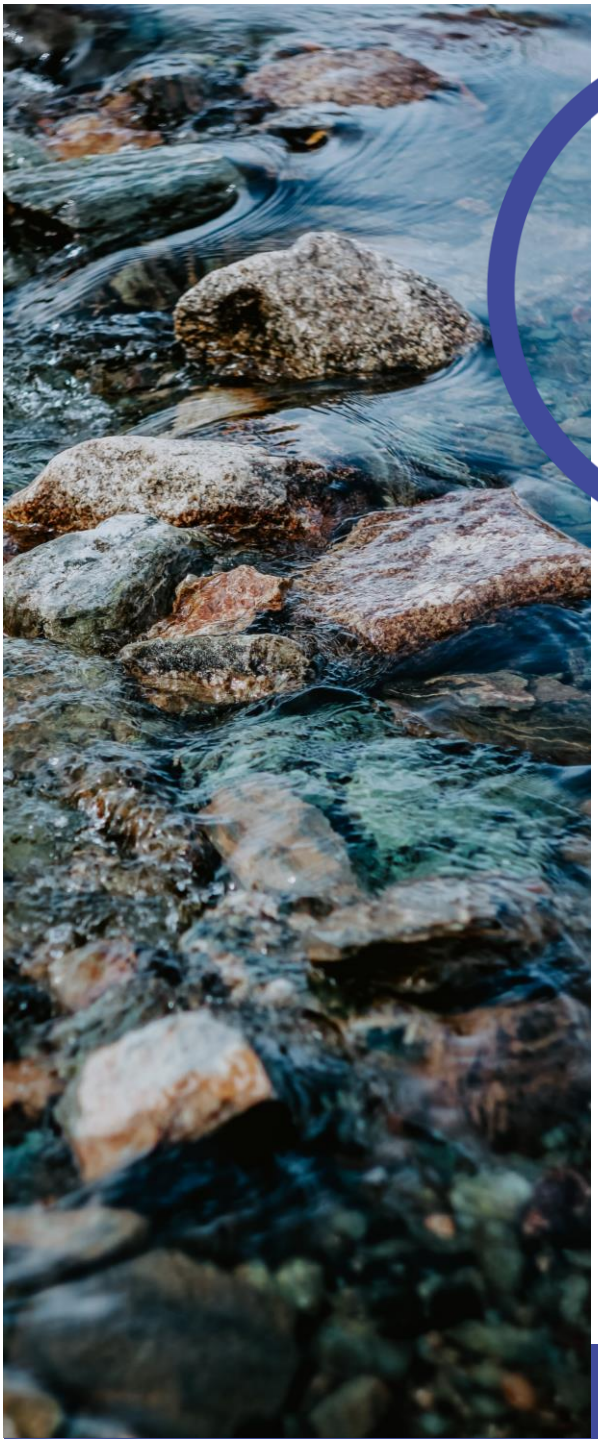


Episode 2

Biodegradability Q&A

OECD 301 F

Our first recommended biodegradability test, Why ?

Are you struggling with biodegradability ? As scientists, Scanae designed this Q&A as a tool to share our knowledge and make biodegradability accessible to all of you. Send your question to participate in this Biodegradability Q&A project.

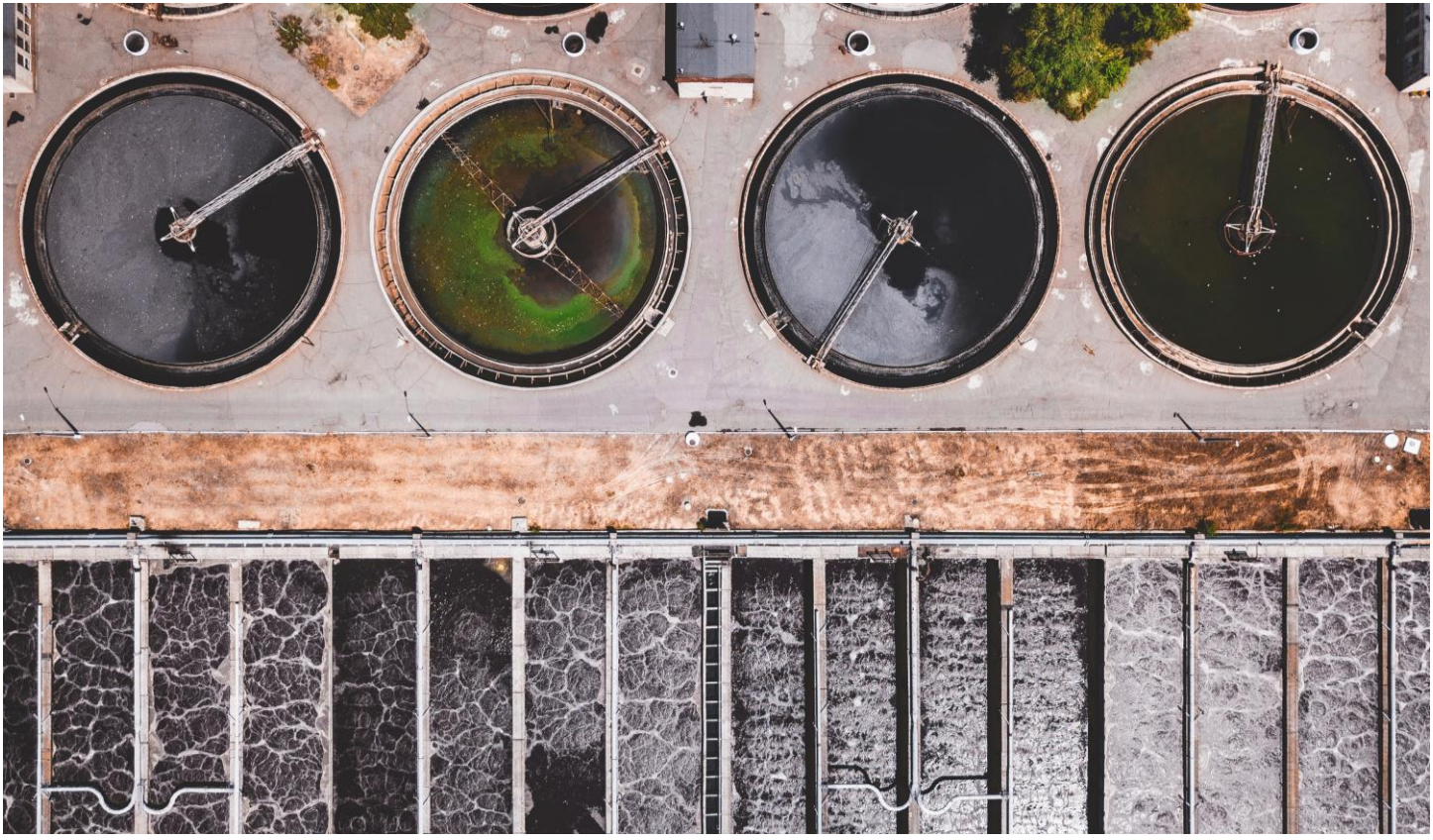
How to participate ? Send us an email

Follow us to receive more information on biodegradability.

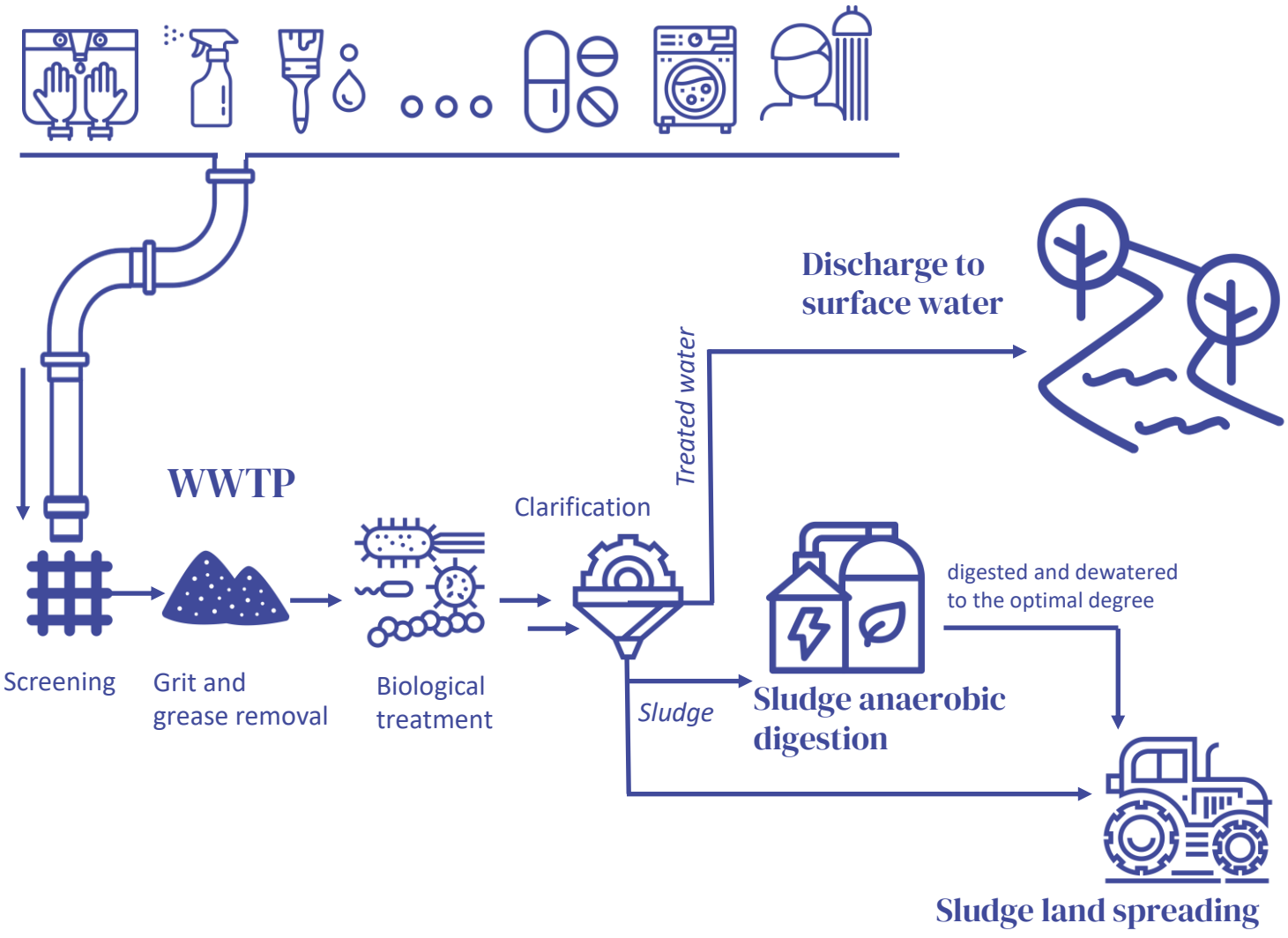
What is wastewater ?

It is used water originating from domestic, industrial, medical and commercial activities. Used water becomes wastewater upon the change of its quality, composition and/or temperature.

Wastewater treatment is the process of converting wastewater into water that can be discharged back into the environment.



How do the wastewater treatment plants (WWTPs) work?



Episode #1:
Ready biodegradability tests ?

These are stringent screening tests, carried out under aerobic conditions. A positive result in a ready biodegradability test may be taken as an indicator of rapid and ultimate degradation in most environments.

End Point : DOC, CO_2, O_2

Substance Conc. : High range in form 2 to 100 mg/l

Standardised test duration : 28d

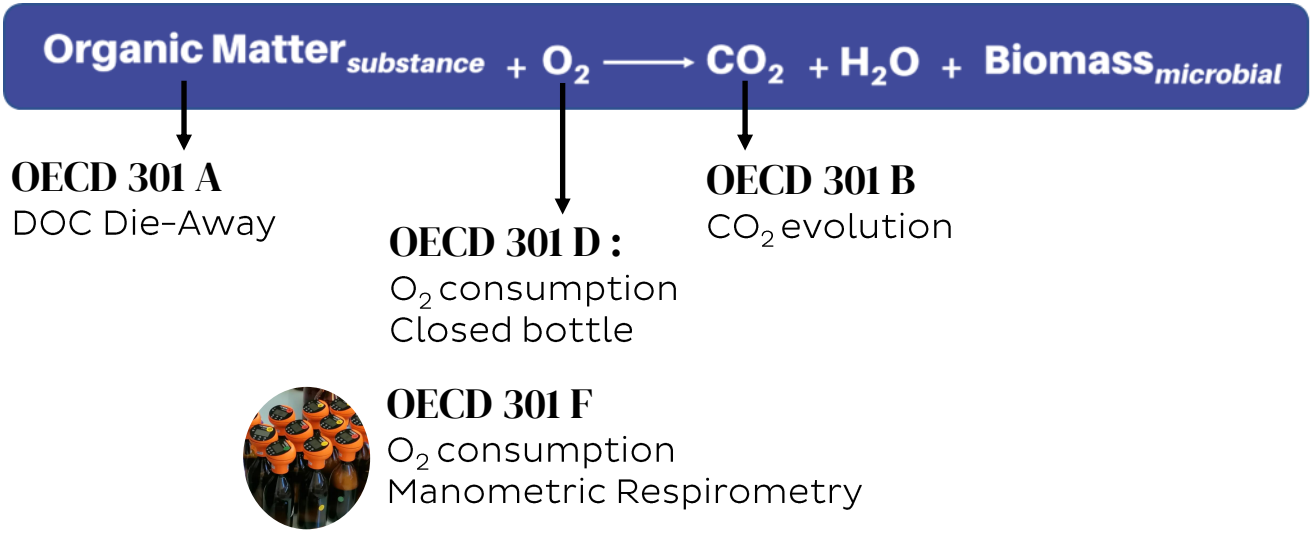
Inoculum : WWTP effluent
(Domestic wastewater, activated sludge or secondary effluent)
Without prior substance adaptation
At a low range concentration

Here access to the whole first Q&A Episode

OECD 301 A, B....
What does the letter mean?

Biodegradation is measured by non-specific parameters such as:

- dissolved organic carbon (DOC) removal > OECD 301 A,
- biochemical oxygen demand (BOD) > OECD 301 F – 301 D
- CO_2 production > OECD 301 B



OECD 301 C : O_2 / DOC

OECD 301 E : Modified OECD screening

Still have a question? Please contact us.

Principle & main characteristics of ready biodegradation tests?

The principle of standard ready biodegradability tests is the incubation of the test and reference substances as the only organic carbon source with an inoculated mineral medium in the dark or diffuse light at 22 ± 2°C for 28 days. The activity of the inoculum alone is considered in parallel blank control flasks.

		Endpoint	Appropriate for substances			Test Conc.	Inoculum
			low soluble	volatile	adsorbable	mg/L	10^4 cells/L
OECD 301 A	DOC Die-Away	DOC	-	-	+/-	10 - 40 DOC	1000 - 10000
OECD 301 B	CO2 Evolution	CO_2	+	-	+	10-20 TOC	1000 - 10000
OECD 301 C	MITI (I)	O_2/DOC	+	+/-	+	100	1000 - 10000
OECD 301 D	Closed Bottle	O_2	+/-	+	+	02-oct	1 - 100
OECD 301 E	Modified OECD Screening	DOC	-	-	+/-	10 - 40 DOC	10
OECD 301 F	Manometric Respirometry	O_2	+	+/-	+	50 - 100 ThOD	1000 - 10000

The different test methods have their limits regarding the applicability to test substances and differ from one another in their test concentration and inoculum density and the biodegradation potential

Not sure which test is the best for your project, please contact us.

OECD301F : our first recommended test

A stringent screening method

Indicator of rapid and ultimate degradation in most environments.
Unequivocal positive results

A reference analysis by regulatory institutions, in Europe and abroad

Worldwide acceptance and appreciation of your tests

High applicability

Appropriate method for the analysis of highly soluble, poorly soluble, insoluble, volatile, involatile, and/or adsorbing substances

A reliable method

The OECD 301F experimental set-up reinforces the reproducibility of the results.

SO WHAT'S NEXT

OECD 311

What is the difference between aerobic and anaerobic biodegradation ?

Episode 3 – 16/12/2022

scanae
Expert lab in biodegradability

Want to know more ?

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