

Lecithin Dryer Technical Bulletin



Overview

LCI lecithin dryers' extremely short residence time, narrow residence time distribution, high turbulence, and rapid surface renewal provide the perfect conditions for gently drying lecithin gums to low moisture levels while preserving color and meeting product specifications. The LCI lecithin dryer process is used worldwide to maintain the lightest possible color and to provide higher profits for lecithin producers.

How It Works

The LCI lecithin dryer (also commonly referred to as a "thin film evaporator") consists of two major assemblies: a heated body and a

rotor. Product enters above the heated zone and is evenly distributed over the unit's inner surface by the rotor. As the product spirals down the wall, bow waves developed by the rotor blades generate highly turbulent flow, resulting in optimum heat flux and mass transfer.

Volatile components are rapidly evaporated. Vapors flow counter-currently through the unit. After exiting the dryer's vapor nozzle, vapors are ready for condensing or subsequent processing.

Nonvolatile components are discharged at the outlet. Continuous washing by the bow waves minimizes fouling of the thermal wall where the product or residue is most concentrated.

Lecithin Dryer Design

- **Fixed clearance** rotor design is always used for lecithin applications. The rotor design includes a modified feed design especially for lecithin applications.
- **Vertical configuration** provides self-draining, reliable, efficient processing of lecithin gums. Units available with either an internal or external bottom bearing.
- **Countercurrent flow** is recommended to achieve low residual moisture content.

LCI's Lecithin Dryer Experience

LCI application experience includes soybean gums and canola oil gums. List of installed units on flip side.

LCI's Capabilities to Support Your Lecithin Drying Process

- Skids & Component Systems
 - Vacuum Systems, Condensing Systems, Dried Gums Cooler, Pumps, Instruments, AI and AV adjustment, etc.
- Aftermarket
 - Repair, Troubleshoot, Training, Spare Parts



LCI Lecithin Dryer Fast Facts

Moisture	<0.5% (One Unit)
	<0.1% (Two Units in Series)
Color	Gardner Color (generally 11-17)
Operating Pressure	30-50 Torr
Residence Time	5-60 seconds
Acetone Insolubles	62-70%

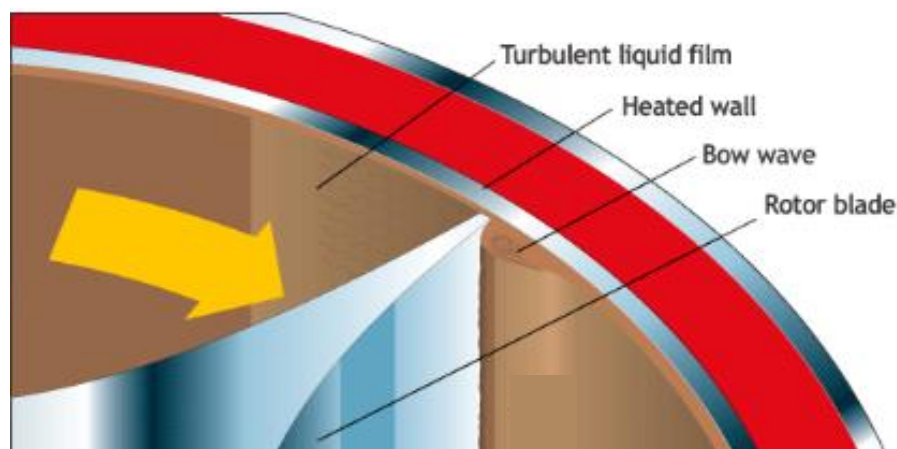
LECITHIN DRYER EXPERIENCE LIST



Year Sold	Unit Size (m ²)	Location
1954	6	Midwest, USA
1955	0.9	Canada
1956	1.6	Midwest, USA
1956	3	Northeast USA
1958	6	Midwest, USA
1963	4	Midwest, USA
1963	4	Southeast, USA
1963	4	Canada
1963	4	South, USA
1964	2	Midwest, USA
1967	3.3	South, USA
1967	3.3	Midwest, USA
1968	8.1	Midwest, USA
1968	13	Midwest, USA
1969	5.9	Midwest, USA
1969	11.9	Midwest, USA
1970	1.1	South, USA
1973	9.8	Midwest, USA
1974	11.9	Mexico
1974	9.8	Midwest, USA
1974	11.9	Midwest, USA
1977	8.1	West, USA
1977	22	Midwest, USA
1977	6.5	Canada
1980	9.8	Midwest, USA
1983	14.7	Southeast, USA
1983	0.1	England

Year Sold	Unit Size (m ²)	Location
1984	9.8	Midwest, USA
1984	9.8	Midwest, USA
1984	9.8	Northeast USA
1985	0.48	China
1988	0.48	Costa Rica
1988	8.1	Midwest, USA
1990	1.1	China
1990	1.5	Spain
1990	9.8	South, USA
1991	6.6	Mexico
1991	14.7	Midwest, USA
1994	9.8	Alaska, USA
1995	3.5 (2x)	China
1997	4.5	Spain
1998	2	Midwest, USA
1999	9.8	Northeast USA
2000	5	Midwest, USA
2000	2	Mexico
2000	8	Midwest, USA
2001	9.8	Northeast USA
2002	2	Costa Rica
2007	1.5 & 8	Norway
2008	26	Argentina
2010	26	Argentina
2012	14 (2x)	Midwest, USA
2014	2	Costa Rica
2014	0.05	Midwest, USA
2015	12	Midwest, USA

Cross Sectional View of LCI Lecithin Dryer



Installed Lecithin Dryer

