SOCAMEL IS COMMITTED
TO AN AMBITIOUS, RESPONSIBLE APPROACH

As a global meal distribution leader in medical and social settings, SOCAMEL is committed to increasingly integrating CSR challenges into its development strategy, and has been working for a number of months on various projects.

These include the adoption of a new refrigerant fluid, to ensure future compliance with new regulations and protect public safety and the environment. But also, the improvement of its appliances' sustainability, with the asserted use of stainless steel in the manufacture of its meal trolleys.

THE STAINLESS STEEL CHOICE

304 stainless steel is traditionally considered to be the benchmark for professional catering materials. This type of steel, made from nickel and chrome, offers guaranteed stability, strength and oxidation resistance. 441 stainless steel (or TNB ferritic and magnetic stainless steel) contains no nickel and therefore produces fewer greenhouse gas emissions. In the manufacture of its products, SOCAMEL uses 441 stainless steel wherever possible.

ROBUST AND SUSTAINABLE APPLIANCES

Our trolleys are often used in restrictive environments, and sometimes have a hard life, subject to repeated door slamming, driven in challenging conditions, receiving multiple bumps during service and tray preparation, as well as undergoing intensive and harsh cleaning operations.

We have always used stainless steel to ensure that our products are high quality and robust. For obvious economic and environmental reasons, we see stainless steel as an essential material in the design of our appliances, ensuring they have a long product lifespan as well as a good level of resistance to vibrations, shocks and cleaning.

Both easy to solder and shape, stainless steel guarantees a robust machine structure by optimising its sheet thickness, limiting the amount of raw materials used and the weight of the trolley. These advantages in terms of weight and robustness are evident when compared to the use of aluminium, in spite of its reputation for being lighter.

STAINLESS STEEL IS ETHICAL

Stainless steel is indefinitely recyclable, and it has a low carbon footprint, 5 times lower than that of aluminium. For example, to manufacture 1kg of raw material, 304 stainless steel produces 3.44kg of CO^2 compared to 17 kg of $C0^2$ for aluminium[1]

Its manufacture is energy efficient. If we look at the sources and transformation energies used, the manufacture of stainless steel requires up to 4.75 times less energy than aluminium (40 Mj/kg compared to 190Mj/kg)[2].

Finally, stainless steel requires no specific treatment against corrosion.

EASY MAINTENANCE

We use stainless steel screws to ensure high-quality fastenings. There is therefore no risk of galvanic corrosion[3]. The use of two different materials could cause oxidation and make it difficult to remove the screws during maintenance operations in the medium and long term.

Stainless steel panels can also be polished when worn or damaged, allowing the user to rejuvenate existing appliances.

LIMITED RISKS

Although aluminium and stainless steel are both certified food contact materials, stainless steel is more resistant to corrosion compared to aluminium, which can alter food properties.

Stainless steel is not as good at conducting heat as aluminium, which reduces heat loss to the surroundings.

A NEW ENVIRONMENTALLY-RESPONSIBLE REFRIGERANT FLUID

On the meal trolley market, as of the 1st February 2022 the F-GAS regulation has prohibited the manufacture and marketing of appliances with a hermetically-sealed refrigeration circuit that contains refrigerant fluids with a GWP (Global Warning Potential) that exceeds 150. Measures adopted to protect the environment as well as our industry are part of necessary efforts to achieve carbon neutrality by 2050, the objective set by the EU.

The regulation is limited to hermetically-sealed circuits, with open circuits which are more sensitive to leaks remaining exempt for the time being. However, this regulation is expected to evolve in the next few years, particularly as regards the scope of its application, but also concerning revision of GWP levels. SOCAMEL has taken a proactive approach, and sought to adopt a responsible stance, getting ahead of potential modifications to the F-GAS regulation.

- We have chosen to maintain a hermetically-sealed circuit. This limits risk of gas leaks, which can be costly for the environment, and ensures high quality performance.
- We have been working for a number of years on replacing gases used in cold production. This work began in 2018 with an initial switchover to R452A to replace R404A and transition to a GWP under 2500. This gas was an easy choice as it had no impact on the production or performance of meal trolleys. However, at the time we could not find a definitive solution as the compressor manufacturers and gas suppliers had not yet adopted a position.

Since January 2022, compressor manufacturers have retained a number of gases, which has allowed us to make progress on our final choice.

The implementation of this regulation from hereon in means opting for a recognised gas, which will remain easy to purchase for new appliances and after-sales service operations. As in the automobile sector, gas producers were forced to apply CO^2 emission allowance quotas from 840 T in 2021, and quickly began marketing low-GWP gas. It is therefore useful to be able to transition to more environmentally-friendly gases, since their predecessors are now harder to find and costlier.

For our market there were 3 possible choices: R454C / R455A (a mix of HFO and HFC gases), R290 (better known as propane) and **R1234YF** (a pure HFO-type gas). **We opted for the latter.**

R1234YF

RESPONSIBLE

A responsible choice, opting for the most environmentally-friendly gas with a very low GWP of 4, 99.9%[4] lower than R404a or R134a.

UNANIMOUS CHOICE

A long-term choice, tried-and-tested and globally recognised. Also used in car air-conditioning systems, it is a choice for the future, even if the regulation is set to evolve. It will remain readily available and at controlled costs.

LIMITED RISKS

A safety criteria, it has low flammability (safety class A2L), is non-toxic to humans in low concentrations, and we use it in hermetically-sealed circuits to limit any risk of leaks.

Specifically, regulation EN 60335-2-89 *requires that the material manufacturer carry out a risk analysis to define the maximum fluid load volume (depending on its flammability level, risk of sparking and volume of the item)*

HIGH-PERFORMANCE

An effective system provided by a pure fluid without dips in temperature, which will in time guarantee the level of performance of our trolleys.

EASY MAINTENANCE

Simplified maintenance which is rarely required. It is a pure and stable gas which needs little maintenance. No special derogations are required for its use and there is no need to receive specific training.

IN SUMMARY

SOCAMEL, as a global leader in the distribution of mass-catered meals is, and must be, cutting-edge and keep pace with changes to regulations, protecting public safety and the environment, whilst ensuring the performance and sustainability of its appliances over time. The pathway to integrating R1234YF gas into its appliances has been long, requiring lengthy research and numerous tests. Today, our customers can invest in appliances for the future, which are environmentally-friendly and whose performance level remains intact and sustainable.

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[1] *https://www.strategie.gouv.fr/publications/evaluer-lexternalite-carbone-metaux*

[2] *https://www.lemoniteur.fr/article/energie-grise.891974*

[3] *https://www.canada.ca/fr/institut-conservation/services/formations-apprentissage/ateliers-en-personne/corrosion-galvanique.html*

[4] *http://frimagas.com/non-classe/les-gwp-des-fluides-704.html/*

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