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Solar dryer in final testing stages

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Nelspruit-based agricultural processing equipment manufacturer Dryers for Africa is in the final stages of testing its SD300 solar dryer at an environment control solutions company in the Western Cape, says GM **Catherine de Villiers-Burgers**.

The SD300 will be used to dry a variety of products, including fruit, vegetables, herbs, flowers, meat and fish.

For comparative purposes, a model of the solar dryer, which has an input capacity of about 300 kg, is also being established at a farm in Mpumalanga and tests on the model will start in the next month or two, she tells *Engineering News*.

"Once all the fine-tuning has been completed, we will be able to provide accurate test results," says De Villiers-Burgers, adding that positive results, such as eliminating the condensation build-up, have been achieved to date; the company is now focusing on establishing performance scales for the dryer.

"The tests will be concluded when we are certain that we are achieving the best results over a long period," she comments.

Designed as an active, direct dryer, the SD300 solar dryer prototype was constructed in November 2014. To design such a dryer, De Villiers-Burgers notes, air movement, air-flow direction, the position of the unit and the source of heat must be taken into consideration.

The SD300 prototype incorporates all these factors, efficiently harnessing direct solar energy and promoting positive air movement within a fairly small space.

Dryers for Africa expects the solar dryer to be well received by rural communities, small-scale farmers and underdeveloped tropical regions, particularly in the Northern Cape and the Eastern Cape, as well as in Zimbabwe, Angola, Malawi, Lesotho and Mozambique.

De Villiers-Burgers further notes that the SD300 will be available in kit form and that the cover, trays, fans and other components will be secured to a pallet that can be shipped with an installation guide and DVD.

Shipping the dryer in kit form eliminates the need for technicians to install the dryer, which makes the unit a lot more affordable, she says.

De Villiers-Burgers adds that the materials being tested are more affordable than those used in standard insulated panel dryers, as insulated panels are particularly costly.

Meanwhile, Dryers for Africa is in the final stages of designing a solar dryer specifically for the local market, she reveals. This dryer will enable users to reduce food waste and extend the shelf life of locally sourced produce without using electricity.

“We are also trying to finalise a prototype ‘solar oven’ and will hopefully have some positive results soon,” she says.

Dryers for Africa has also completed the design of several biltong dryers for the European market; the company expects to start assembling and

shipping the units shortly.

Recent Projects

De Villiers-Burgers tells *Engineer-ing News* that Dryers for Africa has experienced a lot of activity in recent months.

The company dispatched four CD1500 electric container dryer units to Nigeria in January, which were installed at four rural agricultural locations in March, as part of the World Bank's West African Agricultural Processing Programme (WAAPP). The dryers use heater elements to heat the air, similar to an oven, but at lower temperatures.

Meanwhile, as part of the Interprofessional Fund for Agricultural Research and Advisory Services, an agricultural funding initiative that is also part of the WAAPP, Dryers for Africa installed three CD1500 gas container dryers at rural agricultural locations in Côte d'Ivoire.

De Villiers-Burgers notes that gas conversion within the gas container dryers relies on liquefied petroleum gas to heat the air that recirculates and removes water from the product. The gas dryers are typically used in countries where electricity is unaffordable or unavailable.

Digital Help

Dryers for Africa approached MDOT Consulting in April to help relaunch the company's website.

De Villiers-Burgers explains that, to continue providing its clients with technical support, online assistance and training, the company is developing a more interactive website, providing video tutorials on equipment.

The website is being upgraded mainly because, owing to Dryers for Africa's dispersed client base throughout Africa, it is the best method of providing guidance for its clients who have difficulty figuring out how to operate the dryers after they have been installed.

Clients will also be able to take virtual tours of the company's equipment to familiarise themselves with the unit before it is even dispatched, she adds.

The new website will also assist owners in training factory staff. Equipment can be operated safely by illiterate people, as there are visual aids to provide reference material for training purposes, De Villiers-Burgers explains.

"We have also incorporated a platform for current producers, buyers and farmers to network. Farmers can process raw materials at an existing producer, producers can source raw materials from farmers and buyers can negotiate directly with producers and buyers."

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