



MUNKEBO



**Why  
Dehumidification?**

**CLEMCO**

# Dehumidification reduce the actual Water Content

The concept of dehumidification is often confused with heating.

By heating a reduction of the relative humidity will be able to hold more water before saturation - but no water is removed. By dehumidification the actual water content is reduced.

Applications for dehumidifiers can generally be divided into three categories:

- Surface Treatment
- Drying
- Preservation

## Surface Treatment

Relative humidity is a very important factor during and after blasting, as the high degree of physical and chemical cleanliness obtained by blasting is extremely vulnerable to atmospheric corrosion.

Very simply explained, one of the major mechanisms of atmospheric corrosion of metals is electrolytic and the electrolyte is a liquid (humidity of the air).

Keeping the relative humidity below 60% (which is the upper level for minimum corrosion) is, therefore, essential

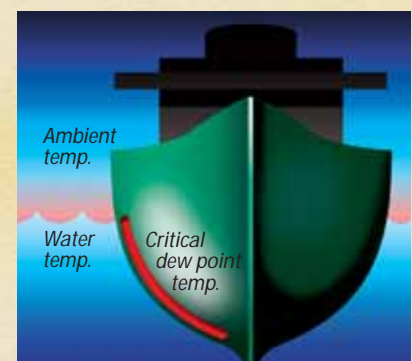


Air relative humidity causes atmospheric corrosion if not treated properly

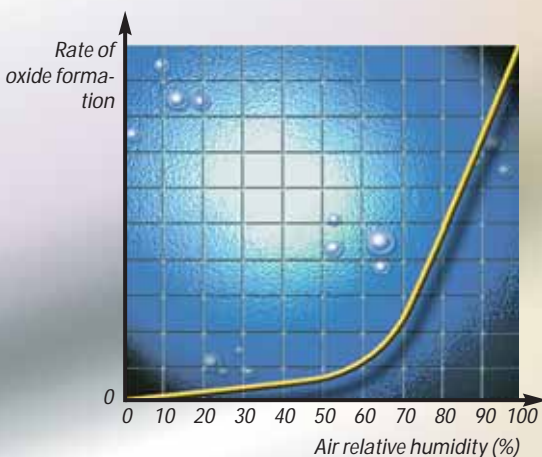
for the lead time between blasting and painting - and the lower the better.

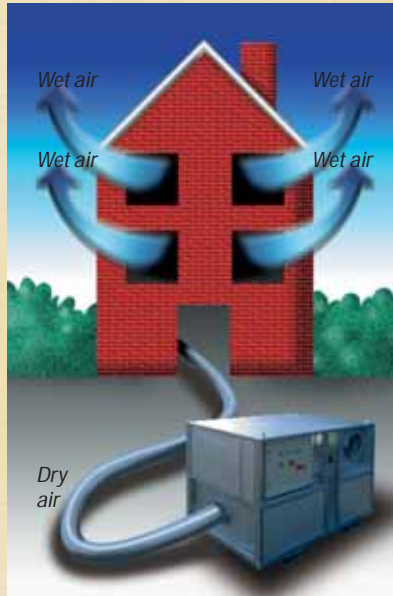
### Dew point temperature

For surface treatment the dew point temperature of the surface to be treated is the design parameter.

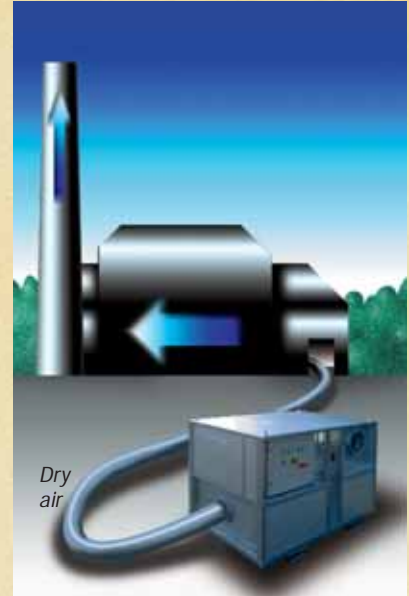


The critical dew point temperature must particularly be recognized with ships





Principle of drying



Principle of preservation

## Drying

The surface temperature must be at least 5°C higher than the dew point temperature. This should be recognized, particularly with ships in water.

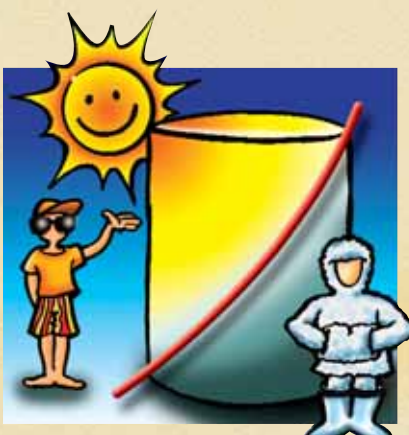
Using dehumidifiers in construction can save time and money. Waiting time for concrete slabs and walls to dry out are minimized, moisture in other construction materials is dried out in record time, paint will dry in hours and sub-flooring meets manufacturers specification in minimum time.

Additionally constructions that have been subject to a rainstorm, before a permanent roof has been finished, can easily be dried out by the use of dehumidifiers. In other words, keep your construction on schedule with Munkabo dehumidifiers.

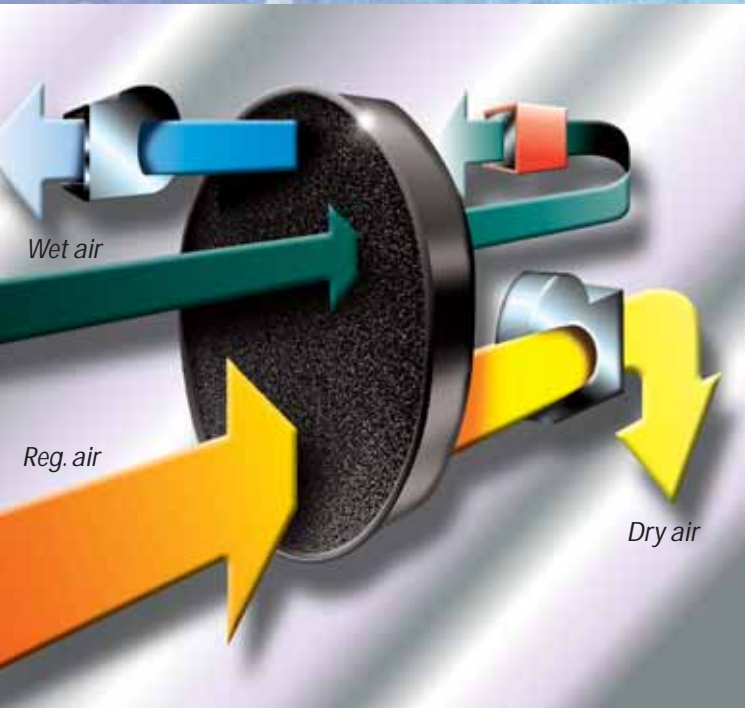
## Preservation

A conventional boiler or a HRSG is not continuously in operation. There can be standstills due to maintenance shutdown or for other reasons. During standstill the gas side of the boiler will be vulnerable for corrosion.

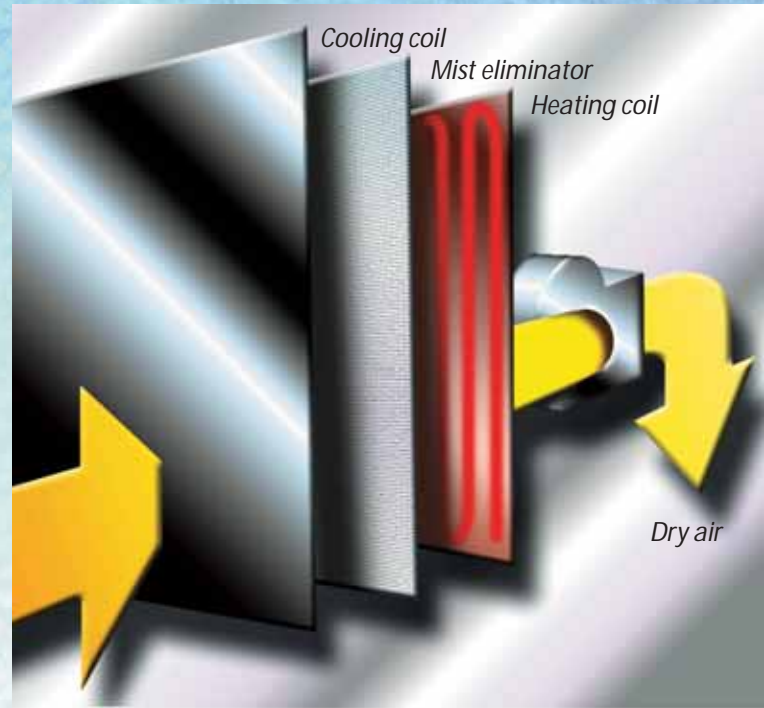
Moving dry air through the boiler can solve this problem. This also allows maintenance work to be carried out in the boiler if required.



The light/shadow-effect can have a significant influence on the dew point temperature



Adsorption principle of operation by type ZAM



Refrigerated principle of operation by type QAM

## ZAM Adsorption Dehumidifiers

The ZAM dehumidifier works in a continuous process with two air streams, process air and regeneration air. The process air stream is dried in the rotor, and thereby heated by approximately 20°C.

The regeneration air stream is heated in an electrical heating battery to over 100°C, before it passes through the rotor, and thereby removes moisture from the metal silicate rotor.

By letting the regeneration air pass through the rotor before it enters the heating battery, the regeneration air is pre-heated, which means savings in regeneration energy of approximately 25% compared to sorption dehumidifiers without heat recovery.

Furthermore the dry air is heated 5°C less than sorption dehumidifiers without a purge sector, as the rotor is being cooled in the same process.

## QAM Refrigerated Dehumidifiers

The QAM dehumidifier works in a continuous process with one air stream.

The process air is cooled below the saturation point passing a cooling coil. The cold air passes through a mist eliminator, where all free water particles are removed, and further on to the air heating coil and out through the main fan unit.

The dry air leaves the

unit through a number of connecting pipes with about 1000 Pa free pressure.

With refrigerated dehumidifiers the process air can be controlled at a level not exceeding 30 - 32°C, which makes it suitable for tropical and sub-tropical conditions



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