

OSSIDAZIONE SELETTIVA DEL BENZENE A FENOLO MEDIANTE SISTEMI FOTOCATALITICI ATTIVATI DA LUCE VISIBILE DISPERSI IN UNA MATRICE POLIMERICA

A. Mancuso¹, O. Sacco^{1,2}, V. Vaiano¹, V. Venditto^{1,2}

¹Università di Salerno

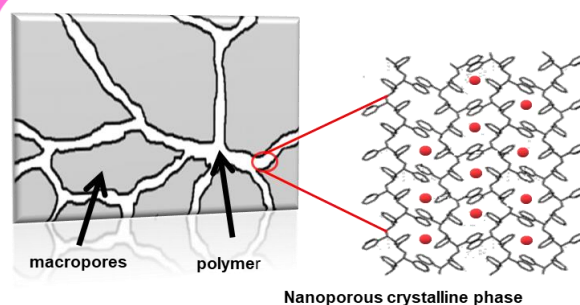
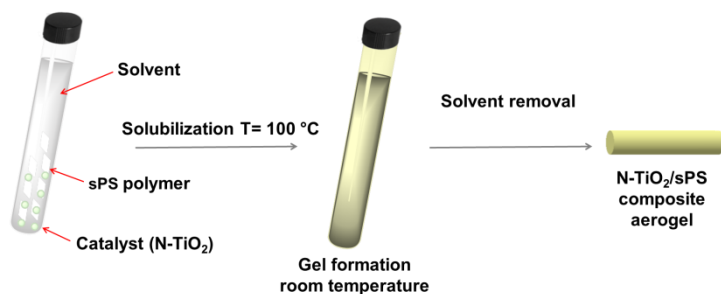
²Consorzio INSTM



**Sostenibilità
in Lombardia**

**VERSO IL 3° FORUM
19-22 OTTOBRE 2022**

Preparazione del composito



Set-up sperimentale



Vreactor	35 mL
C _{C₆H₆}	25.6 mmol/L
V _{C₂H₅N}	2.3 mL
m _{N-TiO₂/sPS}	3 g/L
V _{H₂O₂}	2.8 mL

$$\text{benzene conversion } (Bz_{conv}) = \left(1 - \frac{C}{C_0}\right) \times 100$$

$$\text{yield to phenol } (Y_P) = \left(\frac{S}{Q_0}\right) \times 100$$

$$\text{selectivity to phenol } (S_P) = \left(\frac{S}{S_{TOT} + Deg}\right) \times 100$$

C₀ = benzene concentration after the dark period (mmol/L);
 C = benzene concentration at the generic irradiation time (mmol/L);
 Q₀ = moles of benzene in solution after the dark period (mmol);
 P = reaction product (phenol);
 S_{TOT} = total moles of the reaction products in liquid phase (mmol);
 S = moles of phenol in liquid phase (mmol);
 Deg = ring-opened products and CO₂ = (benzene reacted - S_{TOT})

Test fotocatalitici

Catalyst	pH	Bz _{conv}	Y _P	S _P
N-TiO ₂	7	62%	n.d	n.d
N-TiO ₂ /sPS	7	72%	6.5%	9%
N-TiO ₂ /sPS	2	58%	57%	98%

