DIPARTIMENTO DI INGEGNERIA INDUSTRIALE

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Università degli Studi di Padova – Dipartimento di Ingegneria Industriale

Corso di Laurea in Ingegneria Chimica e dei Materiali.

Relazione per la prova finale

« *Valutazione della chimica dell'acqua per il circuito della camera da vuoto del Divertor Tokamak Test: un reattore di ricerca a fusione nucleare* »

Tutor universitario: Prof. Piergiorgio Sonato

Laureando: Ivan De Fazio

Padova, 14/09/2022

DIPARTIMENTO
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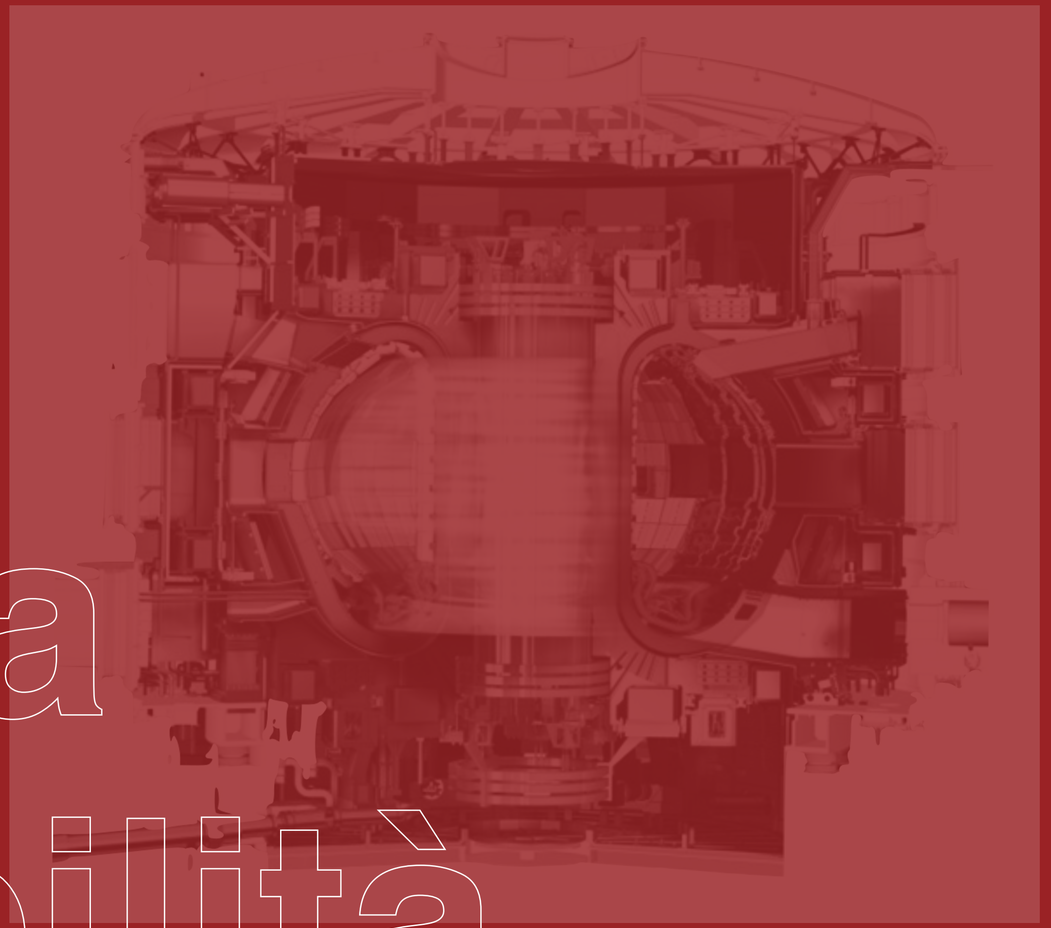
INDUSTRIALE

Il DTT

Chimica dell'acqua

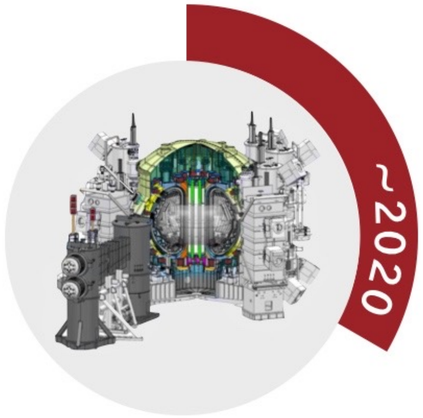
Compatibilità



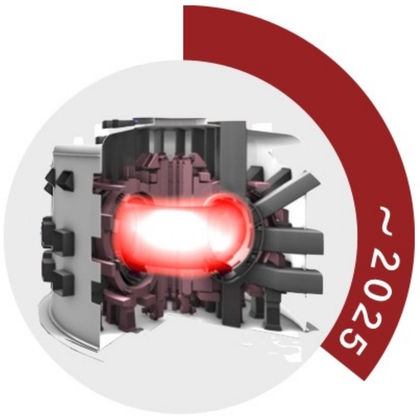
Settembre 2022

Presentazione

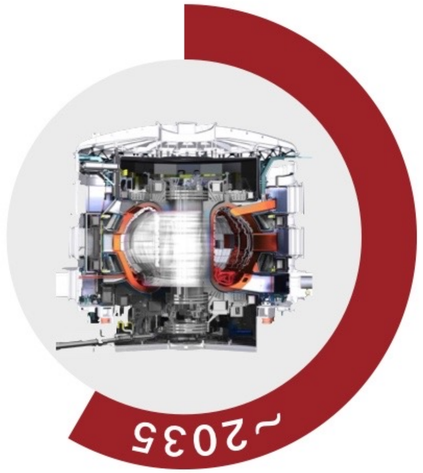
Corso di Laurea in Ingegneria Chimica e dei Materiali.



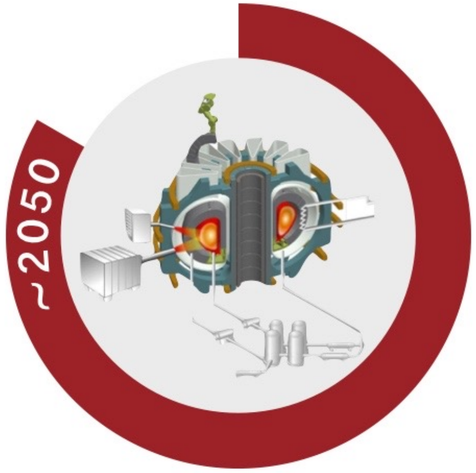
JT-60SA



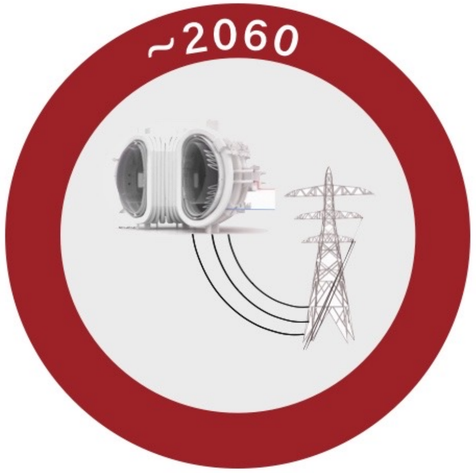
DTT



ITER

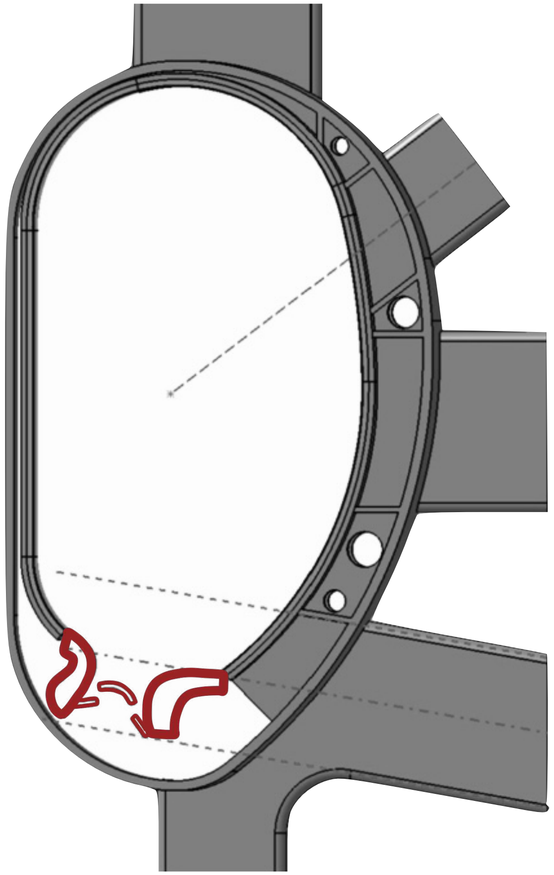


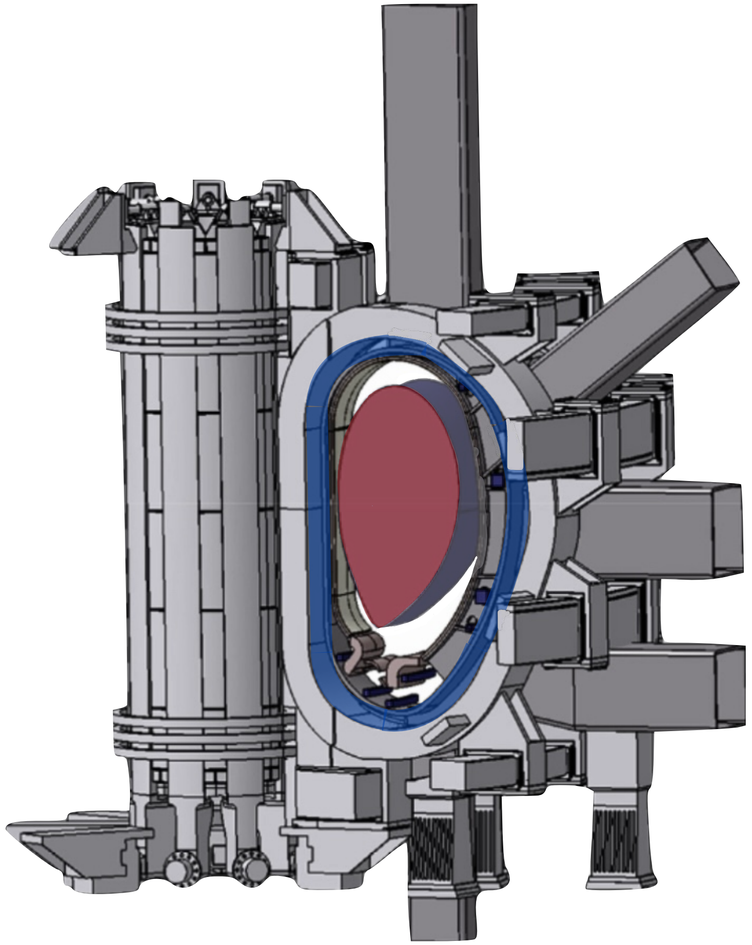
DEMO



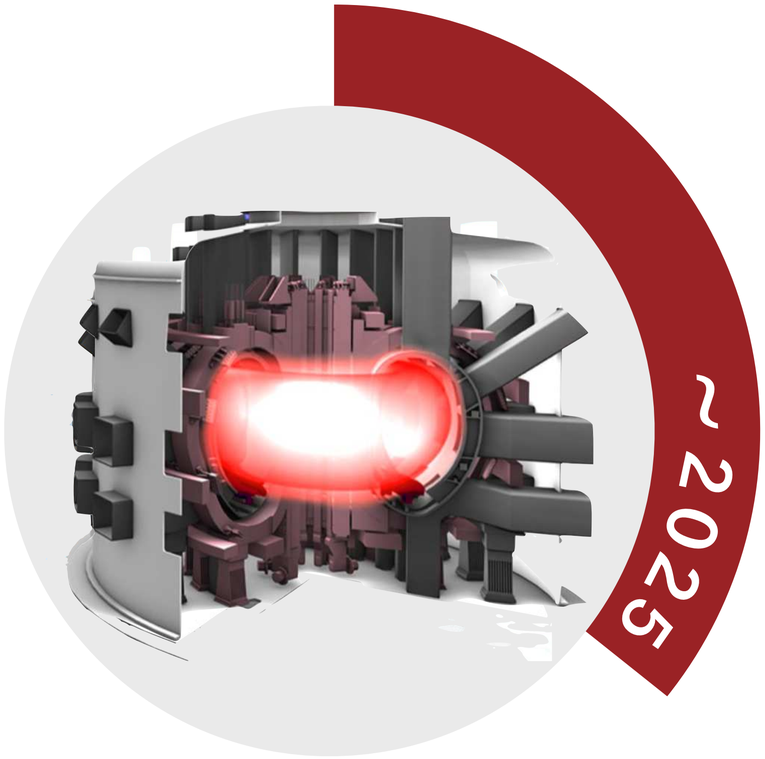
RETE

Presentazione Settembre 2022



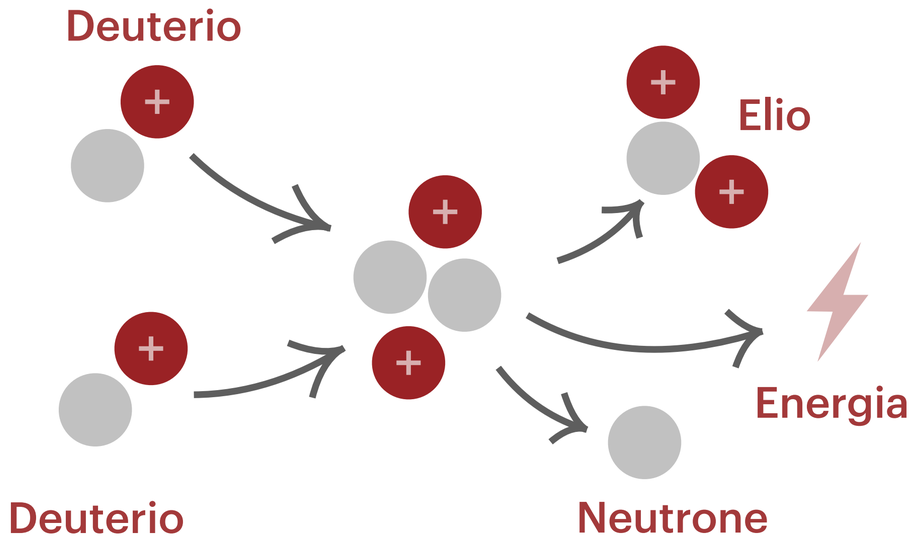


il DTT



ENEA, Frascati

Presentazione Settembre 2022



Settembre 2022

Presentazione

$$ {}^{2}_{1}\mathrm{H} + {}^{2}_{1}\mathrm{H} \rightarrow {}^{3}_{2}\mathrm{He} + {}^{1}_{0}\mathrm{n} + 3.27\ \mathrm{MeV} \qquad (1) $$

$$ {}^{2}_{1}\mathrm{H} + {}^{2}_{1}\mathrm{H} \rightarrow {}^{3}_{1}\mathrm{H} + {}^{1}_{1}\mathrm{H} + 4.04\ \mathrm{MeV} \qquad (2) $$

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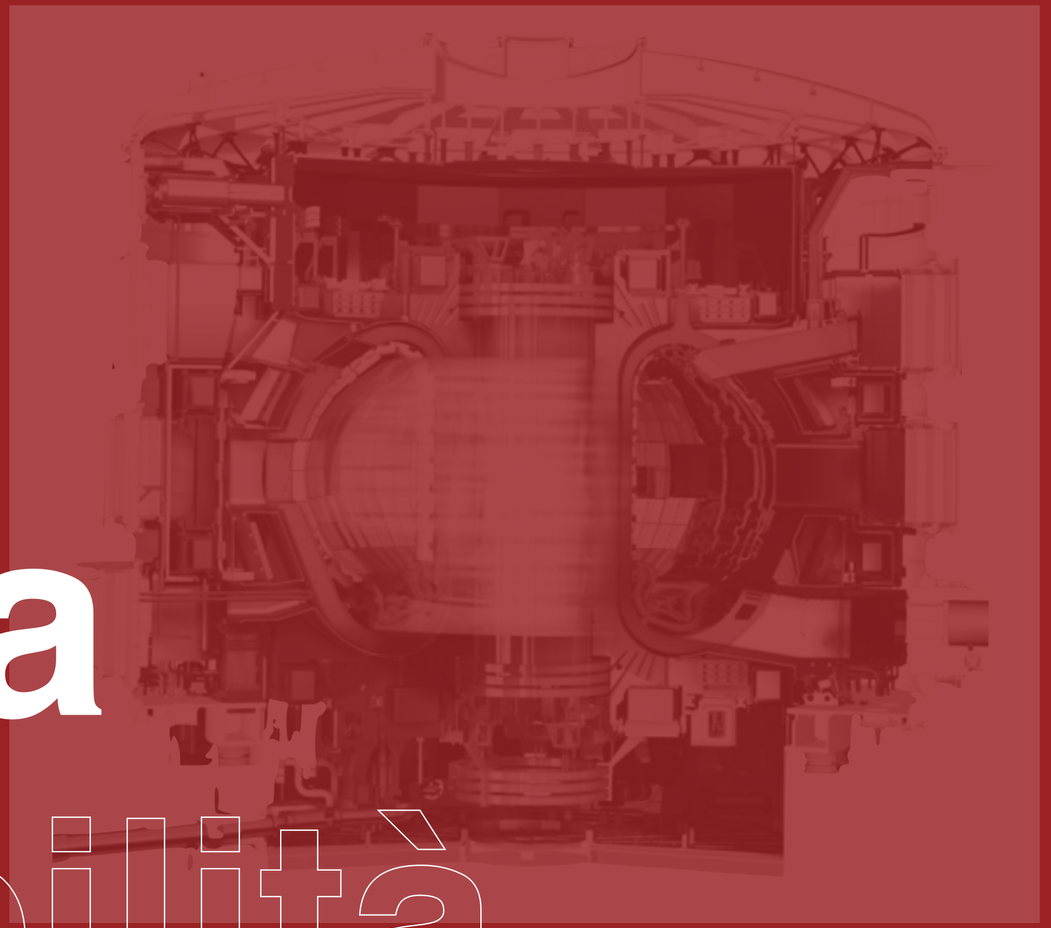


Settembre 2022

Presentazione

Corso di Laurea in Ingegneria Chimica e dei Materiali.

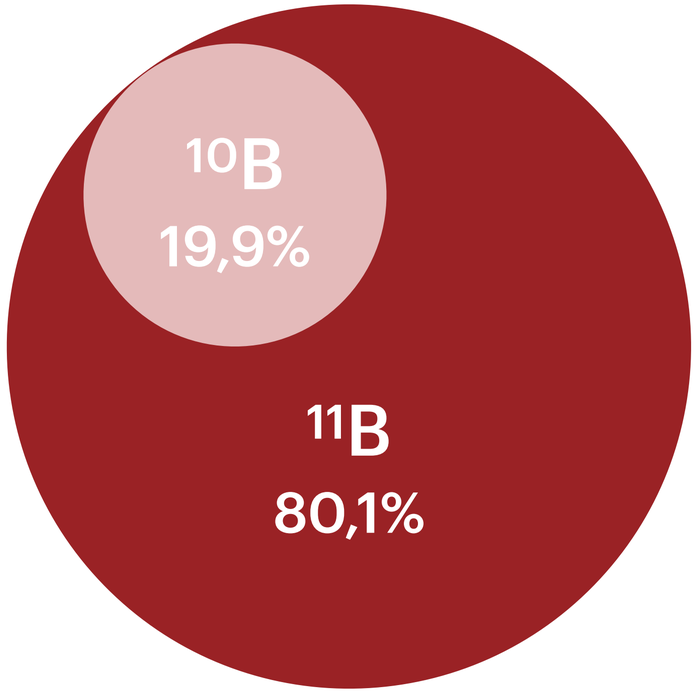
B

- Isotopi
- Cattura neutronica
- 95% di ^{10}B (4.58 w% H_3BO_3)
- Efficienza aumentata

POTHY

CEA

(*Commissariat à l'Énergie Atomique*)



Concentrazioni

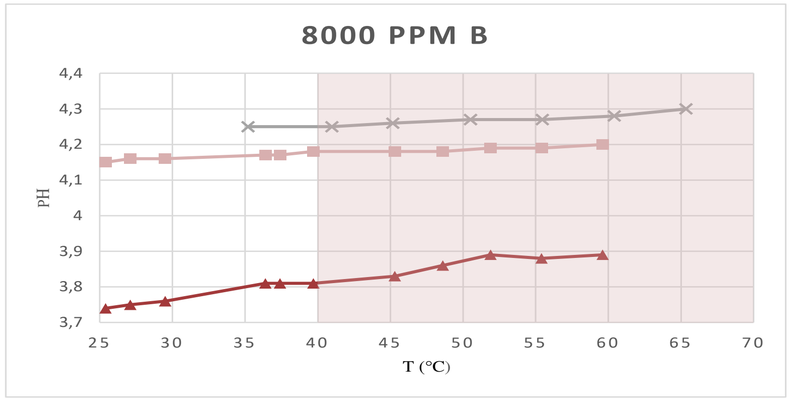
8’000
p.p.m.

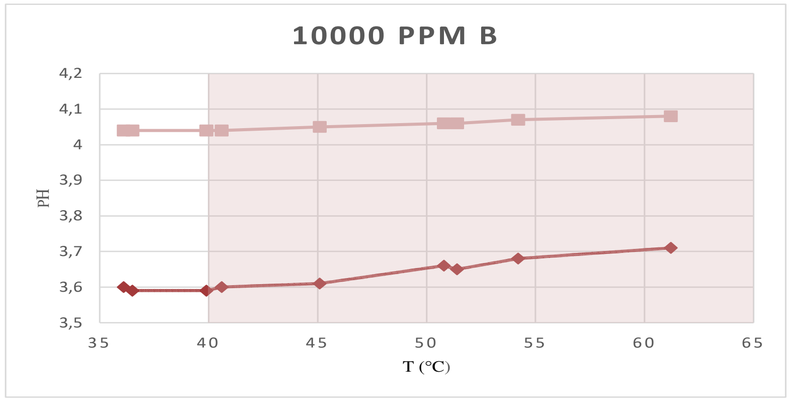
DTT

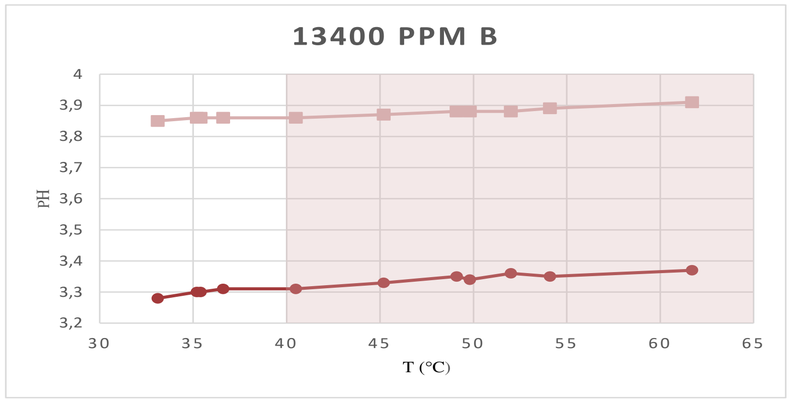
10’000
p.p.m.

13’400
p.p.m.

JT-60SA







- pH letteratura
- pH POTHY
- pH experimental

DISCREPANZE

↓

Modelli

Fissione

Condizioni operative

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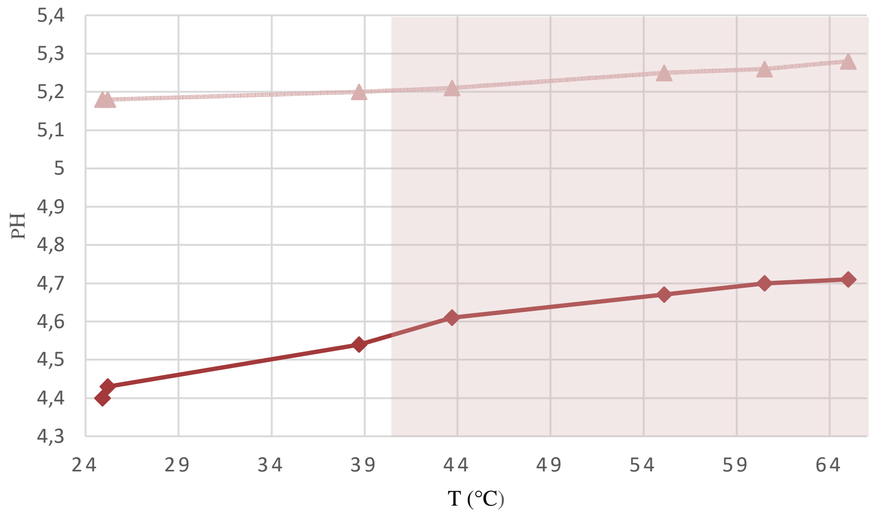
LITIO

8000 ppm (B), **5.7 ppm** (Li)

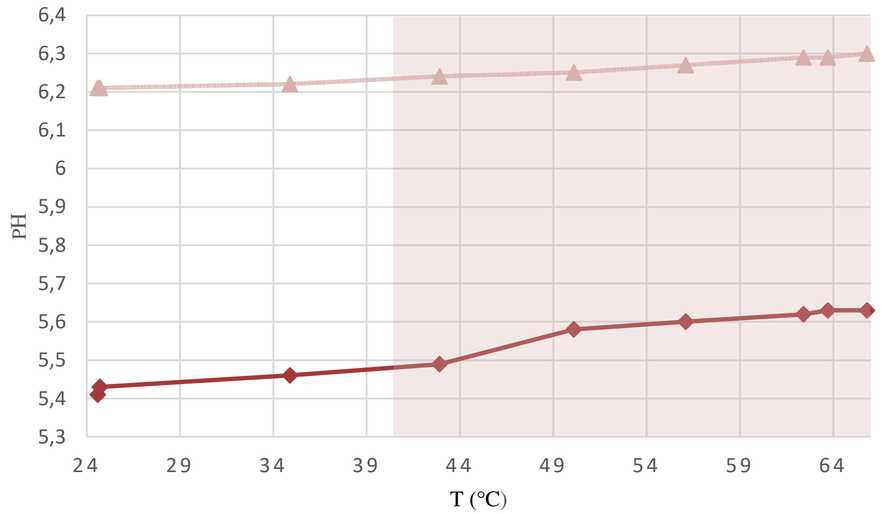


— pH experimental

— pH POTHY

- Li sotto forma di LiOH
- POTHY → ~0.6

8000 ppm (B), **57 ppm** (Li)



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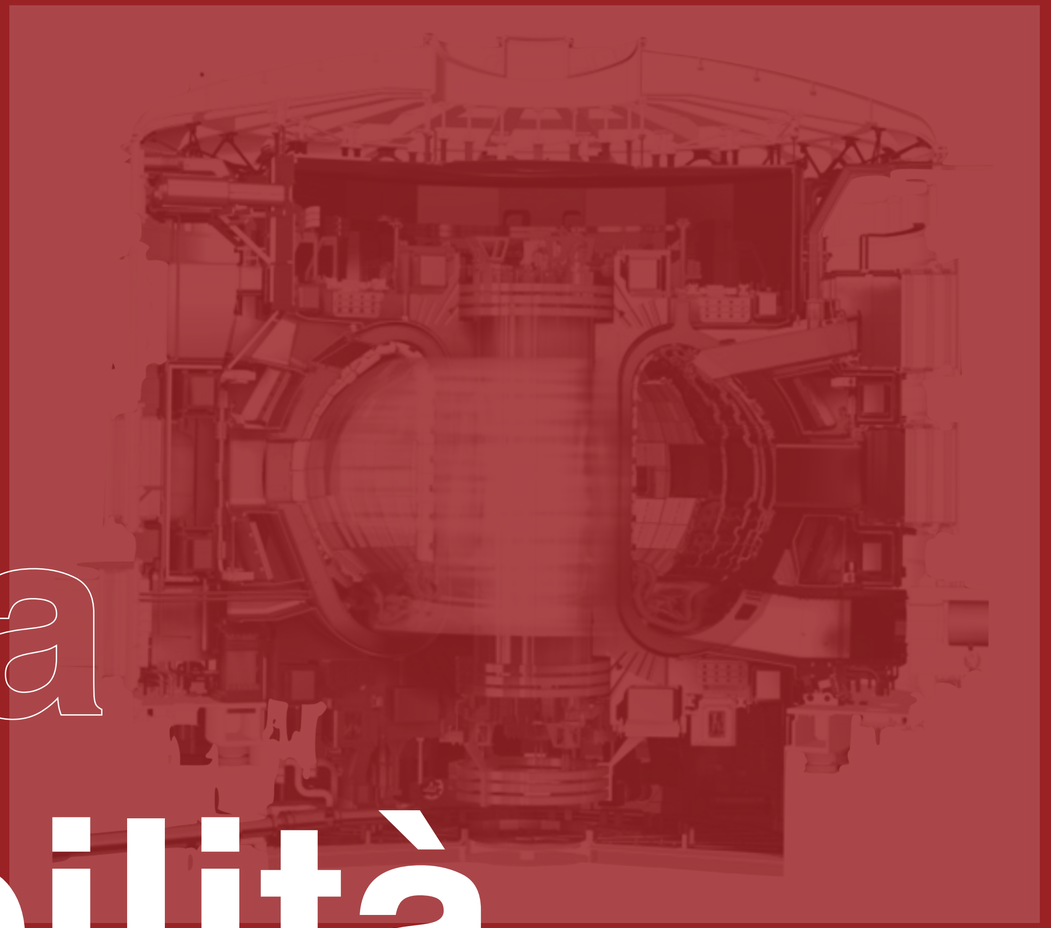

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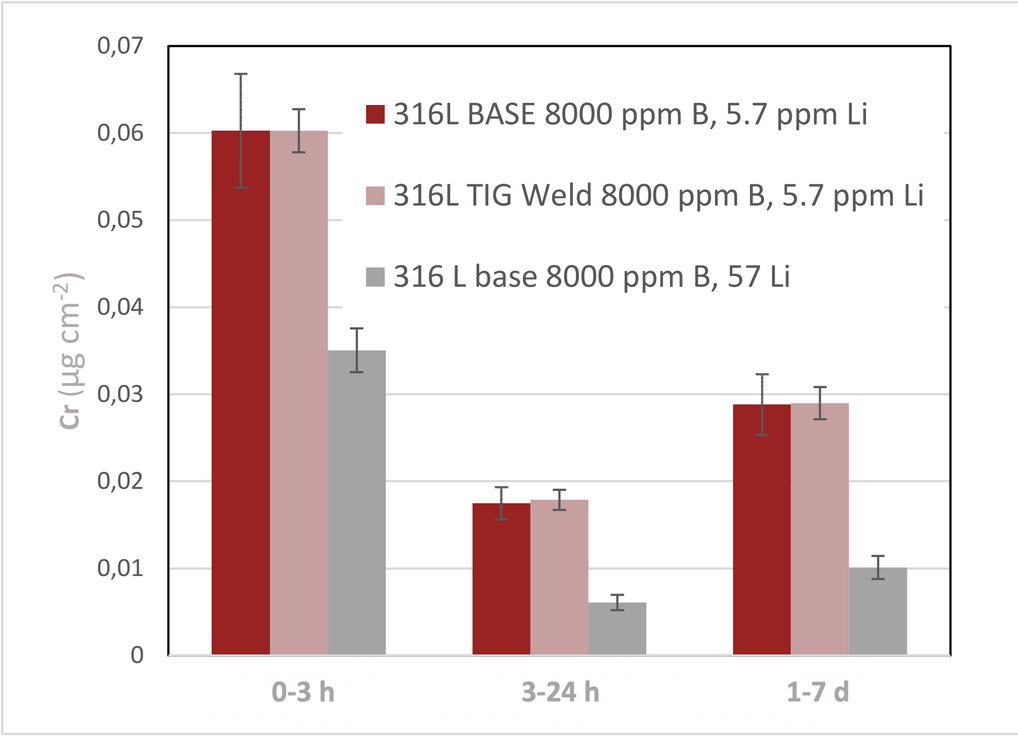

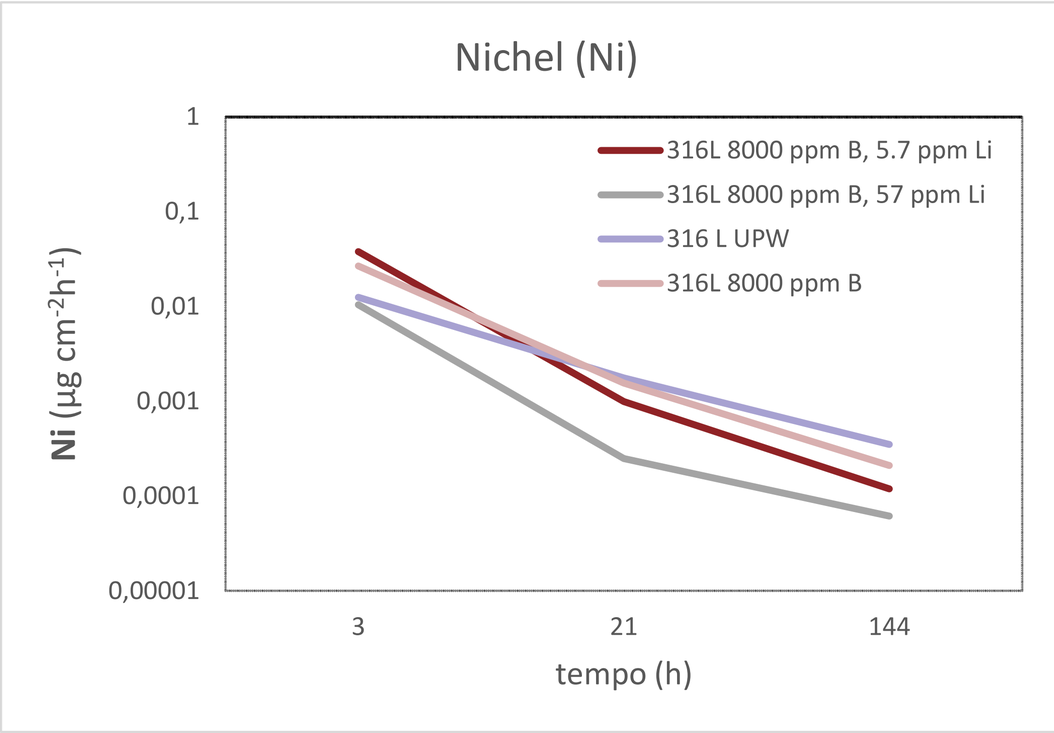

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Presentazione

Grazie per l'attenzione