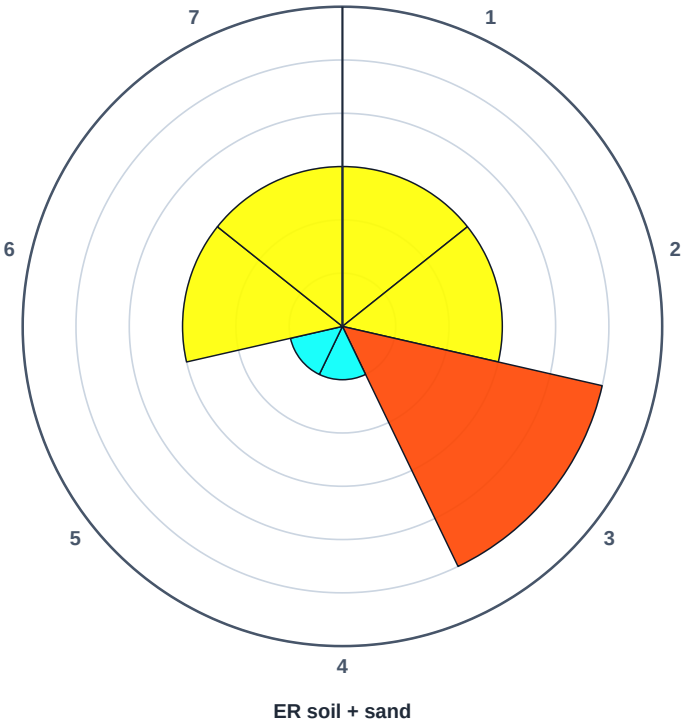


Ecotoxicology Analysis

During Remediation

Locality:	Ferrara, Italy, ER-site
Method:	Rhizodegradation (sunflower + bacteria 2)
Bioremediation methods:	During Bioremediation
Sample type:	soil
Collection date:	2025-10-29



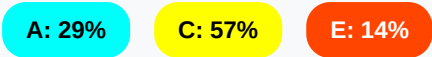
ORGANISMS

- 1 *A. fischeri* 15
- 2 *A. fischeri* 30
- 3 *Daphnids*
- 4 *Algae*
- 5 *Lettuce terrestrial*
- 6 *A. fischeri* kinetic 15
- 7 *A. fischeri* kinetic 30

CATEGORIES

- A Non-toxic
- B Low toxicity
- C Medium toxicity
- D High toxicity
- E Very high toxicity
- F Extreme toxicity

Category Distribution (% of organism readings) — most recent sampling: 29.10.2025



Resulting category (current): **E** Very high toxicity

Test Organisms by Type

Consumers: *Daphnids*
Producers: *Algae, Lettuce terrestrial*
Destruent: *A. fischeri 15, A. fischeri 30, A. fischeri kinetic 15, A. fischeri kinetic 30*

Most sensitive organism: *Daphnids*

Critical ecotoxicological response recommended

Samples fall into category E. At 10% sample concentration inhibition is 51–100%, or EC50 is 1–10%. A severe toxic effect is present.

- It is recommended to implement immediate measures and conduct intensive monitoring.

Ecotoxicity Assessment Criteria

CATEGORY	DESCRIPTION	CRITERIA (ACTIVE RULES)
A	Non-toxic	Undiluted sample: inhibition / stimulation -19.99% – 19.99%
B	Low toxicity	Undiluted sample: stimulation 20% – 50%, or Undiluted sample: inhibition 20% – 50%
C	Medium toxicity	Undiluted sample: stimulation 51% – 90%, or Undiluted sample: inhibition 51% – 90%
D	High toxicity	At 10% sample concentration: inhibition / stimulation -50.99% – 50.99%, or EC50 10% – 50%
E	Very high toxicity	At 10% sample concentration: inhibition 51% – 100%, or EC50 1% – 10%
F	Extreme toxicity	At 1% sample concentration: inhibition 10.01% – 100%, or EC50 0% – 0.99%

Notes: A sample's category is the worst (most toxic) grade reached by any single test organism. Determination of EC50 takes precedence over the inhibition value. In a luminescence bacterial test, an undiluted sample corresponds to a sample concentration of 500 mL/L.

Chemical Risk Assessment

During Remediation

Locality:	Ferrara, Italy, ER-site
Method:	Rhizodegradation (sunflower + bacteria 2)
Bioremediation methods:	During Bioremediation
Sample type:	soil
Collection date:	2025-10-29

No chemistry data recorded for this phase.

Supportive Methods

During Remediation

Locality: Ferrara, Italy, ER-site
Method: Rhizodegradation (sunflower + bacteria 2)
Bioremediation methods: During Bioremediation

Per-sample evaluation

Sample	Type	Diversity — Shannon (H')	Diversity — Simpson (1-D)	Nitrification	Respiration	Conformity
ER soil + sand	Soil	— expected: Moderate or gradually increasing	— expected: Low to moderate		QR 0.16 Acceptable — QR ≤ 0.5 Conforming	Conforming

Diversity (Shannon / Simpson): read as a trend across the before / during / after phases (rising = recovery), compared with the expected level per phase. **Respiration:** QR ≤ 0.5 acceptable; above that the AHB count is checked (≥ 1000 CFU/g = not suitable, below = not suitable without microbial augmentation). **Nitrification:** inhibition / stimulation within ±20%.