fugenex®

DampProtect™

DETECTS MOISTURE

Accurately detecting humidity and moisture problems

Introduction

DampProtect Detectors are based on a patented method to detect humidity. The indicator strip turns blue if moisture levels exceed 75% relative humidity (RH) for at least 6 hours.

The indicators provide early warning signals, enabling the problem to be tackled at source as soon as it is discovered, thereby saving the immediate and consequential costs that moisture damage entails.

They can also prove condensation problems rather than other sources of dampness.

Humidity problems in buildings occur for many reasons and can affect unheated areas such as sub floors and lofts. Typical application includes monitoring restoration work following flood damage. 75% RH is the level at which bacteria, mould and other micro-organisms start to thrive.

Key Features and Benefits

- Indication is irreversible.
- Accuracy ±3% relative humidity.
- These indicators show the period of time that has exceeded 75% RH.
- Unexposed indicator (no reaction) replace after 1 year.
- Exposed indicator (reaction) replace after 10 weeks.
- Simple, easy to use.
- Each pack contains 6 humidity sensors.
- Can be used in conjunction with Fugenex Dry Rot Sensors.

Ideal for

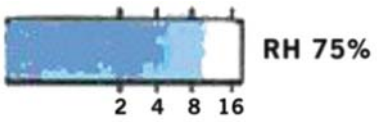
- Timber, plaster, brickwork within buildings and boat interiors
- This includes sub-floors, crawl spaces and roof voids
- In fact anywhere that would be affected by high humidity and moisture problems

Instructions for Use

DampProtect is easy to use, simply write the appropriate date, sign and place in the area you wish to monitor. Do not place on wet/saturated timber to avoid a false reading.

All natural materials require a sensible level of humidity, not enough and materials dry out, too much causes considerable damage in places where you don't want it. High levels of humidity in buildings causes rot and creates a breeding ground for mould, bacteria and fungus.

The sensors are based on a patented method for humidity detection. The indicator strip will turn blue if moisture levels stay above 75% RH sufficiently long (6-8 hours). This logging function has the advantage over other measuring methods by showing not only that humidity levels have been too high but also if they accumulated to a dangerous exposure. DampProtectors are accurate to ±3% relative humidity and if the Detector becomes exposed (goes blue) replace within 10 weeks. Unexposed Detectors that indicate no reaction should be replaced after one year. Store in a cool dry place.



It is recommended to inspect DampProtect frequently, as the colour may bleach after ten weeks if exposed to strong light. The service life of an unexposed indicator is one year.

What is Relative Humidity?

Relative humidity - RH - is the amount of water vapour contained in the air at a particular temperature compared with the total amount of water vapour the air can contain at that temperature.

However, although raising the temperature increases the capacity of air to hold water, there is not always water available to move into the air to fill that increased capacity. So changes in temperature often lead to quite significant alterations to the relative humidity.

Relative humidity is expressed as a percentage. Various materials respond differently over a range of humidity levels and there is an optimum level of RH suitable for the display and storage of mixed materials. This can be written as an equation:

$$RH = \frac{\text{water vapour present in the air} \times 100\%}{\text{water vapour required to saturate air at that temperature}}$$

As the temperature of air increases, its capacity to contain water vapour increases.

For example:

- At 0°C the air can hold about 6 grams of water for each cubic meter of air, that is 6g/m^3
- At 10°C this increases to 10g/m^3
- At 20°C it increases to 17g/m^3
- And at 30°C to 30g/m^3

So, if air at 20°C contains 12.75m^3 of water vapour:

$$RH = \frac{12.75 \times 100\%}{17} = 75\%$$

Thus the relative humidity would be 75%.

WARNING

Above 75% RH there is a much higher risk of physical damage and we recommend consulting the appropriate expert.

Identifying the Source of the Problem

Problems arising from extremes and fluctuations in RH and temperature damage collections all over the world. Causes of fluctuations:

- the room
- the air
- local climate
- regional climate
- micro climate
- visitors
- air conditioning
- types of insulation
- types of heating

By monitoring change you can act quickly to minimise damage and prevent future damage.

Why Worry about RH and Temperature?

Changes in relative humidity and temperature can cause expansion and contraction of particular materials, resulting in cracks appearing causing twisting, warping, splitting, chemical deterioration (e.g. dis-colouration of pasterwork), mould growth and insect attack. Rapid fluctuations in high and low levels of RH and temperature would easily contribute to the deterioration of natural building materials.

What can be done to Minimise Damage?

The potential for damage is ever present but can be minimised by modifying conditions and if possible, creating buffer zones between your objects and extreme or fluctuating conditions. Humidity indicators use moisture-sensitive salts which change colour as the RH changes. Humidity monitors may be set at various levels, DampProtect is 75% RH, the level at which bacteria, mould and other micro-organisms start to thrive. DampProtect is a low cost, effective and innovative monitor, which indicates change, provided it is checked regularly.

RH can be reduced using a dehumidifier, a remedial measure in damp environments. Moisture can be introduced by either a steam generator or an ultrasonic humidifier as a remedial measure in very dry environments. Other ways to help may be to improve air flow, good ventilation, oscillating fans or alternatively in other environments, doors may need to be kept closed, blinds installed on windows and people educated to remove damp clothing. Once a problem has been identified, professional advice must be sought to prevent any future damage.

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