

ATMOsphere Japan 2017

# Acolle's activities to install Natural Refrigerants

~ Installation of Co2 Booster System first in Japan ~



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Acolle.co., Ltd.  
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Acolle co.,Ltd.

- Head Office
  - 1-5-1 Nakase Mihama ward Chiba city Chiba Prefecture
- Establishment September 9, 2014
- CEO Ryoichi Morimoto
- Number of Stores 133 stores(as of February 20, 2017)



**“Acolle”** contributes for supporting customer’s -life

**【Every Day Low Price】**

Achieving EDLP by EDLC

**【Safety and Security】**

Providing Safe and Secure concern by our Choicest products

**【Convenience for busy-lives】**

Offering necessary products at Limited Assortment Store format



Product	Acolle	Competitors	CVS
Strong-Zero	\93	\118	\141
Cho-jyuku(Bread)	\138	\158	\178
Häagen-Dazs	\184	\248	\275

# Energy Saving Effect by installation of CO<sub>2</sub> Booster System



Period	CO <sub>2</sub> Refrigerator Power-Consumption (kWh)	R404A Estimated Value Ratio	CO <sub>2</sub> Planning Value Ratio	Co <sub>2</sub> Reduction (CO <sub>2</sub> -t)
February to March 2015	19,451	73%	95%	3.78
April 2015 to March 2016	140,187	74%	84%	25.39
April 2016 to February 2016	111,625	75%	82%	19.26
<b>Total</b>	<b>271,263</b>	<b>74%</b>	<b>84%</b>	<b>48.43</b>

FUKUSHIMA INDUSTRIES CORP. Energy sources: CO<sub>2</sub> Reduction Report

【Effect of saving energy】R404A(Estimated Value Ratio)26%、CO<sub>2</sub>(Planning Value Ratio)16%  
 【Effect of Reduction CO<sub>2</sub>】25.4CO<sub>2</sub>-tons/year, 48.4CO<sub>2</sub>-tons/Total

# Number of stores that introduce natural refrigerant equipment by business type in the Aeon group

Business type	GMS	SM・DS	Small SM・CVS	Drug store
				
	 	   	 	
Number of stores	18	22	78	28

- The total number of stores introducing natural refrigerant equipment showcases in the Aeon group is 146 stores in total. (※As of February 20, 2017)
- Breakdown by business type is GMS:18 stores, SM・DS:22 stores, Small SM・CVS:78 stores, and drug store:28 stores.

# Acolle's Track Records of installation of Natural Refrigerants



Discount Market A-Colle

No.	Store	Area	Introduction Date	Refrigerants	Natural Refrigerants use show case	Notes
1	Takashimadaira 1cyoume	338m <sup>2</sup>	Aug. 2012	CO <sub>2</sub> Direct Expansion Refrigerate System	Refrigerator only	
2	Kita-Toda eki minami	290m <sup>2</sup>	Oct. 2014	CO <sub>2</sub> Direct Expansion Refrigerate System	Refrigerator only	Subsidized Project by Environmental Ministry. Promotion of expand the Natural refrigerants by advanced technology
3	Fujimino eki nishi	424m <sup>2</sup>	Feb. 2015	CO <sub>2</sub> Booster System	Both Refrigerator and Freezer	Subsidized Project by Environmental Ministry. Promotion of expand the Natural refrigerants by advanced technology

▪ Takashimadaira 1cyoume and Kita-Toda eki minami, was working with Panasonic Industrial Systems Co., Ltd., installed refrigerated showcases equipped with CO<sub>2</sub> direct expansion refrigerat system

▪ Fujimino eki nishi, was working with Fukushima Industry Co., Ltd., achieved Natual refrigerants first in Japan by installation both low-temp and medium temp showcase equipped with CO<sub>2</sub> Booster System



## ① Aeon's activities to expand the installation of natural refrigerants

- Aeon considered a refrigeration system that uses natural refrigerants for “realization of a low-carbon society” at Nov. 2011

## ② Obstacles of urban small-scale store

- Set condensers at limited space
- Noise control(for the installation in urban areas)

## ③ Compatibility CO<sub>2</sub> Booster System in Small-scale store

- Remote Air Cooled Compressor is able to install inside the store which achieve to minimize Condenser outside
- Improve the soundproof technique by installation of Remote Air Cooled Compressor inside the store

## ④ Approach for the a innovative challenge

- Acolle is the leading company in the Aeon group for innovative challenge “As Soon As Possible” and “As many you want”



# Feature of CO<sub>2</sub> Booster system



Discount Market A-Colle

## ① Energy Saving

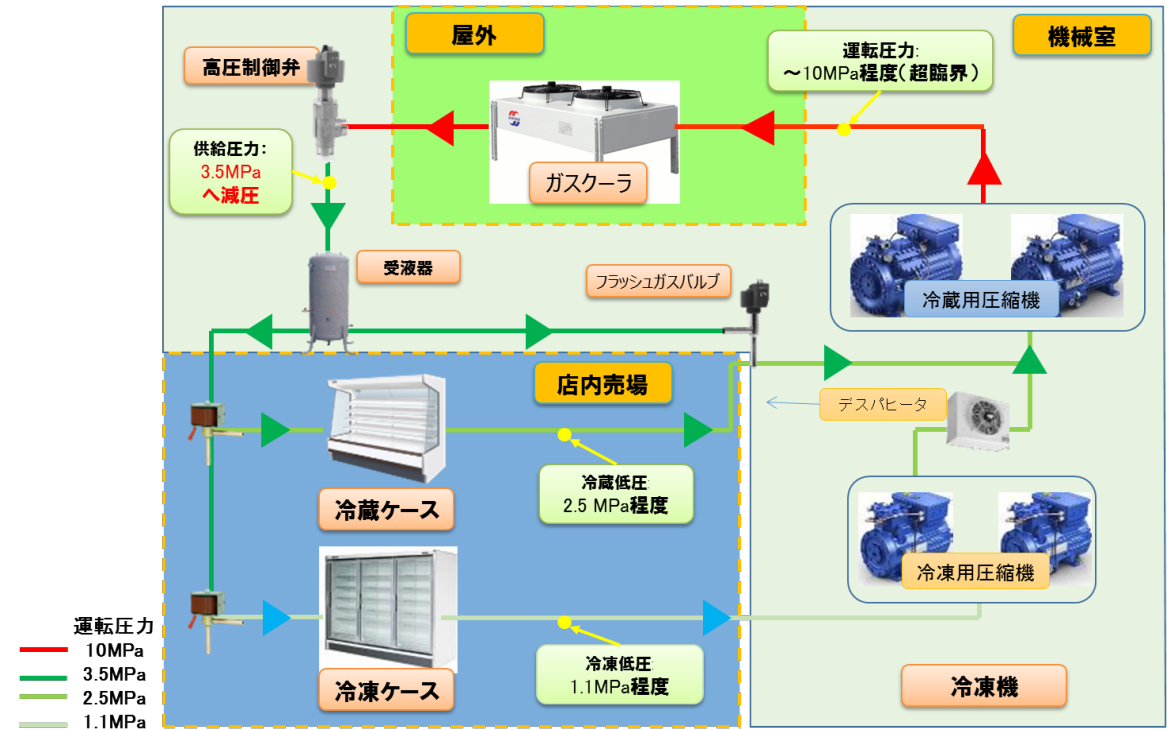
- refrigerate both refrigerator and freezer CO<sub>2</sub> Showcases by single refrigerating unit
- Operating CO<sub>2</sub> Refrigerant efficiently

## ② Safety

- Provide reduced pressure of the refrigerant which cooled in the refrigerating unit to showcases
- Pressure of refrigerant for the showcase is close to HFC, that's why it is safety

## ③ Environmental concern

- System is remotely controlled
- Noise reduction by replace compressor inside the store



	Booster system	Moderate CO <sub>2</sub> system
Pressure of the refrigerant	Maximum 3.5 MPa Providing close pressure to CFC	Maximum 12.0 MPa Providing pressure four times as CFC
Refrigerating Unit	Single refrigeration unit for both medium-temp and low-temp showcase	multiple refrigeration units for various temperature Showcases
Safety	Leak detection sensor, Ventilation system	Leak detection sensor, Ventilation system
Noise	Reduction of noise problem solved by remote controlled system	Integral air cooled type refrigerating machine unit

## ① Saving Energy

Reduction of energy consumption by 26% than HFC unit

## ② Ecology store (Considering global warning)

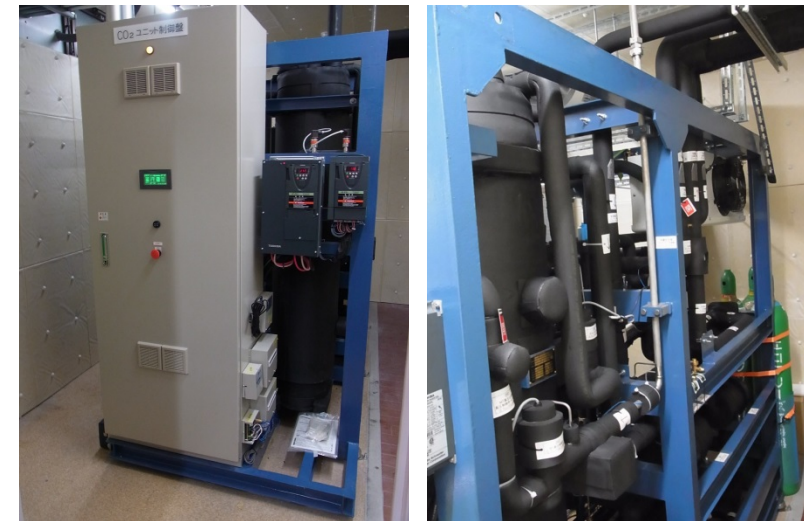
Reduction of CO<sub>2</sub> 25.4 CO<sub>2</sub>-tons/year(Single store)

## ③ Inspection Free(Emission standard Law)

Specific Product by CHC free

## ④ Long-term reduction of costs

Regulation of HCFC (R22) ,possible to convert for HFC (R404A,R410A)





## ①Deregulation

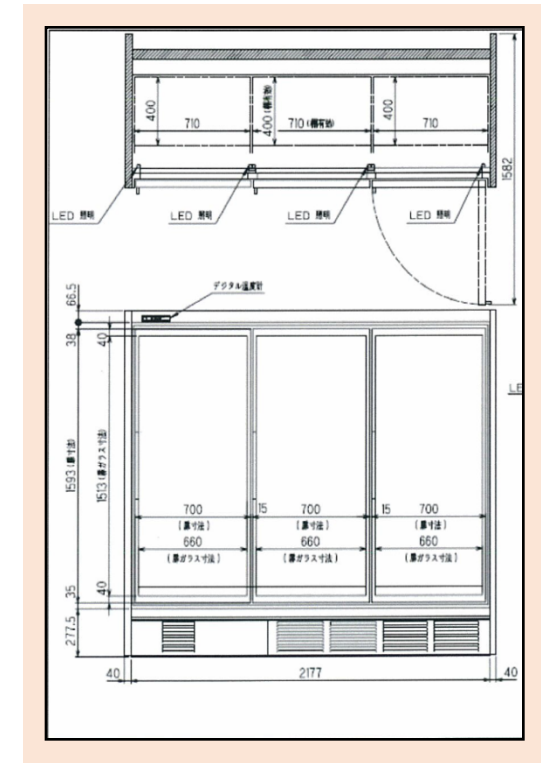
Company requires registration to the government for the installing CO<sub>2</sub> Refrigerant unit which has capability of refrigerate 3tons/day by High Pressure Gas Safety Act

## ②Introduction Support System

Installation of Natural Refrigerants is costly than HFC unit at the time of implementation  
(Require government's support system)

## ③Expanding Showcase Variety

e.g. Replacing Natural Refrigerants for existing stores by developing built-in showcases corresponding CO<sub>2</sub> Refrigerants



## ① Desired size of booster system unit

As for the showcases, saving size effect was confirmed by 20%

Concern for the urban small sized store

## ② Replacing Natural Refrigerants for existing stores

Ministries of Environment:

Subsidy for carbon dioxide emission reduction

(Introduction of L2-Tech expansion projects)

## ③ Solve the problems with manufactures and installation suppliers



