

HOCHDORF Swiss Nutrition AG reduces CO₂ emission thanks to latest CO₂ stack gas recovery system from ASCO

The Swiss food maker HOCHDORF Swiss Nutrition AG just started to recover approximately 2,200 tons of CO₂ per year and therefore contributes to the reduction of CO₂ emissions in Switzerland. This is made possible due to a carbon dioxide stack gas recovery plant from ASCO CARBON DIOXIDE LTD. Using the latest plant technology, CO₂ out of exhaust of polluting combustion processes will be recovered and reused profitably which reduces the company's annual CO₂ emissions by 10-15 percent.

Naturally, efficiency and high reliability are most important requirements when it comes to an economic and competitive production. But the idea of sustainability becomes more and more important to companies when it comes to weigh the pros and cons of a capital investment. The innovative ASCO CO₂ stack gas recovery plant incl. ASCOSORB technology scores with an environmentally friendly overall concept for CO₂ recovery. The modern system allows the HOCHDORF Swiss Nutrition AG to recycle more than 90 percent of the CO₂ contained in the plant's stack gas. Dr. Karl Gschwend, Managing Director Strategic Projects, explains, "As one of the Swiss market leaders in the development, manufacture and marketing of valuable food, environmental protection has always been a major concern to us. The new ASCO recovery plant provides the optimal solution to produce sustainable and to be able to reduce CO₂ emissions by up to 10-15 percent each year. So CO₂ exhaust gases can be prevented and used profitably for our company."

In the first process step, the flue stream from the client's steam boiler is collected, cooled and treated in the scrubber to remove any solids and sulfur compounds present. Subsequently, the CO₂ is selectively absorbed from the flue stream by means of a special solution in order to get liberated later in the process with the help of thermal energy, providing CO₂ gas for further processing. In the following steps, the gas is compressed, further purified, dried and liquefied so that it can be stored in tanks. The balance of the flue stream – mainly water vapour, nitrogen and oxygen – is vented to the atmosphere. The plant's capacity of 285 kg/h allows to recover up to 2,200 tons of CO₂ profitably and environmentally friendly each year.

Marco Pellegrino, Managing Director ASCO CARBON DIOXIDE LTD, takes a stand on the quality of the recovered CO₂, "There is a zero tolerance policy when it comes to CO₂ purity and therefore to the hygiene requirements for food, particularly baby food. In our case, the recovered carbon dioxide meets the specifications of ISBT and the requirements of other food and beverage standards in its entirety. In addition, our CO₂ stack gas recovery system offers a profitable source of CO₂ for the HOCHDORF Swiss Nutrition AG as well as a cost-effective alternative to conventional CO₂ production or purchase of liquid CO₂."

The new facility is equipped with the so-called ASCOSORB technology which Pellegrino characterises as follows, "Thanks to this revolutionary technology huge energy savings and thereby greatly reduced operating costs are guaranteed. The energy usage is just 0.9 MWth / 1000 kg of produced CO₂. The specially formulated ASCOSORB solvent is largely resistant to oxygen which typically results from stack gas sources allowing greater system efficiency and longevity of the plant. In addition, further costs can be reduced thanks to a significantly lower consumption of absorbents. Modern CO₂ stack gas recovery technologies such as our ASCOSORB technology would be able to prepare million tons of environmental toxins every day and consequently reuse the gas instead of expel it into the atmosphere – a technological and environmental milestone," Pellegrino adds.

Most part of the gas is recycled to the production plant of the Swiss food manufacturer. Among other things, it is used for inerting packaged milk powder. The advantage of inerting with CO₂ gas is the elimination of oxygen which prevents sensitive products such as baby food powders from oxidation and the formation of unappetising odours.

For a successful implementation of this project, HOCHDORF Swiss Nutrition AG closely cooperates with Messer Schweiz AG which is owner of the new ASCO CO₂ stack gas recovery plant. Messer Schweiz AG acquired the facility from its subsidiary ASCO CARBON DIOXIDE LTD last year. The premises and the combustion processes of HOCHDORF Nutrition AG are used for the accommodation of the plant system and as CO₂ source for the recovery process. That high-quality CO₂ which doesn't flow back in the production plant of HOCHDORF Swiss Nutrition AG is sold to end customers by Messer Schweiz.

The ASCO recovery plant was put into operation in August this year and is running to the full satisfaction of the customer since then.

Graphical material:



The shown process unit consists of various pumps and heat exchangers and is responsible for heating or cooling of the CO₂ gas and the wash solution.



The CO₂ compressor compacts the CO₂ gas to a pressure of 16 to 20 bar.



ASCO engineers ensure a smooth operation of the modern CO₂ stack gas recovery plant through regular maintenance.



Pictured: Process unit with heat exchangers and pumps in the front, absorber and desorption columns in the background.

About HOCHDORF Swiss Nutrition

The HOCHDORF Group is active in the areas of dairy ingredients, baby care and cereals & ingredients and has a staff of around 570 employees. The products are sold worldwide in over 80 countries. Customers include the food industry and the retail sector. The factory in Sulgen is competence center for milk and whey powder as well as infant foods and processes 230 million liters of milk and 60 000 tonnes of whey every year.
www.hochdorf.com

About Messer Schweiz

Messer Schweiz AG is one of the leading industrial gas companies in Switzerland and provides gases for industrial, medical, pharmaceutical and food to companies in Switzerland, hospitals and research institutes for more than 100 year now. Included are gases like oxygen, nitrogen, argon, carbon dioxide, hydrogen, helium and gas mixtures. The company employs over 100 people and is part of Messer Group GmbH, the world's largest owner-managed industrial gas company. www.messer.ch

About ASCO

Swiss ASCO CARBON DIOXIDE LTD is a provider of complete CO₂ and dry ice solutions with customers worldwide. The product range goes from CO₂ production and recovery plants, recovery from waste products with highly concentrated CO₂ to CO₂ recovery from biogas. The plant capacity depends on the type of installation and goes from 35 kg/h to 15.000 kg/h.

Furthermore, we provide you with dry ice blasting units, dry ice production machines, CO₂ cylinder filling systems, CO₂ vaporisers, CO₂ storage tanks, CO₂ dosing systems for water neutralisation and various other CO₂ and dry ice equipment. Thanks to this broad product range and more than 120 years of practical experience in the wide field of CO₂ and dry ice, customers benefit from individual, complete CO₂ solutions from a single source. Since 2007 ASCO has been part of the international industrial gas enterprise Messer Group and is its competence centre for CO₂. By joining forces with the German BUSE Gastek GmbH & Co. KG, based in Bad Hönningen, in the year 2014, the expertise and product portfolio was pooled and significantly expanded. This applies in particular to the complex field of CO₂ recovery. www.ascoco2.com

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