



# Natural refrigerants for commercial freezers

*Practical experience*

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**Paris**

**Supermarket**

**NEW**

**R 290**

**AHT e-co**  
ENERGIE-SPAR-PLUS

**LED**

# Supermarket installations worldwide



Korea



Germany



USA

More than  
530,000 cabinets with R290  
supplied to all over the  
world



# Supermarket installations worldwide

## Key features in general

- stand-alone cabinets or banked together in an isle
- environmental friendly
  - natural refrigerant **and** low energy consumption
  - the cabinets keep products in perfect temperature
- significant energy savings compared to remote systems
- 60% reduction in running costs compared to open top freezers
- available with internal light
- low capital costs
- large volume capacity
- best visibility due to curved lids and lowered front edges
- flexibility in the store (plug in solution)

# Supermarket installations Thailand

## Key features in Thailand (SIAM MAKRO Thailand)

- installations since 2007, ECO and LED version since 2013
- total numbers of installed cabinets 2,750 units
- in average 64 units per store

## Store information / feed back

- significant electricity savings
- product temperature  $-18^{\circ}$  to  $-22^{\circ}$  (@  $25^{\circ}$  C; 60%)
- no AC during the night time
- performance is very well
- very low failure-rate and no maintenance



# Benefits of natural refrigerants

**TEWI** = total equivalent of warming impact

- **TEWI – influences**

- direct influences

TEWI =

**Natural refrigerants**

- indirect influences

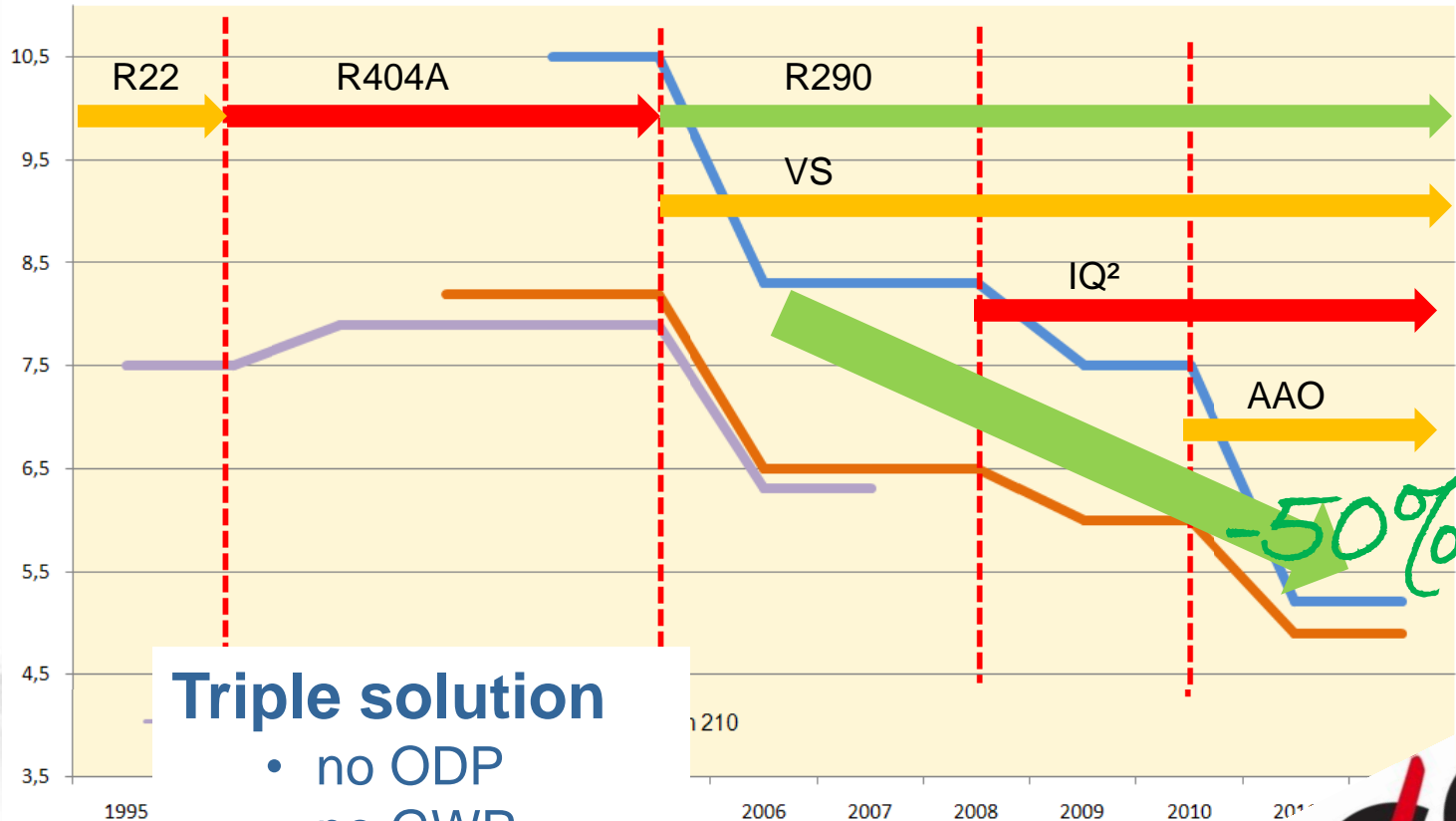
- energy consumption

→ (n x E x beta)



**Reduction of the energy consumption**

# Energy consumption in kWh/24h



## Triple solution

- no ODP
- no GWP
- minimal TEWI







**ATMO**  
**sphere**  
technology & innovation  
**natural refrigerants**  
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Thank you very much!



**your “freshness partner” worldwide**