Oilseed Oil Yield: Expeller and Solvent Extraction

Oil recovered and meal produced from oilseed, its oil content, and the residual oil left in cake or meal, on a consistent moisture basis.

Method: Definitions and mass and energy balances: oil and oil-free solids balance (hulls assumed oil-free)

Input parameters

Unit system: SI

Parameter	Value	Unit
Seed processed	500.00	t/d
Oil in the seed	19.000	%
Residual oil in the meal or cake	0.80000	%
Hulls and losses removed before extraction	0	%

Calculated results

Parameter	Value	Unit
Oil recovered	91.734	t/d
Meal or cake	408.27	t/d
Oil recovery (share of oil in seed)	96.562	%
Oil yield on seed	18.347	%

Notes for this case

- Expellers leave 5–8 % oil in cake; solvent extraction brings meal below 1 %.

Formula and method

$$\dot{M}_m = \frac{\dot{M}(1-h_s) - \dot{M}o_s}{1-o_m}, \quad \dot{M}_o = \dot{M}o_s - \dot{M}_m o_m$$

Variables

$\dot{M}$	Seed processed	kg/s
o_s	Oil in the seed	-
o_m	Residual oil in the meal or cake	-
h_s	Hulls and losses removed before extraction	-
$\dot{M}_o$	Oil recovered	kg/s
$\dot{M}_m$	Meal or cake	kg/s
η	Oil recovery (share of oil in seed)	-
Y	Oil yield on seed	-

Method and standards

Oil and solids balance.

Assumptions and limits

- Consistent moisture basis; hulls oil-free.
- Hulls removed plus seed oil must be below 100 %. With no seed the recovery and yield are not shown.

References

- Definitions and mass and energy balances: oil and oil-free solids balance (hulls assumed oil-free)

Report details

Report reference	FCC-VYZE-FHJE (the same inputs always give the same reference)
Generated	17 November 2026, 19:50 UTC
Calculator	Oilseed Oil Yield: Expeller and Solvent Extraction
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Software release	FireCAD Calc, release of 17 November 2026
Release checks	2 reference cases of this calculator, computed independently, are checked on every release

Results are for engineering estimation. Verify critical designs against the referenced standards and your own data.

This calculator online

https://calc.firecad.com/chemical/textile-rice-oil/oilseed-extraction-yield

Open this case on calc.firecad.com →

Reopens the calculator with the inputs of this report.