

Ethel M Chocolates™

HENDERSON, NEVADA

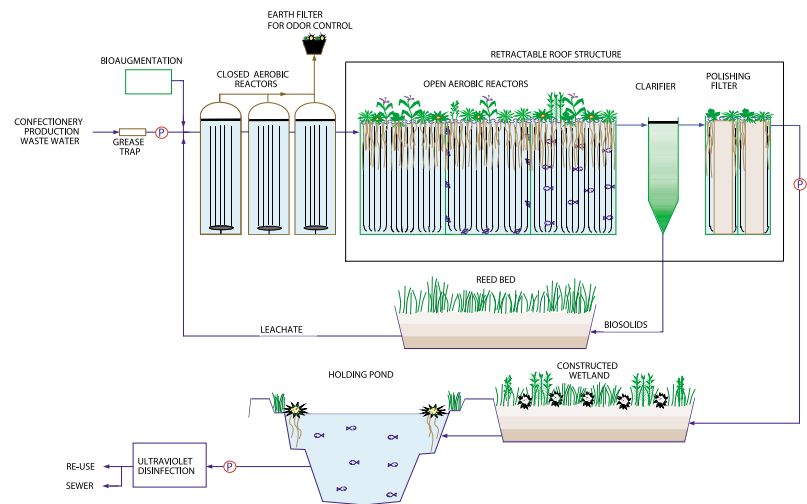


Ethel M Chocolates™ dates back less than two decades, but the story began in 1911 when Frank and Ethel Mars started making and selling chocolates from their kitchen in Tacoma, Washington. They began a family tradition of producing quality confections which has been passed down through several generations and is still closely followed today in every product made by Mars, Inc.

Background

Senior management at Mars was familiar with Living Machine™ Systems after pilot testing at another Mars facility. When planning an expansion of their Ethel M Chocolates™ plant, they looked to a Living Machine™ System to help them meet tighter discharge requirements. The Living Machine™ System at Ethel M provides advanced treatment of their confectionery process wastewater. The resulting purified water is reused for on-site landscape irrigation. Sludge is also treated on-site by a composting reed bed, making this a zero discharge facility.

LIVING MACHINE™ SCHEMATIC DIAGRAM FOR ETHEL M CHOCOLATES



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Closed aerobic reactors and operators checking the clarifier



The aerobic reactors, clarifiers and polishing filters are housed within an 8 foot high wall and under a retractable roof which automatically covers the system when it gets cold.



“Not only does the Living Machine clean the wastewater without using chemicals, it is also cheaper to build and cheaper to operate than conventional treatment plants. This system has been a real success story for Ethel M Chocolates.”

—Mike Seago, Ethel M

Take a free factory tour: Visit the Ethel M factory and see the Living Machine. The factory is open daily from 8:30 a.m. to 7:00 p.m., 7 days a week. For more information please call toll free 1-888-627-0990, email chocolatier@ethelm.com or visit their web site at www.ethelm.com

Living Machine™ Systems are ecologically engineered wastewater reclamation systems capable of reaching advanced wastewater treatment standards suitable for many levels of re-use. Our systems are ideal for many industrial, educational, institutional, commercial, residential, and community environments. In addition to producing clean water, a **Living Machine™** system can provide a practical and beautiful green space. Our services include sustainable design, planning, and development strategies for resorts, villages, subdivisions, educational and public institutions, and agricultural facilities. Our company is committed to a vision of healing and respecting the delicate balance of our ecosystems while maintaining life cycle feasibility. **Living Machines, Inc.**, is part of the DHARMA Group of Companies, which focuses on sustainable solutions for our planet.



125 La Posta Rd. – 8018 NDCBU
 TAOS, New Mexico 87571
 (505) 751-9481 Fax (505) 751-9483
info@livingmachines.com www.livingmachines.com

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Waste

Ethel M's Living Machine™ System treats up to 32,000 gallons per day of high-strength confectionery production wastewater. Living organisms, from the simplest single cell bacteria to complex lifeforms like fish, make up the Living Machine™ System and give it its name. The influent consists of water that has been used to wash the process area and equipment, along with water from the boilers and cooling towers. Following the Living Machine™ treatment process, the final product is near drinking water quality and can be reused for a variety of applications.



Holding/Display Pond water held for irrigation of cactus garden.



and remove suspended solids. Final effluent is stored in an attractive pond/wetland and, after ultraviolet treatment is used to irrigate one of the world's leading cactus gardens. Sludge is composted on-site by a reed bed and removed every five to ten years as a beneficial soil amendment.

Process

Wastewater is pumped from a grease trap into sealed aerobic reactors where microbial communities begin digesting the waste. A biofilter scrubs odors from exhaust gases at this stage of treatment. In the planted aerobic tanks, vegetation hosts organisms that further digest the waste while minimizing sludge generation. Final Polishing Filters further polish the water

Benefits

The zero discharge nature of the Living Machine™ System eliminates sewer surcharges and conserve water. The on-site biosolids treatment reduces costs associated with off-site sludge disposal. This Living Machine™ System is a totally biological system with no chemicals used in the treatment process. It is computer-controlled and relatively simple to operate. Ethel M Chocolates™ has added the Living Machine™ System to their well-established factory tour so it can be viewed seven days a week.



Open aerobic reactor.

Parameters	Influent	Design Effluent	Effluent
Biochemical Oxygen Demand (BOD), mg/l	1,270	10	6
Total Suspended solids (TSS), mg/l	309	10	5
Fats, Oils and Grease, mg/l	200	5	1