

# HM, Energy Recovery without Matrix Borne Carry Over (MBCO)

**Hoval**  
Enventus

As first company in Europe, Hoval Enventus is introducing the HM Molecular Sieve 3Å sorption rotor product line, which is specially designed and tested to exclusively transfer humidity between the air streams without VOC gases.

## Benefits and customer value

- Only energy and humidity is recovered.
- No Matrix Borne Carry Over
- Better indoor air quality
- Healthier and better performing people
- No disturbing odors transferred from return air to supply air
- No need to increase airflow rates

## High energy efficiency with good indoor air quality

Energy recovery wheels are known for their large enthalpy efficiency with the advantage for cooling recovery in summer time and humidity recovery in winter time. It is commonly known, that cross contamination of supply air by return air is prevented using a purge sector and correct pressure settings around the rotary heat exchanger.

The only cross contamination aspect that has been ignored in the Ventilation Industry is the Matrix Borne Carry Over (MBCO). The VOC transfer mechanism by MBCO is equal to humidity transfer of the sorption material, working from the larger to the lower VOC potential.

## VOC

Volatile Organic Compounds are gaseous at room temperature and are present in the indoor air of almost every building. They come from indoor objects and building material over a long period, or are direct emissions of human used products as cleaning agents, cosmetics etc.

## Sick Building Syndrome

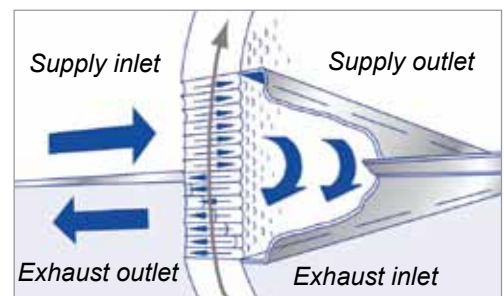
People remain 80% of their time indoors. Frequent exposure to higher concentrations of VOC can seriously harm health, cause illness and concentration problem, tiredness, respiration problems, even asthma and allergies. These symptoms are summarized as the Sick Building Syndrome.

## VOC test in ETH laboratory in Luzern CH

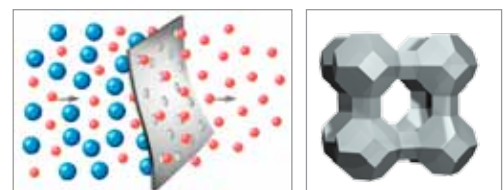
The test results show that silica gel has a MBCO rate of 25 to 40 %. This is approximately 10 times larger compared to the HM Molecular Sieve 3Å energy wheel. HM MBCO is very low 3-4%, practically ignorable.



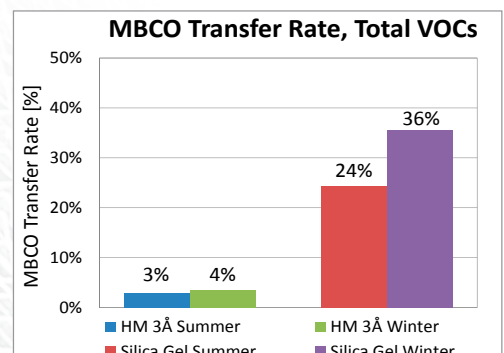
Healthy indoor climate with HM rotors



Purge sector arrangement



HM adsorbs only water vapor 2.7Å



Measurement result Luzern of Silica Gel and HM Molecular Sieve 3Å rotor