

Energy Efficient drying using Liquid Sorption

Publieke samenvatting / Public summary

Aanleiding

A liquid sorption drying system reduces energy demand for drying by 40 to 50%. The energy savings in the Netherlands will be 20 PJ/year which saves the Dutch industry 160 M€/year in energy costs alone. In addition, the system allows closed loop operation with better process and product control and the preservation of product aroma. When such a system becomes commercially available, it will lead to an estimated 1000 jobs and a turn-over of 616 M€ per year for a period of 20 years.

Doelstelling

Drying is an essential operation in the processing industries and is a very energy-intensive process. It is estimated that 90 PJ per year is used for drying within the Dutch industry. Currently, recovery of the energy via condensation is often not an option due to stickiness or other product quality related issues. In EELS a system is developed that overcomes this problem by using a liquid sorbent that simultaneously removes moisture from the air and heating it without the need of condensation.

Korte omschrijving

The project develops a system to recover waste heat without the need for condensation of the water vapor. The project consists of an inventory of the end-users' drying demands and challenges regarding process integration. Liquid sorbents will be screened and selected based on these demands and tested on performance. An absorber system is developed and tested to verify its intended function and performance. Finally, the techno-economic

Projectinformatie / Project information

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TEEI314007

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Algemene informatie / General information

Penvoerder / Secretariat

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Publicaties en materialen / Publications and attachments

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Eindrapport TEEI314007

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feasibility of this concept will be determined based on the information from the technical work packages. This should be the basis for the development of a bench-scale unit and a full-size demonstration unit in follow-up projects. This system will be developed together with end-users from food (Unilever, Friesland Campina) and chemical industry (DOW Benelux). These are two major industrial sectors in the Netherlands and in worldwide. DOW Benelux has an additional role as developer and provider of the liquid sorbent. Bronswerk Heat Transfer participates as equipment manufacturer. TKI ISPT and NWGD are hired for dissemination purposes.

Resultaat

A liquid sorption drying system reducing energy demand for drying by 40 to 50%.

De data in deze applicatie is afkomstig van de Rijksdienst voor Ondernemend Nederland (RVO) en wordt in samenwerking met de Topsector Energie ontsloten.

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