

# EVAPORATION TECHNOLOGY IN DIE-CASTING



# CUSTOMER



Carmagnola (TO), Italy

Years of activity	100
Industry	Mechanical
Production process	Aluminum die-casting for automotive
Wastewater	Oil emulsion with releasing agent

# CHALLENGE

## Customer's needs

Reduce the disposal costs and reuse the distillate.

## Goals to achieve

- To obtain a high distillate quality for the reuse
- To concentrate as much as possible to reduce disposal costs

# SOLUTION SUPPLIED

## DESCRIPTION OF THE SUPPLIED SOLUTION

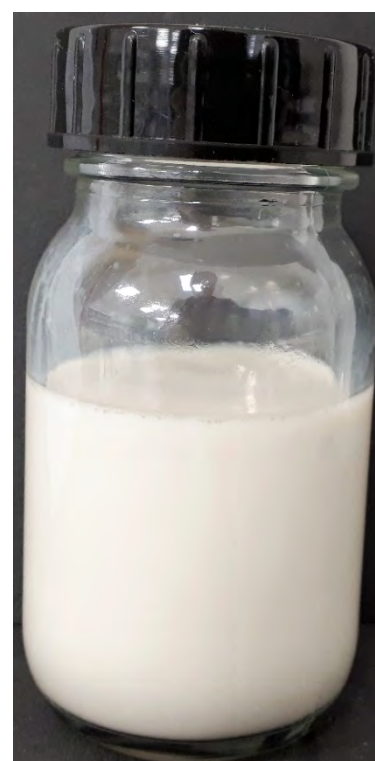
ECO 20.000 DPM2 is a 20.000 lt/day double effect evaporator with submerged heat exchangers. It works with thermal energy, so hot water (or steam) and cold water. High final oil concentrations are achievable. A cogeneration system was installed to feed the evaporator: in this way, OPEX are reduced close to zero.

% WATER REUSE 96%

CONCENTRATION FACTOR 25

ZLD? Yes

# ANALYSIS



INLET



DISTILLATE



CONCENTRATE

PARAMETERS	UNIT	WASTEWATER INLET	DISTILLATE	CONCENTRATE
pH		6	8,8	/
TS 105° C	%	1,05	/	> 25
Conductibility	μS/cm	4430	< 300	/
COD	mg/l	20500	< 1200	/

# CONCLUSIONS

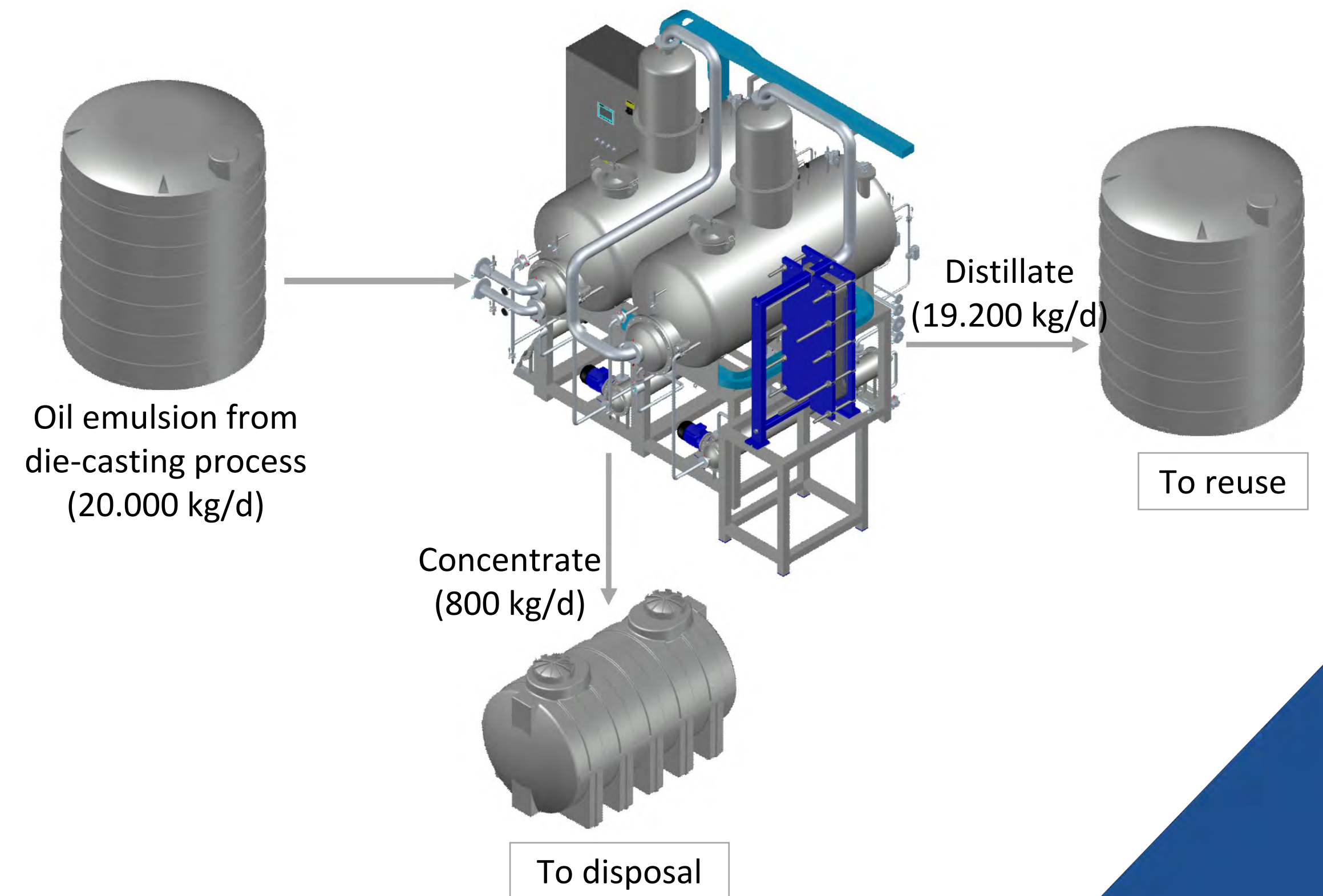
Thanks to our solution, the customer immediately had benefits in terms of disposal costs reduction: in fact, the payback period was less than 2 years, thanks also to the cogeneration engine, which drastically reduce the OPEX.

With the distillate the customer produces new emulsions for the process and thus, it occurs a drastic reduction in terms of fresh water used.

Maintenance on this unit is negligible: the customer cleans the unit just twice per year with a diluted chemical solution. This is enough to keep the evaporator efficiency constant, with particular reference to heat exchangers.

After few years the client decided to take an ECO 30.000 DPM3 (triple effect) for an increase in the volumes of wastewater produced. This is the best demonstration of the customer satisfaction.

# MASS BALANCE





The installed plant (on the left) and the cogeneration system that feeds it (on the right)



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