



- Hydrocarbon refrigeration in the retail industry
- Ammonia refrigeration for food processing plants

The practical experience of Unilever

Rene van Gerwen

Global Lead Engineer
Refrigeration & HVAC



International Workshop on Natural Refrigerants 27-28 September 2010, Brussels, Belgium

Unilever



About Unilever



Big global brands

Top 25 brands =
almost 75% of Unilever's
sales*.



SUNSIK



AXE

CLEAR LUX



Signal



POND'S



Surf

Rexona



as at end 2009

Unilever

Our vision

- We work to create a **better future** every day.
- We help people feel good, look good and **get more out of life** with brands and services that are good for them and good for others.
- We will inspire people to take small everyday actions that can add up to a **big difference** for the world.
- We will **develop** new ways of doing business that will allow us **to double the size of our company while reducing our environmental impact.**

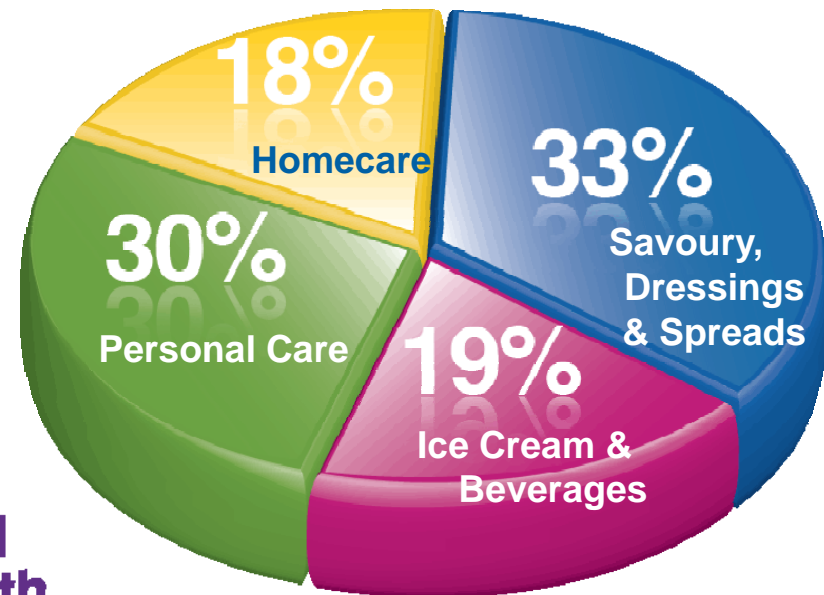


Strong category positions



Unilever's portfolio of categories

Leading category positions



2009 turnover:
€ 39.8 billion





About Unilever & Refrigeration



The Two Priority Areas in Refrigeration:



- Ice Cream Cabinets

- Industrial Refrigeration systems



Why focus on ice cream cabinet's Climate impact?

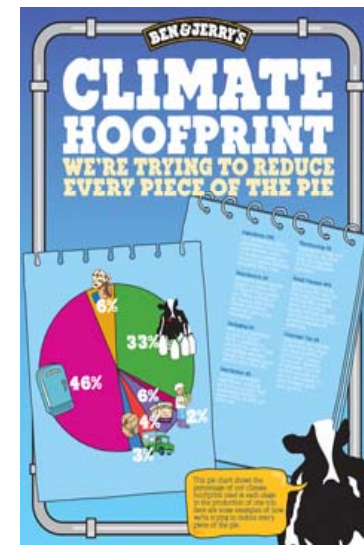
Unilever wants to reduce its biggest impacts where we can make the biggest difference

- Less green house gasses
- Less water
- Less waste
- More sustainable sourcing

Applying this principle to ice cream:

As global market leader in ice cream we are committed to be leading in environmental performance

20 to 40 % of total global warming Impact of the ice cream supply chain is related to cabinets, hence this has to be a key priority for us



Historical perspective

around 500,000 units by 2010

Stopped buying (H)CFC refrigerants.

Started HC Blowing Gas

Committed to buying HFC-free cabinets

Started HC Rollout

European Rollout 17,000 Units

Global Rollout 400,000 units

1995

2000

2003

2005

2009

(H)CFC Refrigerants

HFC Refrigerants

HC Refrigerants

(H)CFC Blowing Gas

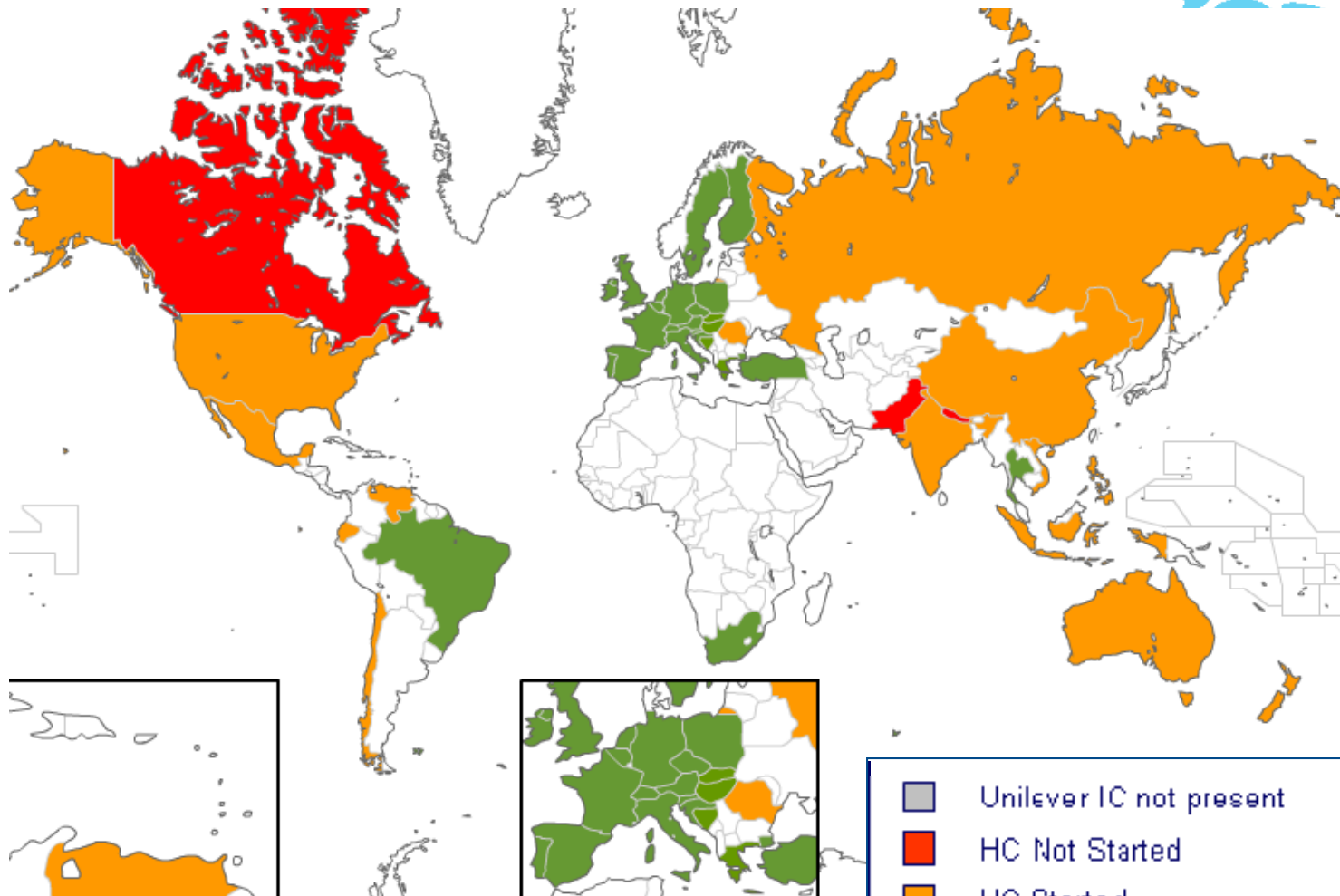
HC Blowing Gas

Unilever commitment made in 2000

...to purchase HFC-free cabinets by 2005 where commercially viable alternatives can be legally used...



Roll-out status (early 2009)



- Unilever IC not present
- HC Not Started
- HC Started
- All new cabinets that can be run on HC are ordered in HC



Working together: refrigerants naturally!

Since 2003, we work with Greenpeace, UNEP and other multinational FMCG companies to promote refrigeration technologies for point-of-sales equipment that avoid the use of climate-damaging HFCs



Refrigerants, Naturally!



Hydrocarbons for small Commercial Equipment:

Barriers for widespread use...



Availability:

In certain regions it is difficult to obtain HC gases

Service and Maintenance:

The lack of qualified service and maintenance

Legal restrictions:

- a) In countries like the US, the use of HC's is restricted
- b) Several international standards restrict HC charge quantity in cabinets up to 150g



Hydrocarbons for small Commercial Equipment:

How to Remove these Barriers...



Availability:

Encourage gas suppliers to create a global sales & service infrastructure

Service and Maintenance:

Initiate vocational training & certification for working with HC (national/regional)

Legal restrictions:

a) Companies & Organisations to initiate & support USA EPA (SNAP) for specific HC applications

b) Active involvement in international Standardisation Bodies & Committees (CEN, ISO, IEC) for revising restrictions on HC charge



The Two Priority Areas in Refrigeration:



- Ice Cream Cabinets

- Industrial Refrigeration systems



Unilever

Why focus on Industrial Refrigeration Plants?

Unilever wants to reduce its biggest impacts where we can make the biggest difference

- Less green house gasses
- Less water
- Less waste
- More sustainable sourcing



Applying this principle to industrial refrigeration:

MINOR PART: Energy use & CO₂ for production of food products is low compared to total value chain

BUT: Full control over processes in own production sites

THUS: Priority!

INDUSTRIAL REFRIGERATION: At least 50 % of electricity use in sites for ice cream, spreads, margarine, frozen foods etc.



Industrial Refrigeration in Unilever



Around 360 own production sites

80+ sites with large industrial (process) refrigeration
(1/3 in Asia/Africa, 1/3 in Europe, 1/3 in Americas)

Typical size of refrigeration plants:

Refrigeration capacity: 1 - 15 MW

Ammonia charge: 4 – 80 Tonnes

Ammonia is the refrigerant of choice in almost all
process refrigeration plants & cold stores

Ammonia is best natural refrigerant for industrial
refrigeration (with CO₂ in cascade systems)

Adequate safety management is key for
industrial use of ammonia



Ammonia for industrial Refrigeration Equipment: Barriers for widespread use...



Availability & Costs:

More expensive ammonia equipment/systems than HFC-based equivalents. Standard equipment/systems hardly available

Design, Installation, Operation, Service, Maintenance:

Lack of competent companies/personnel in many parts of the world

Standards & Legal Restrictions:

Inadequate technical & safety standards or unnecessary stringent legal restrictions hinder widespread use in several parts of the world/countries



Ammonia for industrial Refrigeration Equipment:

How to Remove these Barriers...



Availability & Costs:

Encourage equipment suppliers to develop & market commercially competitive standard equipment/systems (modular skids)

Design, Installation, Operation, Service, Maintenance:

Initiate and improve vocational training & certification on a national/regional basis

Standards & Legal Restrictions:

Active involvement in international Standardisation Bodies & Committees (CEN, ISO, ANSI/ASHRAE) and in stakeholder groups. Ensure competent people are involved in revising Standards





Thank you

