

Euroshop 2014 Technology and market trends update

Tokyo, 2nd April 2014



shecco japan





European food retail research

drivers, challenges and technologies of European supermarket operators to reduce energy consumption and carbon footprint



about the research



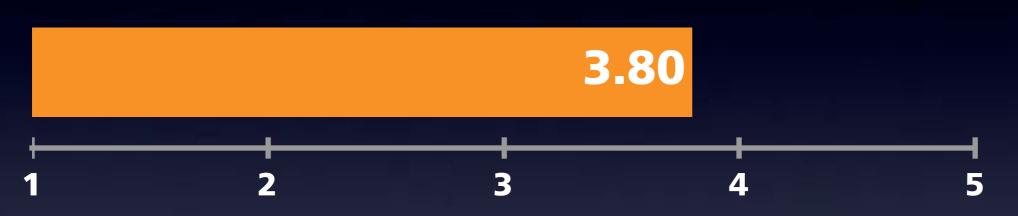
- qualitative research with quantitative elements
- period: 10 January to 21 February 2014
- interviews with leading food retailers in Germany, France, Denmark, Norway, the UK + other mainly Western and Northern European countries
- 50 initial responses, 33 used in analysis for EuroShop
- retailers that agreed to be mentioned (others opted to remain anonymous):



importance of reduced carbon footprint in stores for overall future business success



average rank all retailers



- reducing the carbon footprint in their stores is "rather important / important" to Western and Northern European mostly large food retailers
- technology choice is embedded in a broader framework of sustainability considerations
- carbon footprint reduction in stores and future business success are directly linked

importance of reduced carbon footprint in stores for overall future business success

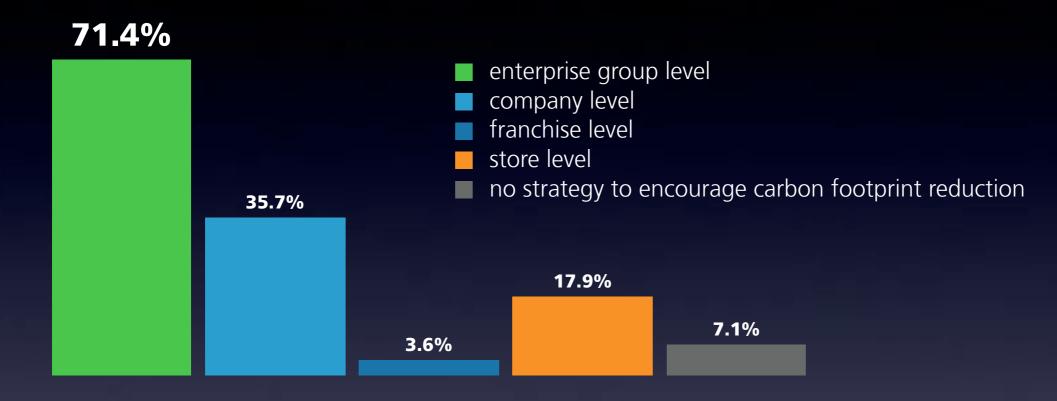




- reducing the carbon footprint in their stores is "rather important / important" to Western and Northern European mostly large food retailers
- technology choice is embedded in a broader framework of sustainability considerations
- carbon footprint reduction in stores and future business success are directly linked
- German food retailers attach the greatest value to carbon footprint reduction as a tool to increase or maintain future business success (4.43 average rank)

strategy to encourage carbon footprint reduction in stores





- an overwhelming majority follows a strategy at the enterprise level to encourage carbon footprint reduction across all enterprise group members = carbon footprint reduction is driven from the highest-possible level
- more than 1/3 follows only or also such a strategy at the company level
- only very few state there is no such strategy available at any level

importance of environmental features to increase energy efficiency in stores

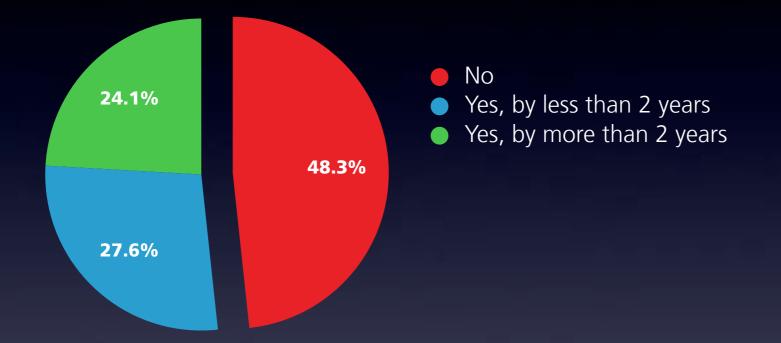


Refrigeration			4.33	
Lighting		3.68		
Overall energy management		3.63		
Fleet management	3.15			
1 2	3		4	

- refrigeration energy-efficient systems & the use of low-global warming refrigerants has the highest priority among surveyed European food retailers, translating to "rather important / important" in their strategy to increase their stores' energy efficiency
- German food retailers attach a more equal value to the different means of increasing a store's energy efficiency

willingness to reduce investment cycles to promote the uptake of more environmentally-friendly refrigeration

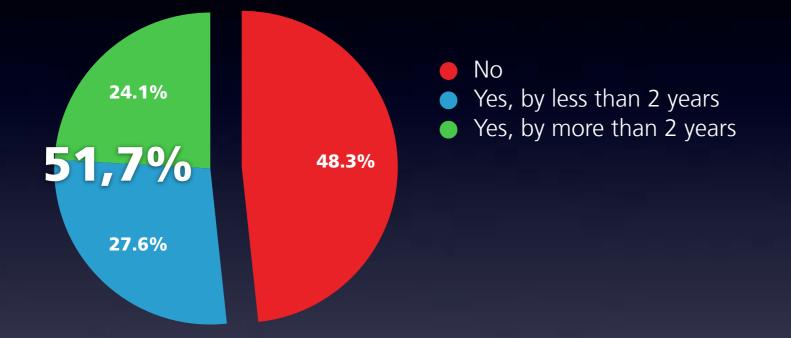




- more than half of all respondents would be willing to reduce their normal investment cycles to promote the uptake of more environmentally-friendly refrigeration technology
- among those, 24.1% would even be willing to reduce investment cycles by more than 2 years
- the average investment cycle for refrigeration systems in surveyed food retailers is mostly between 9-15 years

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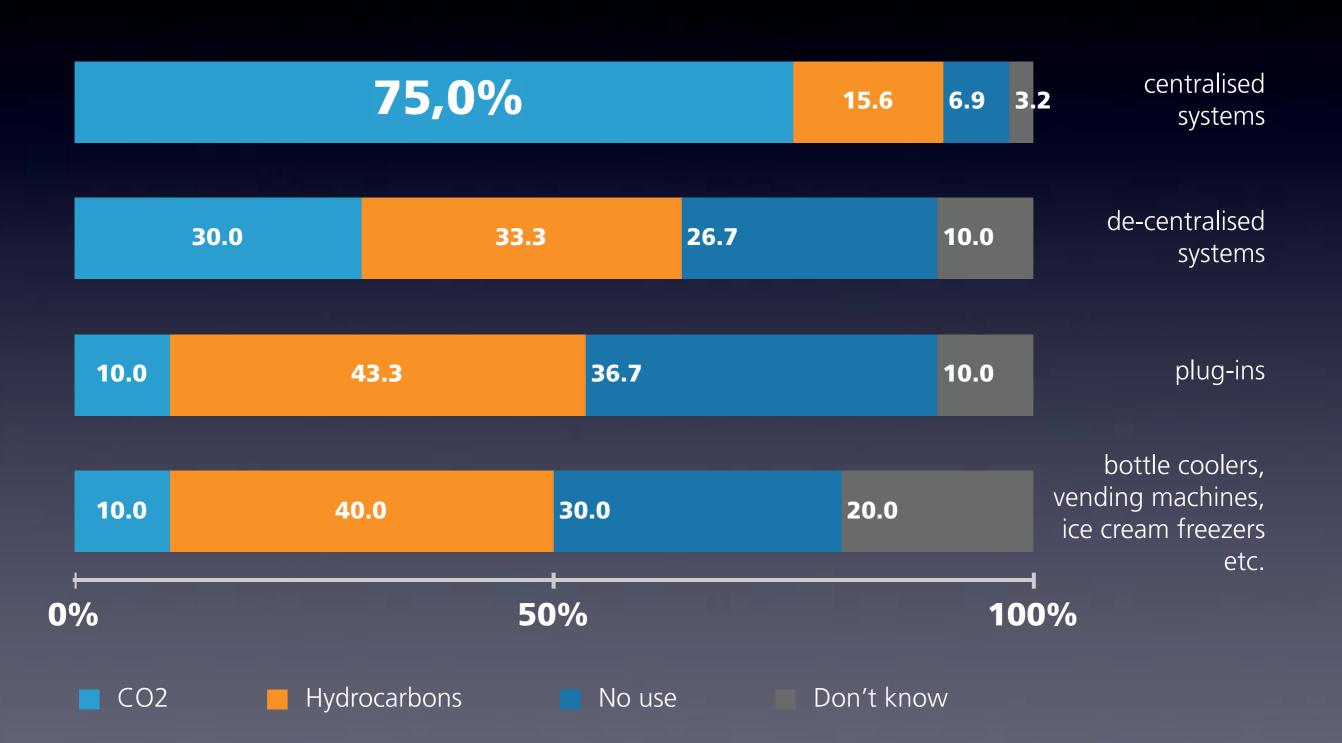




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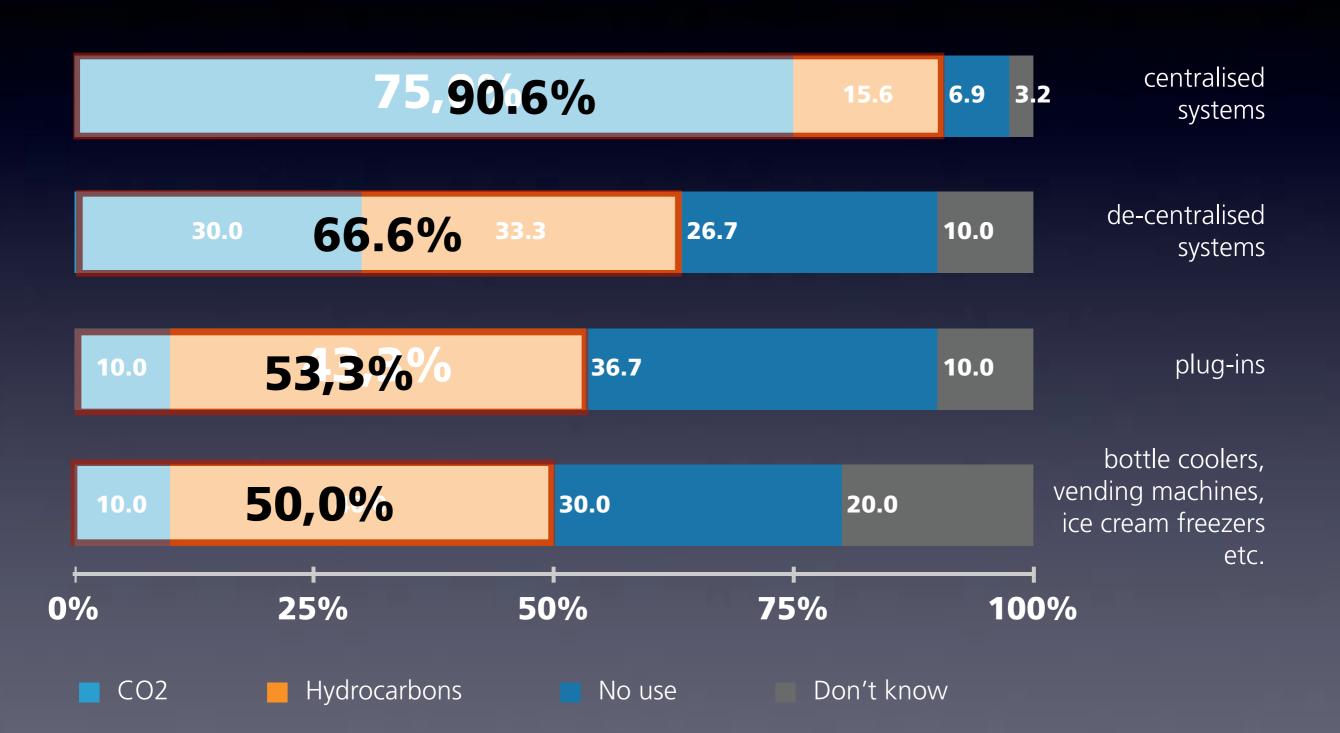
use of natural refrigerants among European food retailers, by application





use of natural refrigerants among European food retailers, by application





importance of factors for purchasing new refrigeration technology for stores



5

Reliability & safety	4.16
Efficiency & performance	4.12
Servicing & maintenance infrastructure	4.04
Compliance with current & upcoming legislation	4.00
Capital cost / initial investment	3.92
ROI / life cycle cost 3	.80
Compatibility with CSR & sustainability 3.65	
Competitive advantage 2.68	
Subsidies & financial support 2.68	
2 3	: 4

performance of natural refrigerant technology as compared to F-gas solutions



Reliability & safety		+0.0
Efficiency & performance		+0.76
Servicing & maintenance infrast	ructure	-0.36
Compliance with current & upco	ming legislation	+1.63
Capital cost / initial investment		-0.48
ROI / life cycle cost	+0	.00
Compatibility with CSR & sustain	nability +2.04	
Competitive advantage +0.62		
Subsidies & financial support	-0.25	

natural refrigerants
more competitive than
F-gas solutions

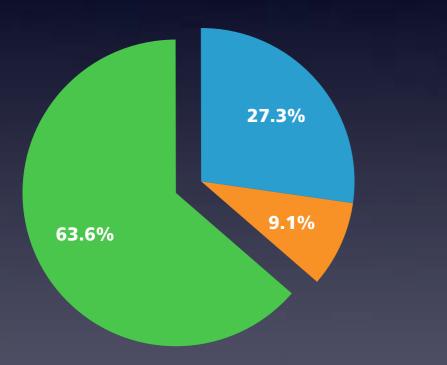
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- natural refrigerants on par with F-gas solutions
- natural refrigerants less competitive than F-gas solutions

impact of F-gas bans in centralised refrigeration systems as of 2022



- more than 3 out of 5 food retailers anticipated upcoming bans on the use of HFCs to adapt their refrigeration strategy and use non-fluorinated (natural refrigerant) gases
- those are now well-positioned to combine long term legislative compliance with investment security, independent of upcoming F-gas rules



- without exception, all food retailers have already heard about the upcoming HFC bans and have developed an appropriate strategy
- only a minor share has adopted a wait-and-see strategy to adapt their refrigeration strategy closer to the 2022 deadline
- I need to adapt my refrigeration strategy already today/or as soon as the f-gas agreement becomes official.
- I need to adapt my refrigeration strategy, but closer to the 2022 date.
- The f-gas agreement does not change my strategy as I am already implementing f-gas alternatives in new systems.
- I have not heard about the f-gas rules and/or I have no clear strategy yet regarding the use of f-gases in my store.





East One of the leading is A record-breaking 100,000 fm for the relat entits. Carel in Dusseldorf, Germanu: The solutions designed and deep number of nature reamber of nature systems, including the pH with a platform issuade and leader ryte satural rehispone natural rehiperan panelot velve Presenting some Nicolas Wagner, I ogy Relat Support, I natural refrigerar effect choice as a transit ming patiential, that being commercial refri Carrier reveale to R-R4A4 can soon to 1 to been able to an provide the solution of the solution of the entries well and unit have drastical traitingy has also become Two out of the Denmark and No Two out of andress: Continuously and Europe opt for it Og systems, including According to

ew solution for real-time M 350 COP evalues essurement of religeration of cascade systems. The r retailers in Wes implement natur M 380 COP receptrement of re red cascade syste largely beca critical factors official factors official factors official factors official factors official factors official factors the control for 3 htt HEC systems. N on parity in tem cycle costs. Pressure transmitter tas a built-rs voltage compensation.

Carbon footprint reduction Dectrically operated value working pressure up to 9 BUCCESS sab ha 160 il man of 140 has Survey respo

reduction is linked to their ow respondents stated policies carbon footprint reduction

namely the use of energy-ef a so sheet refrigerants, was identified environmental feature to incre. Carrier, the leading suppler of nan above lighting, overall energy CD400 range, which include any from the CD-25 aligness or in to 15.11 + 8.38 or in environmental energy efficient

GEA Beak: For CO₂ will While legislation can Cy applications including 8 Silper: in response to the prion, and had on display i

transcritical application Nina Masson, shecce CO₂ is an especially attracti art of the display was a improvides for CO₂ transmit a bransaidh With respects to the different tas an overter veloces of 25 preferred refrigerant for centra 05y gas detection and airs booster systems. These have helping Europe to maintain its

Within Europe, Denmark rem INESSA: The facel per mill the United Kingdom, with 441.



climates with high peak tempe Food retailers see natural re

When asked about future H amiliar with restrictions on F ore than two thirds of respo not impact their refrigeration strategy as the retailers were adopters of natural refrigerant technology thus see natural w

nts also inde

is increasingly influenced by

highest enterprise group level

by retailers, more and align with their comp

TV



ⁿ hydrocarbons. Throughout Halls 15, 16 and 17 of Düsseldorf "In 10+ years of following natural refrigerants I have never seen so many commercial products for **R744 and hydrocarbons, from so many** companies" (marc chasserot)

> Carrier chose and an invovative I ese products have the flexibility to be use Optimer 1946 L.G. for example, is an uprig lood retail and beverage products.

addition in combinent incovery had one built in water hast recovery had complete and energy efficient informa-addition to its CO₂OLte family. In some hasting and souting, and souting a spike development more for Frigger: Fricon, a Portuguese rehisteration in

Rabar Munchler presented its new heat recovery, and CO₂ as a natural explapsed with a head exchanger or cost utils for marine intersport. NaturaLine Hipping.

cooltec

Mafinet: As a company dedicated to "beint first system using R290. Mafinal continned benefits thereof are apparent.

QGUR: In addition to a wide range of small larger units, including the Bodinam 1858; a and ideal for application in supermarkets.

Green & Cost, in This CO₂ dedicated in



systems for supermarkets has taken another step toward offering natural refrigeration systems to fit a diverse panel of

overse precision respectively a range of place in cabinets including bottle cosiers, ice cream displays and other multipurpose chillers available in an assortment of shapes an sizes and suitable for small size application. The Presenter 9647, the Tulip TC 17, and the G0380 E, for example applications equipped with R290 included 8 Crystal COG33. the Urano 2 Maai. are compact bothe coolers. Also on display were multi-ourpose chillers, such as the Premer 1580 G and the

Arrag: New R290 products showcased at the booth included the Alya, the Arraw, the Eagle and the Evo, just to Prioan: Fricon, a Purtupuese integration is can be used as stand-otions will or arms application. Further, Aming impresentatives continented that there has been an increase in interest in natural references in obtaining and the standard or arms a

Blazard upright cabinet, the Okya island cabinet. Crystal: A representative of Greek supplier Crystal noted the trand toward use of energy efficient and environmentally friendly refrigeration systems in the lood retail industry, Furthermore, he affirmed a belief that the Balkans would soon move to use more natural refrigerants such as hydrocarbons. Crystal works with Heinekan and JBG-2 JEC-7's comprehensive line of \$ producing natural refrigerant-based produ-polah company supplies systems is store smaller island units, the MixMNY, a large Mövenpick, among others, supplying light commercial bottle coolers and ice cream displays equipped with hydrocarbon rehigerants.

> EPTA: A leading supplier of natural refrigeration solutions showcased a number of inno systems ideal for small store application. Included were the Slim Vertical LP, the Laser Plus and the Gerema 38.

Fricon: In addition to some larger applications on display, Fricon showcased a bottle cooler provided for Heineken that promises 80% less energy use. The silm cooler is perfectly sized for application in smaller stores. med that the company has deve

Gastro-Cool: As a supplier of circa 10,000 systems worldwide per year, Gastro-Cool displayed an assortment of light commercial systems using R200 and R500a including checkout coolers and showcase coolers conveniently sized for smaller store formats.

IBA: While ISA typically focuses on plup-in CO2 solutions, it did not come up short in terms of plup-in hydrocarbone solutions for small to medium sized stores. Products on show ranged from compact cake disp Panavision, to easy-to-move island chillers, for example, the Kalon.

JBG-2: A representative of the Polish company explained that the trek toward offering natural religerants in products started in 2008, not only because of market demand, but because it's the right thing to do for the environment. A number of compact Island units marked with an "R290 – Green" label were on display at the booth, including the Fidgi LD Fxxx 07. Mafired: Portuguese Maferi debuted its first hydrocarbons system at EuroShop 2014. The cabinet named

Bartotemps is a versatile unit that can be used either as a single entity to optimize space in a smaller store or combined in a row for use in supermarkets. A representative confirmed Mafro1's wish to move toward using more natural refrigerants, especially hydrocarbons, as the low-cost, energy-saving refrigerants are a well-proven natural

true: The booth showcased a number of natural refrigerant solutions for stores of all sizes. Notably, there were several conveniently compact bottle coolers using hydrocarbons on display, ideal for small store formats.

UGUR: Working with companies such as The Coca Cola Company, Rockstar Energy, Algida and Danone, displayed a number of compact units compatible with small store formats. The range of showcased products, including the USS 1000/1200, the USS 275 DTKCD and the UDD 100 SCEBN, incorporated ice cream displays and countertop, stand, and reach-in bottle and can coolers.

Marketing Manager, Dorin Complobbl (Florence), Rely Patricia Schmarch I M hours ් Initianal Inf. Embraco, Joinville, Brazil See more activities

Posted new comment: Second

If be participating in China

Giovanni Dorin (18 hours age

Refrigeration at Beiling

and added a website link

General joined in!



CODE 2014, NATIONAL DEFENCIONANTS CONTINUED GROWTH & INNOVATION IN EUROPE

















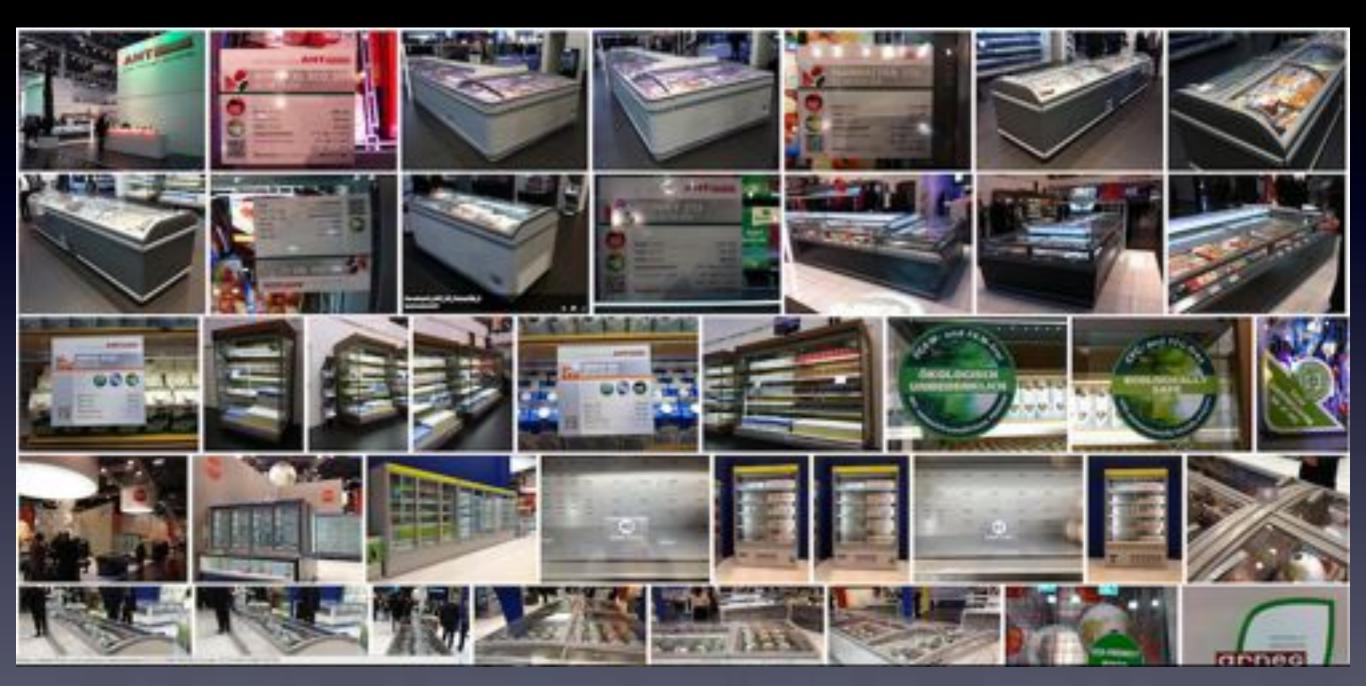


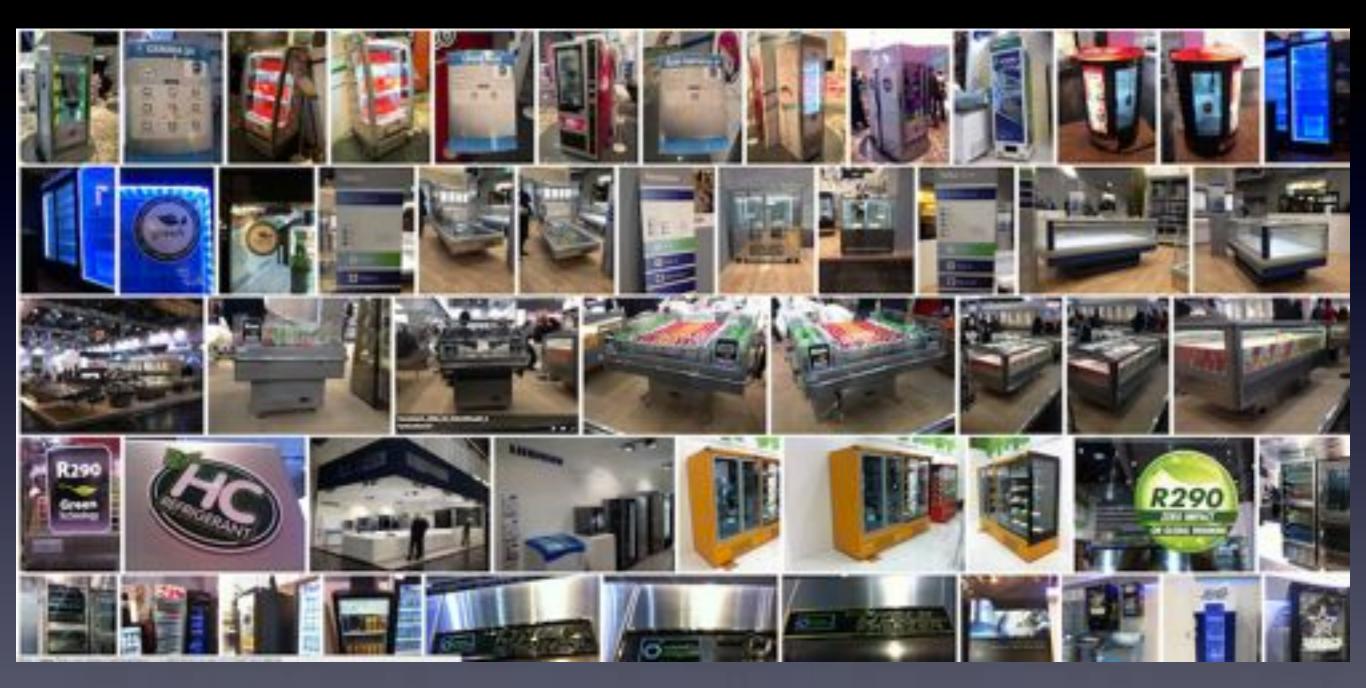


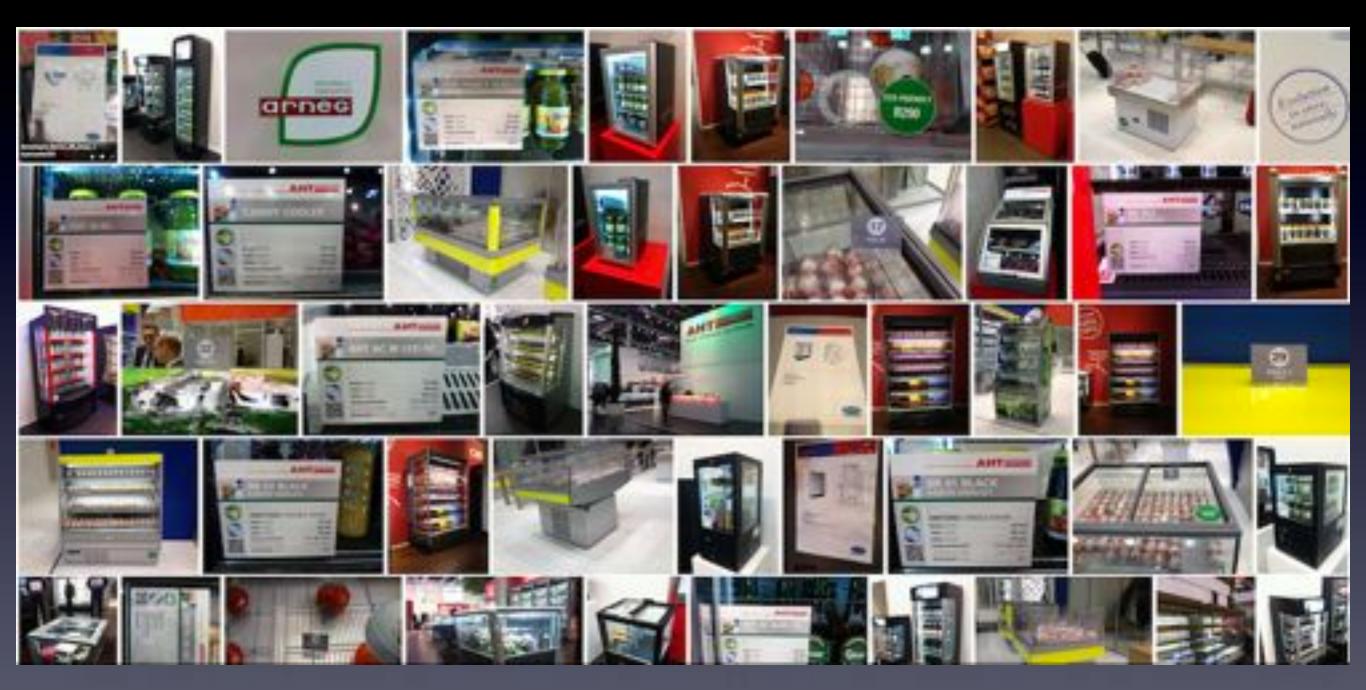














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