

# Climate Profile Declaration

## Gasketed plate heat exchangers

Alfa Laval endeavours to perform its own operations as cleanly and efficiently as possible, and to take environmental aspects into consideration when developing, designing, manufacturing, servicing, and marketing its products.

This is done by identifying the environmental impacts of its products and operations and taking appropriate measures to reduce them. This work is supported by implementing environmental management systems (normally certified to ISO 14001) in all its manufacturing operations.

This Climate Profile Declaration is made in accordance with ISO 14021.

### The product

A plate heat exchanger consists of a pack of corrugated metal plates. Each plate is fitted with a rubber gasket, which seals the channel formed between two adjacent plates. In an alternative design, every second gasket is replaced by a laser-weld to allow for fluids aggressive to the gaskets. The plate pack is assembled between a fixed frame plate and a movable pressure plate and compressed by tightening bolts. The frame plate and the pressure plate are suspended from an upper carrying bar and guided by a lower guiding bar, both of which are fixed to a support column. The size of the unit, the material and number of plates are determined by the requirements of the actual application and duty. Each individual plate heat exchanger is optimised for its duty and, as a result, the usage of materials is kept to a minimum.



### Frame components materials

The frame and pressure plate are normally made of carbon steel. Other frame components are made of aluminium, chromium steel and various types of stainless steel. The degree of recycled material in carbon steel varies between suppliers.

### Construction and plate materials

The most used plate material is stainless steel alloy 304 and 316, which accounts for about 80-85% of the volume. Other materials used include highly alloyed stainless steel, titanium, nickel, and nickel-based alloys. The degree of recycled material in stainless steel alloy 304 and 316 is typically between 60-90%.

### Rubber gasket materials

The most used rubber gasket materials are nitrile and EPDM. Other gasket materials used include FKM and PTFE.

### Paint

The frames are painted using a water based two-component polyamide cured epoxy coating pigmented with zinc phosphate. The coating thickness depends on the corrosiveness of the environment and is applied in accordance with ISO 12944-2.

## Packing

Packing material consists of wood, plastics, cardboard boxes and, in some cases, metal straps and metal support plates. Alfa Laval enforces strict environmental demands on suppliers for all types of packing material.

## Restricted substances

All components are checked against EU legislation and global agreements such as the Montreal Protocol and the REACH Candidate List. Where applicable, reported into the SCIP database.

## Manufacturing

The major environmental impact during manufacturing comes from the construction materials. Energy typically accounts for less than 3% of the total environmental impact of manufacturing. All Alfa Laval's manufacturing sites operate with an environmental management system. Data on energy consumption and emissions to air and water and other environmental factors are reported annually in Alfa Laval's Sustainability Report.

## Usage

The heat exchanger as such does not give rise to any emissions and does not consume any energy. To create a pressure drop – the driving force for heat transfer – across the heat exchanger, external pumps are normally needed. During the lifetime of the heat exchanger, there may be need for replacement of parts such as gaskets and plates. To maintain the level of performance, Alfa Laval recommends cleaning at regular intervals, of which the frequency depends on application and duty. Alfa Laval provides non-toxic cleaning chemicals containing biodegradable surfactants.

## Transportation

Transportation accounts for a large part of Alfa Laval's CO<sub>2</sub> emissions. To reduce these emissions, all transportation providers are evaluated and classified from an environmental point of view. Furthermore, strict demands are placed on transportation providers to propose ideas for reducing the environmental impact of Alfa Laval's transportation.



## End of life

Dismantling instructions are provided in the maintenance manual. The unit is readily disassembled into its main components. Waste of the product is not hazardous (EU Directive 91/689/EEC). Chemicals must be drained off before any end-of-life treatment and treated according to local regulations.

## Recycling of metals

It is possible to recycle all metallic material, thus reducing the use of virgin material for new production of metals. Plates are sorted according to type of material and frame components are sorted as mixed metal scrap.

## Incineration of gaskets

Rubber gaskets can be sent for incineration, thus recovering energy.

## Packing

Wood and cardboard boxes can be reused, recycled or used for energy recovery. Plastics should be recycled or incinerated at a licenced incineration plant. Metal parts should be sent for material recycling.

## Carbon Emission Report

See Appendix A

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## How to contact Alfa Laval

Up-to-date Alfa Laval contact details for all countries are always available on our website at [www.alfalaval.com](http://www.alfalaval.com)

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