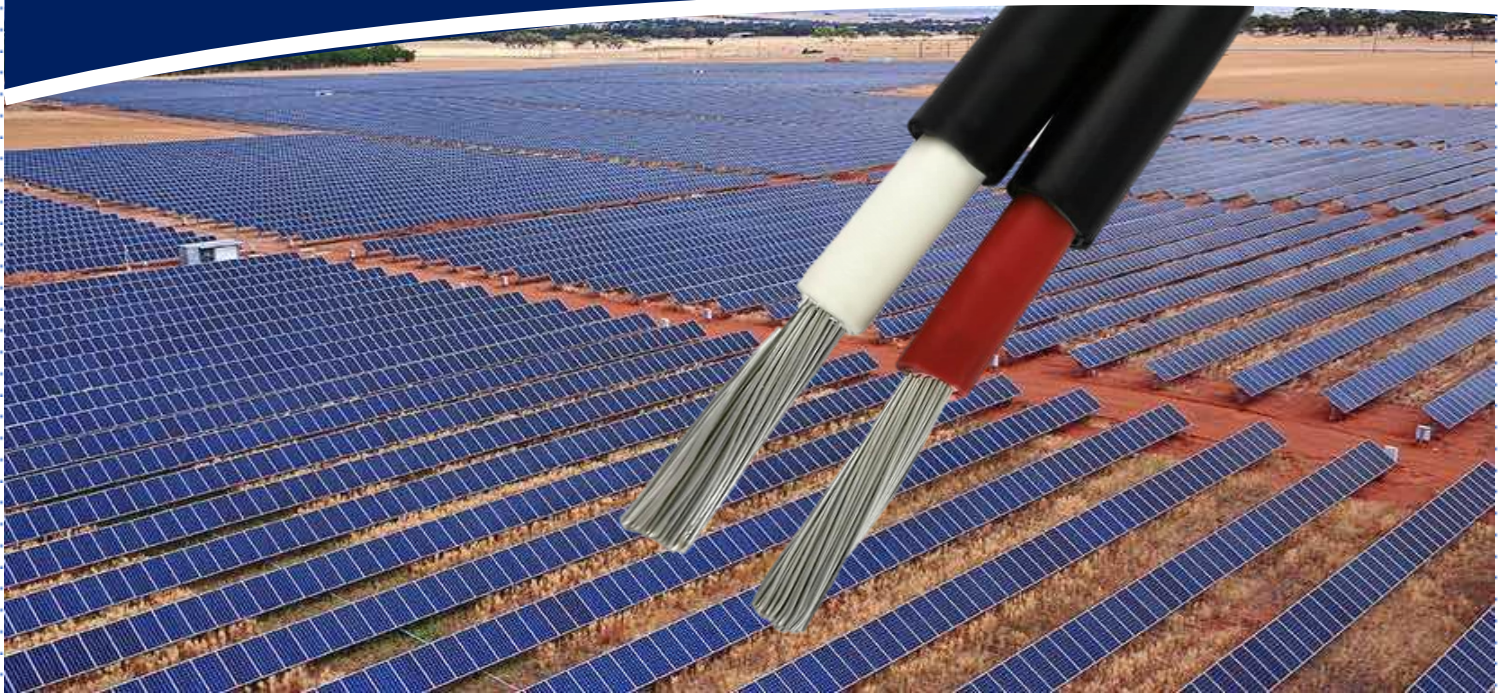
## Relevant standards and requirements

- AS/NZS 1802:2003 Electric Cables-Reeling and trailing-For underground coal mining
- AS/NZS 2802:2000 Electric Cables-Reeling and trailing-For mining and general use (other than underground coal mining)
- AS/NZS 1972:2006 Electric Cables-Underground coal mines-Other then reeling and trailing
- AS/NZS 3808:2000 Insulation and Sheathing materials for electric cables

## Services

- Type Testing to relevant standards.
- NATA endorsed report for AS/NZS 1972
- Partial Testing with Cablab Test report.
- Cable Safety Testing
- Cable Performance Testing
- Fault Investigation
- Special Tests for Materials analysis (FTIR & DSC)

# Shine A Light On Safety: Testing For A Brighter Tomorrow



## Solar Cable Compliance Testing

- Solar farms are being built across Australia as the country strives for energy independence through renewable energy sources.
- Testing solar cables to a rigorous standard before installation is crucial to increase lifespan of Photovoltaic (PV) power systems and improve the reliability of solar energy farms.
- Because the transition to renewable energy is recent, the quality and reputation of solar cables is lacking.
- Solar cables experience significant thermal and mechanical loads.
- In our experience, we have seen many failures with solar cables manufactured overseas that are unable to withstand Australia's harsh and unstable weather. Electrical fires are common, UV resistance is poor, and the PV modules are damaged.
- We provide a comprehensive testing service for solar cables focused on risk mitigation through compliance testing.
- Solar cables are tested to IEC 62930/EN 50618. Australia's certification bodies are increasingly looking into solar cables as many of the imported cables have been found to be non-compliant with local safety regulations.
- We are experienced in fault investigation for solar cables and have state of the art technology to find impurities within the insulation and sheath.
- Our engineers possess a strong understanding of solar power systems and can assist you in finding out what went wrong.
- CabLab offers Australia's cheapest FTIR (Fourier Transform Infrared Spectroscopy) and DSC (Differential Scanning Calorimetry) testing service for materials analysis.
- We are currently expanding our scope of accreditation for IEC 62930 to release formal NATA endorsed reports.



## Relevant standards and requirements

- IEC 62930 : Electric cables for photovoltaic systems with a voltage rating of 1,5 kV DC
- AS/NZS 3808:2000 Insulation and Sheathing materials for electric cables
- IEC 60754.1: Determination of halogen and acid gas content
- IEC 60754.2: Determination of acidity by (ph measurement) and conductivity
- AS/NZS 1660.5.6: Fire Tests

## Services

- Type Testing including Cablab Test Report
- Cable Safety Testing
- Vertical Flame propagation
- Cable Performance Testing
- Water absorption
- High Voltage Tests
- Long term resistance of insulation to DC
- Fault Investigation including Special Test report
- Materials analysis using FTIR and DSC.
- pH and conductivity measurement
- PV panel testing (EL test)



### Shipping and Subsea Cable Testing

- Australia's shipping industry is witnessing substantial growth, fueled by the country's expanding trade relationships and a rising demand for both imports and exports.
- With its vast coastline and strategic location, Australia serves as a crucial maritime cargo hub for the Asia-Pacific region.
- Testing shipping cables is essential to ensure the safety and dependability of maritime transport.
- These cables play a vital role in securing cargo, towing, and mooring tasks, and any failure could result in severe consequences such as lost cargo, environmental harm, or even fatalities.
- Regular Batch testing helps identify potential weaknesses, wear, or defects in the cables, enabling timely maintenance or replacement.
- By adhering to strict testing protocols, shipping companies can reduce risks, comply with international safety regulations, and maintain the integrity of their operations.
- A proactive testing approach safeguards human lives and the marine environment while ensuring the smooth flow of global trade.
- CabLab offers full testing and investigative services for electrical installations in ships and marine cables.
- We are also an authorized defense partner with an off-grid network secure laboratory to assist in defense-related marine projects.

### Railway Cable Testing

- Testing railway cables is essential for the safety and efficiency of train operations in Australia.
- These cables manage signals, power, and communication, all critical for the smooth functioning of the railway network.
- Given Australia's vast railway system, any cable failure can cause significant disruptions and accidents.
- The metro systems are also being expanded across the major cities. Our type testing service helps detect any issues with the cables before installation, ensuring smooth project completion.

### Relevant Standards and Requirements

#### Shipping Cables

- IEC 60092 Series: Electrical installations in ships (Part 350, 360, 373, 376)

#### Railway Cables

- AS 7663: Signalling Cables (Railway Infrastructure cable)

#### General

- IEC 60811 series Electric and optical fibre cables - Test methods for non-metallic materials - Part 100: General
- AS/NZS 3808:2000 Insulation and Sheathing materials for electric cables
- AS/NZS 1660.5.6: Fire Tests

### Services

- Type Testing including Cablab Test Report
- Cable Safety Testing
- Vertical Flame propagation
- Cable Performance Testing
- Tensile and Elongation Test
- Water absorption
- High Voltage Tests
- Long term resistance of insulation to DC
- Fault Investigation including Special Test report
- Materials analysis using FTIR and DSC.

## Cables for Wind Farms

- Testing cables for wind farms is essential for ensuring the safety, reliability, and efficiency of renewable energy generation in Australia.
- With the country's growing focus on renewable energy sources, wind farms play a significant role in reducing carbon emissions and meeting energy demands.
- Wind farm cables transmit power from turbines to the grid, and any failure can lead to substantial power losses, costly repairs, and potential safety hazards.



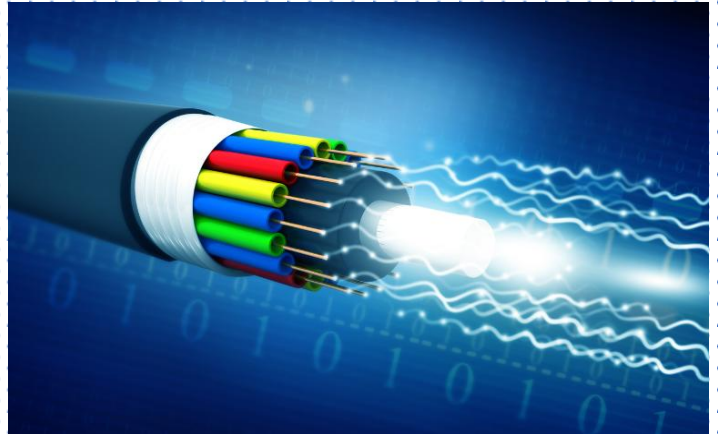
## Cables for Power Plants

- Testing medium voltage (MV) cables in power plants is particularly crucial in Australia due to the country's unique environmental conditions and energy demands.
- Australia's power infrastructure is subjected to harsh climatic conditions, such as extreme heat, UV exposure, and occasional severe weather events, which can accelerate the wear and tear of MV cables.
- CabLab can test MV cables to AS/NZS 1429 standard including Partial Discharge electrical testing through our partners.
- We also test for Low Voltage (LV) building cables to help you set up power plants safe for operation in Australia.



## Communication Cables

- Testing telecommunication cables to AS/NZS 1049 standards ensures their durability, reliability, and safety in Australia's environment.
- These standards cover tests for tensile strength, heat resistance, flame retardancy, and more, helping to prevent failures and ensure long-lasting performance.
- CabLab also uses AS 1049 to check performance of Nylon barriers in cables which aids in protection from insect attack.
- Rigorous testing supports the integrity of Australia's telecommunication infrastructure, enabling efficient and reliable communication services.



## Relevant Standards and Requirements

### MV Cables

- AS/NZS 1429 series - Electric cables polymeric -insulated

### LV Cables

- AS/NZS 5000 series - Electric cables polymeric -insulated

### Communication Cables

- AS 1049 series- Telecommunication cables - Insulation, sheath and jacket Materials
- AS/CA S008:2020 Requirements for Customer Cabling Products

### General

- AS/NZS 3808:2000 Insulation and Sheathing materials for electric cables

## Services

- Type Testing to relevant standards.
- NATA Type Test report
- Quality Assurance Test report
- Partial Testing
- Cable Safety Testing
- Cable Performance Testing
- Fault Investigation
- Special Tests for Materials analysis (FTIR & DSC)

## General Testing and Inspection Service

### ELECTRICAL TESTING

1. **Viscosity** measurement of liquids from 2°C to 290°C (directly). Viscosity conversions, classifications (SAE; ISO), calculations, corrections etc.
2. **Humidity**, dew point and temperature measurement or checking of your readouts.
3. **Water Content** (oven drying methods).
4. **Density & Specific Gravity** measurement of liquids, solids, and semi-solids.
5. **Surface Tension** (or Interfacial) of liquids.
6. **Melting & Congealing Point** of grease, wax etc. by various methods, e.g. BS 894/IP 31; ASTM D566/ISO 2176/IP 132; ASTM D127/ISO 6244/IP 133; ASTM D938/IP 76.
7. **Bulk Density**; and **Particle Size** measurement (by sieving) of solids.
8. **Capacitance**; **Dielectric Constant**; **Dissipation Factor** of materials or components.
9. **Volume or Surface/Bulk Resistivity** of insulating or semi-conductive materials.

### CHEMICAL ANALYSIS

1. **Identification of materials** (plastics, rubbers, contaminants, components, fillers, etc.).
2. General/wet chemical testing; Sulphated/Ash contents, titrations, extractions, etc.
3. **Water** (or soil) **testing** including **Conductivity (EC)**, **pH**, **Solids (TDS)**; suspended solids etc.); alkalinity, 'hardness' (Ca; Mg), etc.
4. Thermal analysis: **Differential Scanning Calorimeter (DSC)** including OIT; any method.
5. Gases or vapours: detection, identification & estimation using detector tubes.
6. **Moisture Content** of solids or liquids by **coulometric Karl Fischer** technique.
7. **Infra-Red (FT IR)** spectroscopy (with detailed interpretation) on most liquids and solids.
8. **Carbon Black & Mineral Filler** content of polymers to AS 1660.2 & 1049; ASTM D1603 etc.
9. **Carbon Black Dispersion** of polythene to AS 1660.2; AS 1049.
10. **Thermal Stability of PVC** to AS 1660.2.
11. **Gases evolved during combustion** of material from cables: IEC 60754-1 & 2 / AS 1660.5.3 & 4

### MECHANICAL TESTING of MATERIALS

1. **Penetration** of wax (needle: ASTM D1321).
2. Permeability tests on paper (Gurley).
3. **Torsional Modulus** and **Rigidity** of rods by dynamic method.
4. Mass and dimensional measurements (micrometers, callipers, rules).
5. Durometer **Hardness** of Rubbers & Plastics (IRHD; Shore M, Barcol).
6. **Tensile Strength, Elongation and Modulus** of polymers (& other materials) generally to ASTM D412, D638 & D882; AS 1125 & 1660; ISO 37 & 527, etc.
7. **Hot Set** (degree of cure) tests on cross-linked polymers to AS 1660.2 & similar.
8. **Loss of Mass** or plasticizer migration test for PVC/polymer compounds in air/"Paton" oven.
9. **Cell Oven** and general thermal/oven **ageing** of polymers etc. under various conditions.
10. **ESCR (Environmental Stress Cracking Resistance)** gen. to AS 1660.2.4, AS 1049, etc.
11. General inspection & dimensional measurements, including under microscope.

### MECHANICAL TESTS / INSPECTION of PRODUCTS

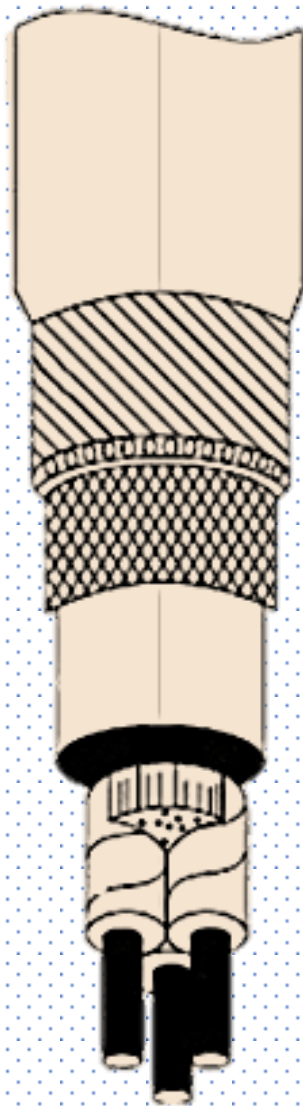
1. Microscopic examination & **identification of contaminants** in electric cable insulation.
2. **Micro-photography** & detailed examination (can include dimensions, angles etc.).
3. **Insulation Resistance or Capacitance** testing of assemblies or wire; cables.
4. **Volatility tests** (e.g. 'Noack' or more specific temperature/usage): lubricants, oil, grease &c.
5. Oil Separation – or antioxidant migration etc. - from wax, oil or grease-based compounds.
6. Lubricant (fat or oil) or solids content in **emulsions** (e.g. for wire drawing etc.).



CabLab

### Made in Australia

We understand the Australian cable industry, local regulations, special standards to best serve our customer's needs.



### Quality Control

CabLab emphasizes rigorous quality control to meet industry standards and exceed customer expectations, ensuring reliability, trust, and long-term customer satisfaction.

### Factory Inspection

Beyond our asset qualification service, we also offer our expertise and knowledge in auditing the manufacturing facilities.

### Customer Satisfaction

CabLab offers comprehensive cable testing and certification service with skilled engineers and responsive customer support to ensure quick lead times for our clients.



**Don't Leave Cable Quality To Chance – Act Now**

**Book a Free Consultation**

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