

**TECHNICAL ASSESSMENT 308**

July 2003<sup>1</sup>

**Lectros Electro Osmotic Dampcourse System**

1. July 2006. Revalidated until July 2009.

CSIRO Appraisals, PO Box 56, Graham Road, Highett, Vic. 3190  
Tel: (03) 9252 6000 Fax: (03) 9252 6244  
E-mail: [appraisals@dbce.csiro.au](mailto:appraisals@dbce.csiro.au)  
Web: [www.dbce.csiro.au/appraisals](http://www.dbce.csiro.au/appraisals)

**PURPOSE**

Lectros Electro Osmotic Dampcourse for new and existing buildings for use in walls of masonry, constructed of, but not restricted to clay brick, sandstone, limestone, and other sedimentary materials, composite masonry walls, AAC, pre-cast and in-situ concrete and mud-brick.

**APPLICANT**

Lectros Australia Pty Ltd (ABN 77 088 958 016) 2  
Mayfair Court Chirnside Park, Victoria, 3116  
(Manufacturer/Distributor).



## TECHNICAL OPINION

In the opinion of CSIRO Appraisals, the Lectros Electro Osmotic Dampcourse Systems for new and existing buildings is suitable for use in walls of masonry, constructed of, but not restricted to clay brick, sandstone, limestone, and other sedimentary materials, composite masonry walls, AAC, pre-cast and in-situ concrete and mud-brick, provided that:

1. The system is installed in accordance with 'The Lectros System Electro Osmotic Damp Proofing Installation Instructions' UK (17<sup>th</sup> April 2003) and the 'Lectros Australia Installation Note' (15<sup>th</sup> April 2003) where construction techniques and electrical requirements differ.

**Note:** These are available from Lectros Australia Pty Ltd 2 Mayfair Court Chirnside Park, Victoria, 3116 (Facsimile 03 9726 4976).

2. The Lectros platinised titanium anodes, titanium crimp connectors and the plain titanium connecting wires are imported from Lectros International Limited, (UK), and the Lectros power units, (Pat. Pend.), are manufactured in Australia exclusively for Lectros Australia Pty Ltd.
3. The system is installed by contractors trained by Lectros Australia Pty Ltd.

## BUILDING CODE of AUSTRALIA

In the opinion of CSIRO Appraisals, the Lectros Electro Osmotic Dampcourse System described in this Technical Assessment and installed under the conditions listed in this Technical Assessment will satisfy the Performance Requirements of clauses FP1.5 (Volume 1 - Class 2 to Class 9 buildings) and P2.2.3 (Volume 2 - Class 1 and Class 10 buildings) of the Building Code of Australia (2006).

### Notes:

- (i) The inclusion of this clause with reference to the BCA is aimed at assisting those involved in the design, specifying and building approval/permit process relate the Appraisal to the relevant Performance Requirements of the BCA.
- (ii) Any changes made to the BCA will be reviewed during the term of validity of this Technical Assessment and, where necessary, any amendment required will be published on the CSIRO Appraisals web pages on <http://www.cmit.csiro.au/Appraisals>.

## RELATED INFORMATION

### VALIDITY OF THE ASSESSMENT

#### **Condition:**

This Technical Assessment applies only to the use of the Lectros Electro Osmotic Dampcourse System described herein.

#### **Withdrawal:**

This Technical Assessment will be withdrawn or amended if CSIRO Appraisals considers that a change in design or manufacturing quality renders the basis of appraisal invalid, or if reported field experience convinces CSIRO Appraisals of unsatisfactory quality or performance.

#### **Term of Validity:**

This Technical Assessment will lapse three years after the date of issue unless revalidation has been requested and granted (see back page). Technical Assessments may be amended during the term of validity. Users of this Technical Assessment should verify that it remains valid and is the current version by checking on the CSIRO Appraisals website: <http://www.cmit.csiro.au/services/appraisals/>.

### RELEVANT DOCUMENTS

Lectros Australia Pty Ltd. The Lectros System Electro Osmotic Damp Proofing Installation Instructions' UK (17<sup>th</sup> April 2003).

Lectros Australia Pty Ltd. Lectros (Aust) Installation Note' (15<sup>th</sup> April 2003)

Lectros. A review of the theory and application of electro osmosis and electro damp-proofing (1987).

### APPROVED ASSESSMENT EXTRACT

The Lectros Electro Osmotic Dampcourse System as manufactured and distributed by Lectros Australia Pty Ltd (ABN 77 088 958 016) 2 Mayfair Court Chirnside Park, Victoria, 3116 is suitable for counteracting rising damp in new and existing buildings in walls of masonry, constructed of, but not restricted to clay brick, sandstone, limestone, and other sedimentary materials, composite masonry walls, AAC, pre-cast and in-situ concrete and mud-brick when the conditions listed in CSIRO Technical Assessment 308 are fulfilled.

# APPRAISAL

## DESCRIPTION

This description is based on information supplied by the applicant.

### **General:**

The Lectros Electro Osmotic Dampcourse System is a method of reversing the moisture's natural electric potential, which originates when water rises in a masonry wall. Through a series of anodes inserted into the masonry at intervals of approximately one metre, a small electric current is introduced into the wall just above ground level. The current repels the rising moisture molecules and dissolved salts down the wall and back into the ground. It is fume and chemical free and does not stain or discolour masonry or plaster.

### **Components:**

There are three parts to the system

1. Platinized titanium anodes which are supplied connected onto plain titanium wire,
2. The power unit which plugs into a standard power outlet, and
3. A copper coated cathode.

### **Installation:**

At approximately 105mm – 150 mm above grade the anodes are inserted into pre-drilled holes (approximately 1.0 m apart) in the masonry. The holes are back filled with neat cement. The anodes can be inserted both internally and externally. The anode circuit is connected to the power unit. The cathode is then placed at least 2.0 m from any anode and is inserted into the earth at a point which is lower than the lowest installed anode. The cathode is then connected to the power unit. The power unit is then plugged in and turned on.

## DESIGN INFORMATION

### **General:**

Based on information from the applicant, the Lectros Electro Osmotic Dampcourse System is suitable for use in buildings that have walls of masonry, clay brick, sandstone, limestone, rubble filled, AAC, pre-cast concrete and mud-brick construction.

### **Anodes:**

The Platinized titanium anodes are supplied connected onto plain titanium wire. The anodes are formed on site and inserted into 16-18mm pre-drilled holes spaced at approximately 1.0 m intervals in the walls.

### **Cathode:**

The copper coated, (12mm+ dia.), cathode is approximately 1.2 m in length and is to be driven into the ground at least 2.0m from any anode treated wall. The cathode is to be lower than the lowest anode in the building.

### **Power Unit:**

The power unit is to be fixed to a wall in a location convenient to a power supply. The anode circuit is connected to the power unit, as is the cathode connecting wire. The power unit is turned on to activate the system.

### **Durability:**

The Lectros Electro Osmotic Dampcourse System has a 30 year guarantee

## BASIS OF APPRAISAL

CSIRO Appraisals has assessed the following aspects in undertaking this appraisal:

- (a) The applicant's technical information.
- (b) The components of the system.

The following documents and inspections were used in carrying out the appraisal:

### **Manufacturer's Information:**

1. **Lectros International Ltd. Unit 3 Knowsley Rd Industrial Estate, Knowsley Road, Haslingden, Rossendale, Lancashire BB4 4RX. The Lectros System Electro Osmotic Damp Proofing Installation Instructions (17<sup>th</sup> April 2003):** This contains details on the components of the system and how to install the system into walls of various types of construction and thicknesses.
2. **Lectros Australia Pty Ltd. Lectros (Aust) Installation Notes (15<sup>th</sup> April 2003):** This contains additional information for the installation of the system in Australia.
3. **Lectros International Ltd. Unit 3 Knowsley Road Industrial Estate, Knowsley Road, Haslingden, Rossendale, Lancashire BB4 4RX. Electro Osmotic Damp Proofing brochure:** This contains technical information on the system, details regarding the training of installers and general information on rising damp and osmosis.
4. **Lectros International Ltd. Unit 3 Knowsley Road Industrial Estate, Knowsley Road, Haslingden, Rossendale, Lancashire BB4 4RX. A review of the theory and application of electro osmosis and electro damp-proofing (1987):** This contains information regarding the theory of osmosis and its application to active damp proofing systems.
5. **Quay Audit Limited. Quality Management Certificate number 4010228 (Expired) (3<sup>rd</sup> November 2002):** This certifies that Wykamol Group, who manufacture the anodes, the crimp connectors and the connecting wires has been quality assessed to ISO 9001:2000.

6. **Garek Assured. Quality Management Certificate number 0111/1104/02 (11<sup>th</sup> November 2004):** This certifies that Wykamol Group, who manufacture the anodes, the crimp connectors and the connecting wires has been quality assessed to BS EN ISO 9001:2000.

**Test Reports:**

1. **Brunswick Energy & Environmental Services P/L, 11 Lavender Park Rd, Eltham, VIC 3095. Report on Electromagnetic Field Measurements (5/12/01):** This report outlines the EMF readings generated by the system whilst operating generally as set out in the Lectros brochure and as installed in a typical domestic application. It concludes that an installation is not likely to introduce or contribute to any magnetic field risk.

2. **Amdel Limited, 35-37 Stirling Street Thebarton, 5031. Evaluation of Lectros Dampcourse System – Old Adelaide Gaol, Report ref 2AM1620 (28/03/03):** This report evaluates the effectiveness of the system to remove excess moisture from walls. It concludes that the system had a dramatic effect in reducing the moisture content of the wall.

**Inspections:**

CSIRO Appraisals representatives have inspected an installation of the system and found the level of performance satisfactory.



Simon S Hanson  
General Manager: CSIRO Appraisals



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Technical Assessments are intended to help all those concerned with the approval, specification and use of new

products or systems. They are objective assessments of the fitness for purpose of the product, system or material but are not approvals or endorsements. They may be submitted to approval authorities as part of the justification process required to obtain approval.

Each Technical Assessment has been prepared by CSIRO Appraisals and then reviewed, revised and finally endorsed by the Technical Advisory Committee (TAC), detailed below. CSIRO makes the appraisals on a national basis by obtaining input from regional committees in each State and Territory to take account of variations in local building regulations, practice and local climatic features.

CSIRO Appraisals bases its assessment on the product and information it receives and cannot accept responsibility for deviations in the manufactured quality and performance of the material, product or system. However, Technical Assessments will be withdrawn where adequate quality or performance has not been maintained.

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CSIRO Appraisals (03) 9252 6000  
Lectros Australia Pty Ltd  
(03) 9727 5468

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S S Hanson  
J Sinclair

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The Lectros Electro Osmotic Dampcourse System as manufactured and distributed by Lectros Australia Pty Ltd (ABN 77 088 958 016) 2 Mayfair Court Chirnside Park, Victoria, 3116 is suitable for counteracting rising damp in new and existing buildings in walls of masonry, constructed of, but not restricted to clay brick, sandstone, limestone, and other sedimentary materials, composite masonry walls, AAC, pre-cast and in-situ concrete and mud-brick when the conditions listed in CSIRO Technical Assessment 308 are fulfilled.