



# Title: Evaluation of the photocatalytic performance of ZnO nanostructures obtained by different synthesis methods

Authors: CANO-LÓPEZ, Axel, MELO-MÁXIMO, Lizbeth, MELO-MÁXIMO, Dulce Viridiana and GONZÁLEZ-REYES, Leonardo

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Park Pedregal Business. 3580-  
Adolfo Ruiz Cortines Boulevard –  
CP.01900. San Jerónimo Aculco-  
Álvaro Obregón, Mexico City  
Skype: MARVID-México S.C.  
Phone: +52 1 55 6159 2296  
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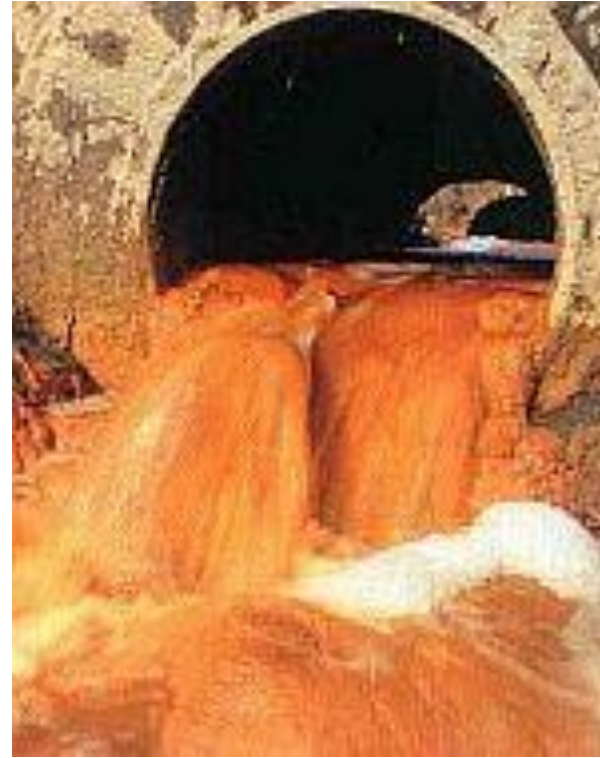
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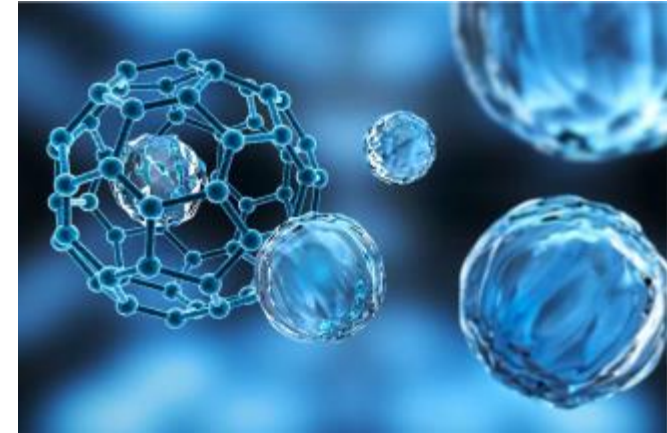
# Introducción



Industria textil



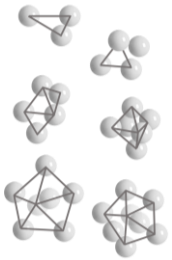
Naranja de metilo



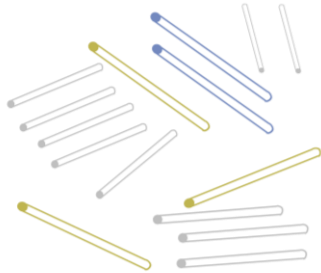
Nanotecnología

# Introducción

## Nanoestructuras



Clusters  
0D



Nanotubos, fibras y alambres  
1D



Películas delgadas  
2D



Policristales  
3D

## Síntesis de nanoestructuras

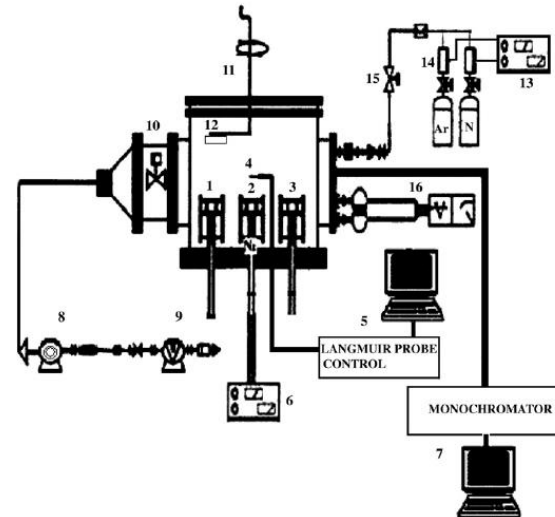


Métodos químicos



Co-precipitación

Hidrotermal

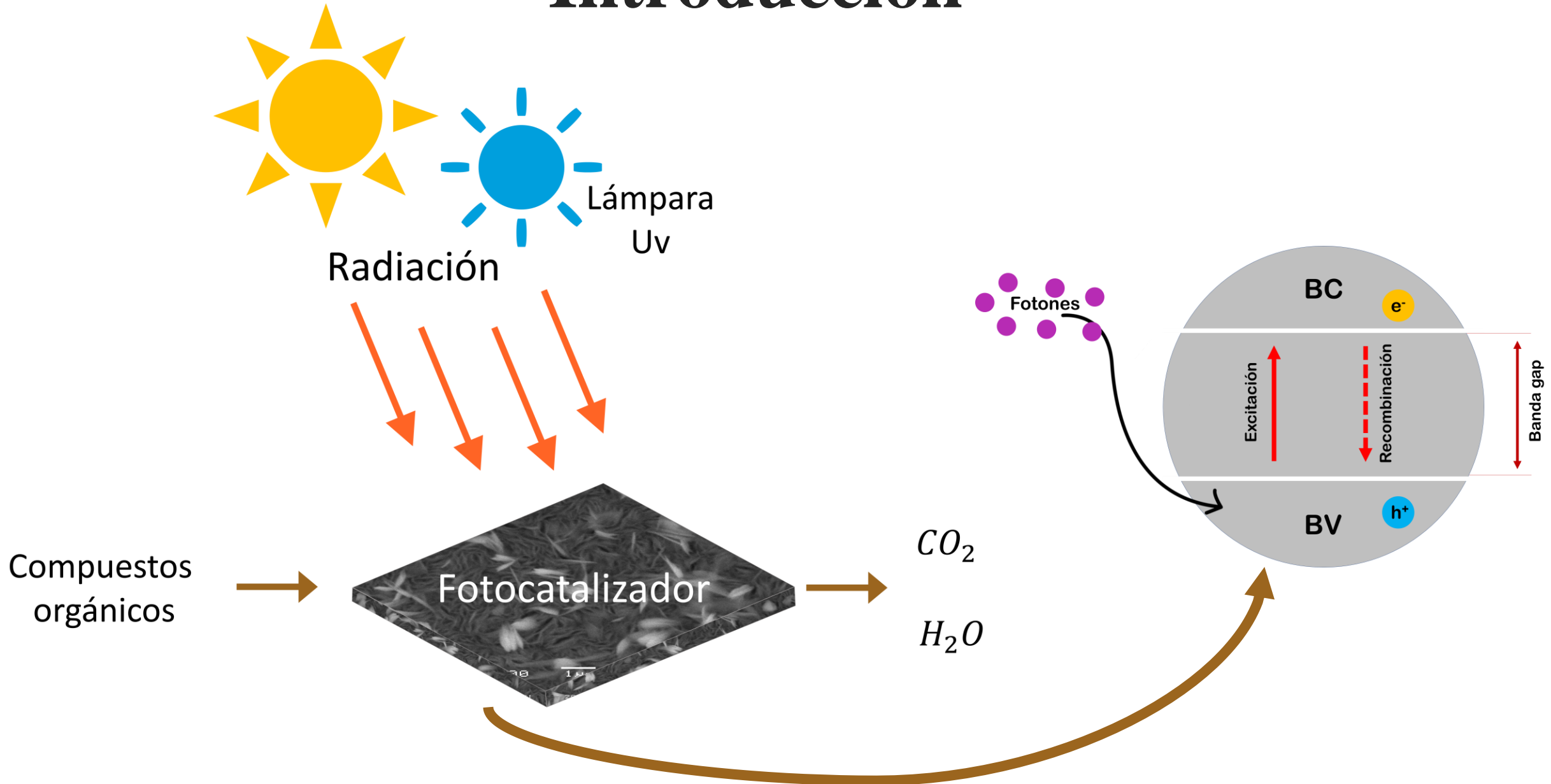


Métodos físicos

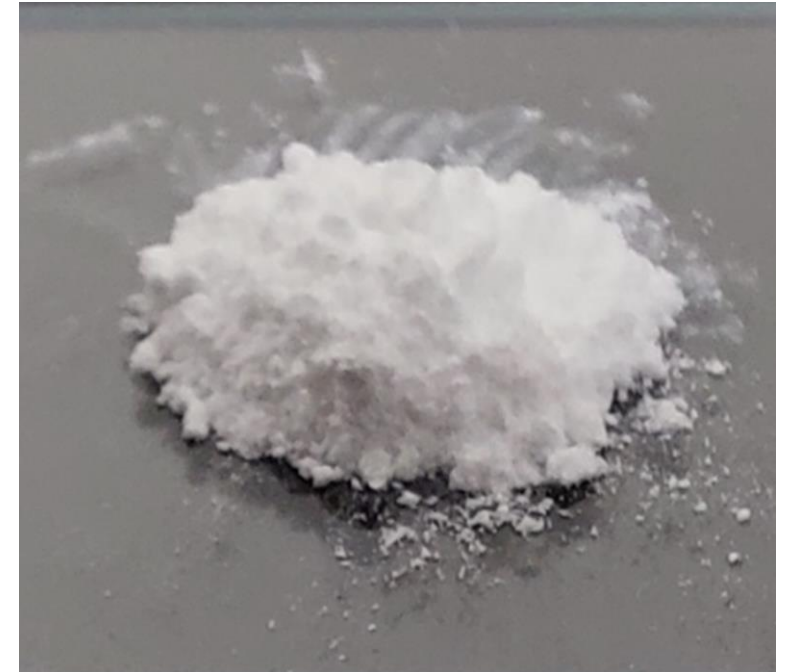
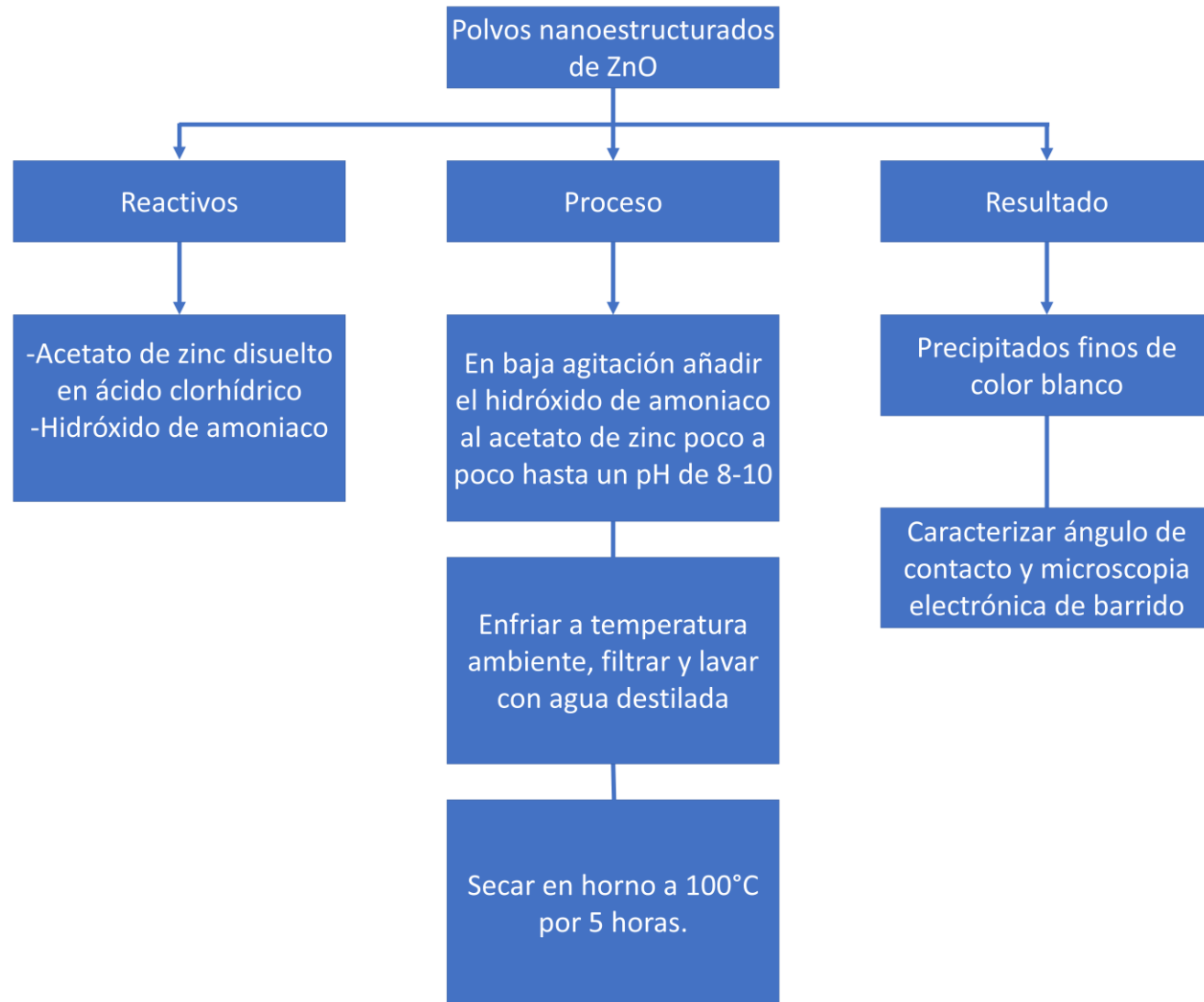


Deposición física de vapor  
por magnetrón reactivo

# Introducción

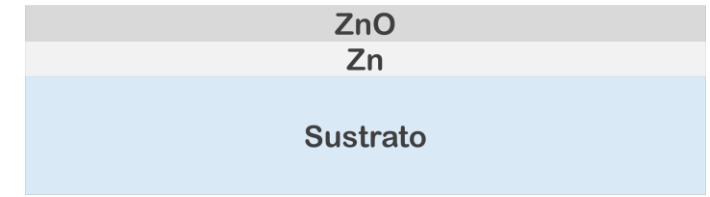
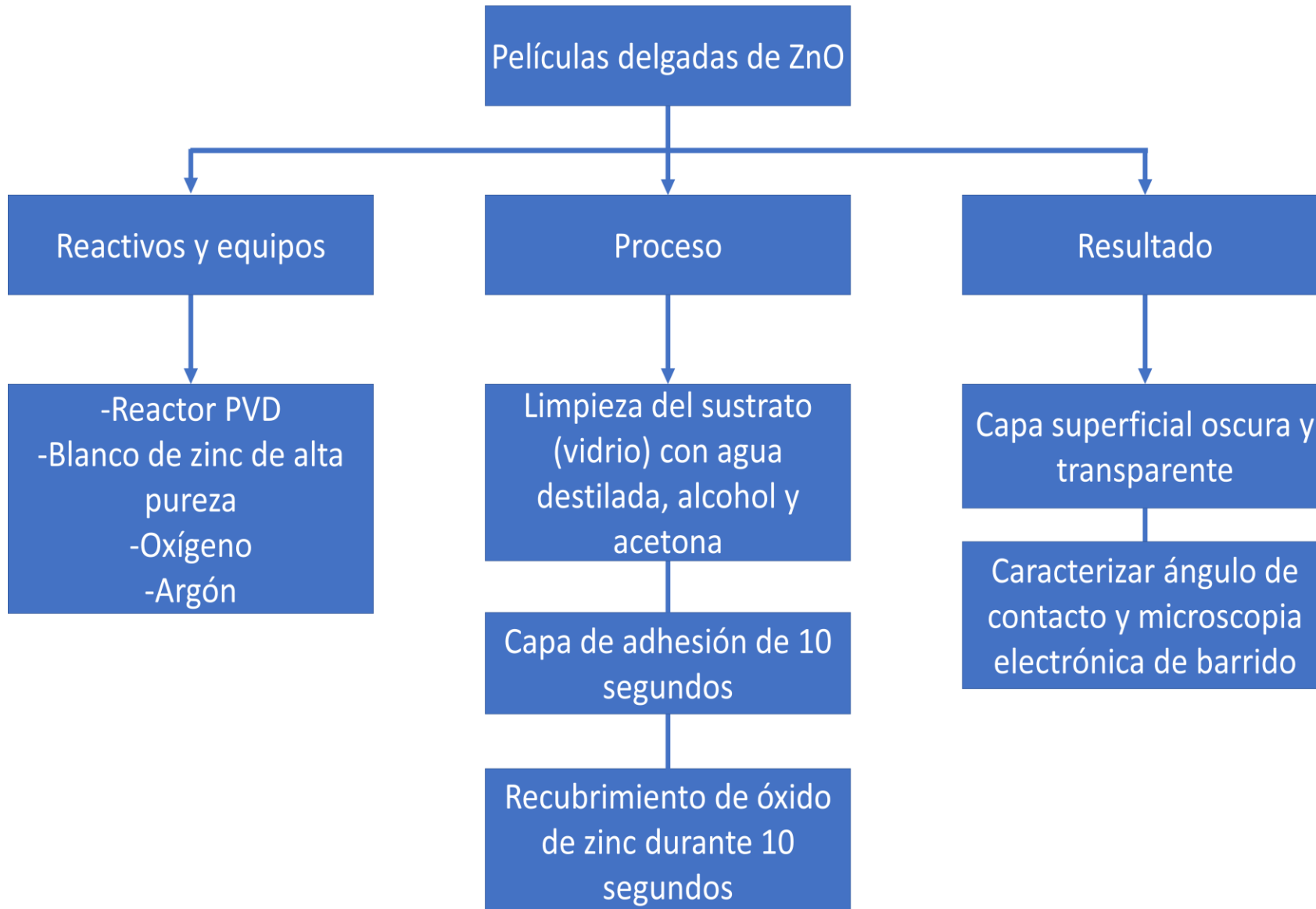


# Metodología

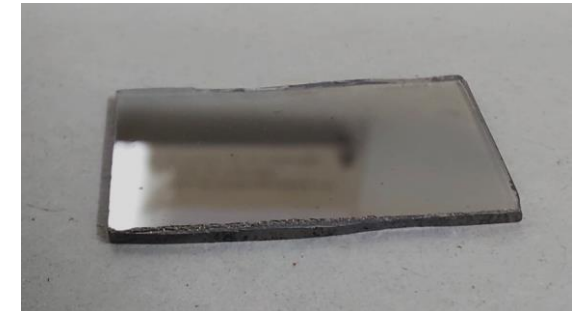


Polvos nanoestructurados de ZnO

# Metodología

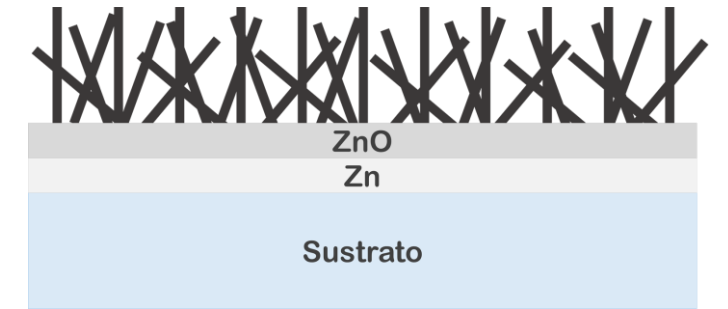
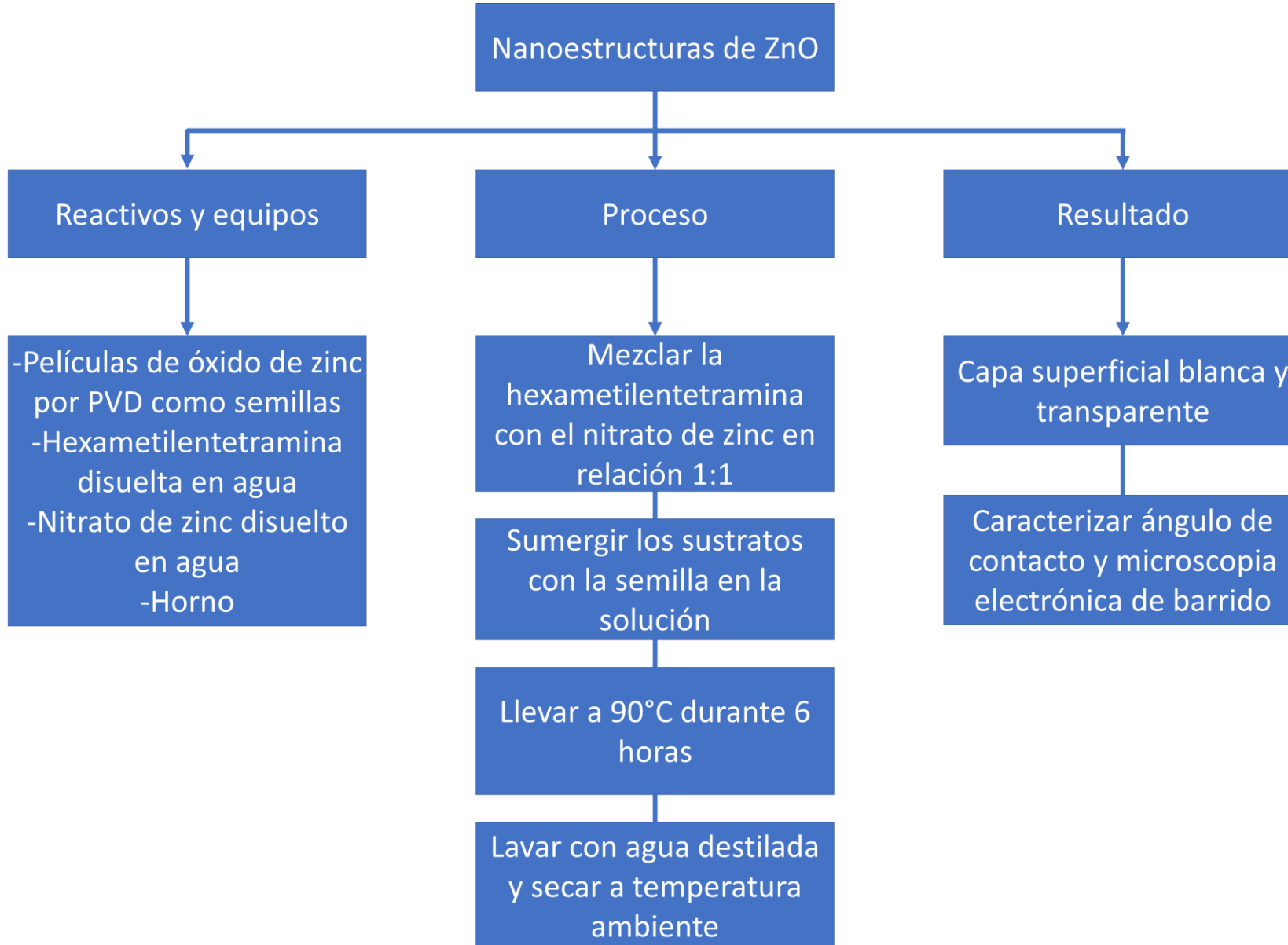


Arquitectura de la película delgada



Película delgada obtenida por PVD

# Metodología

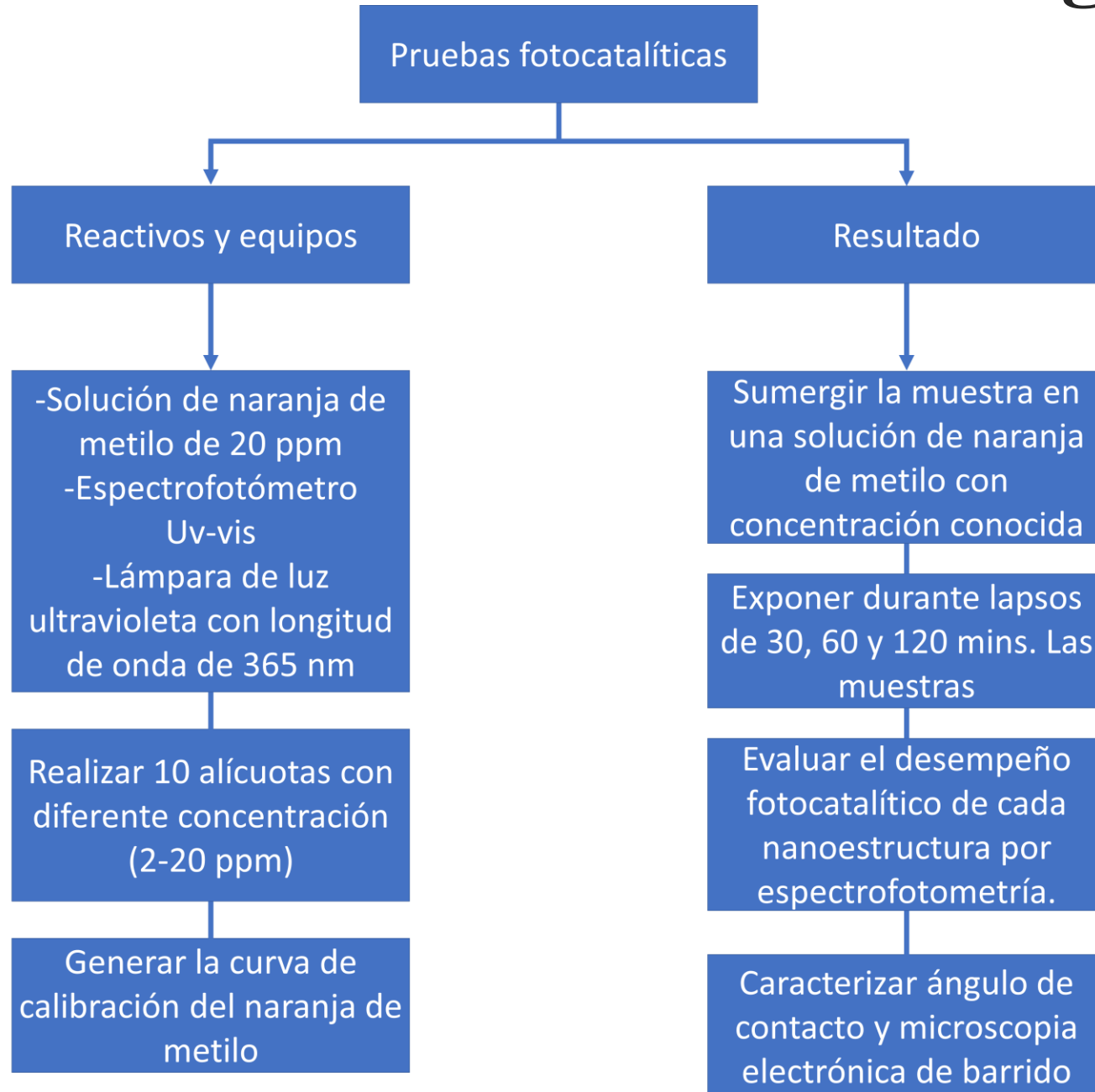


Arquitectura de los nanocables ZnO



Nanocables de ZnO

# Metodología



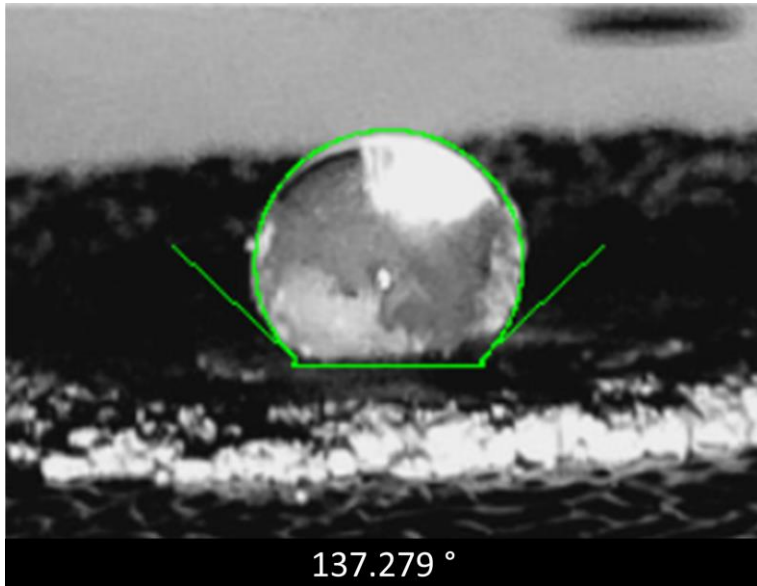
Alícuotas diferentes concentraciones



Pruebas de fotocatalisis

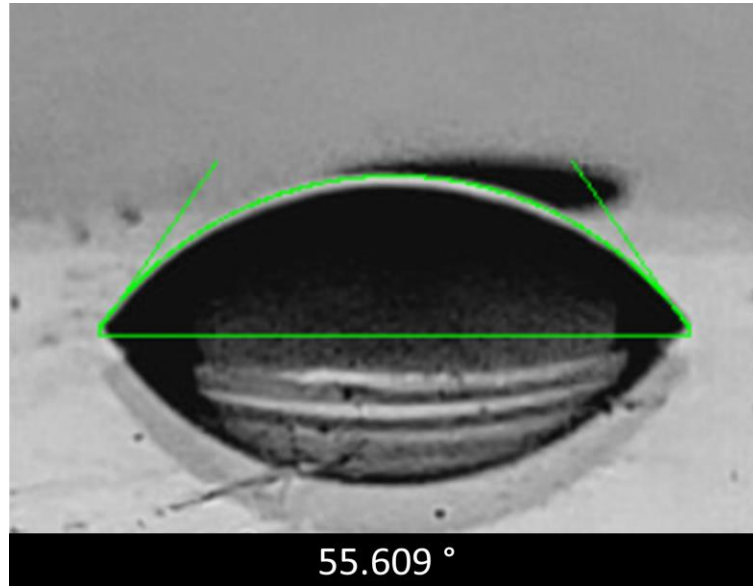


# Resultados: ángulo de contacto



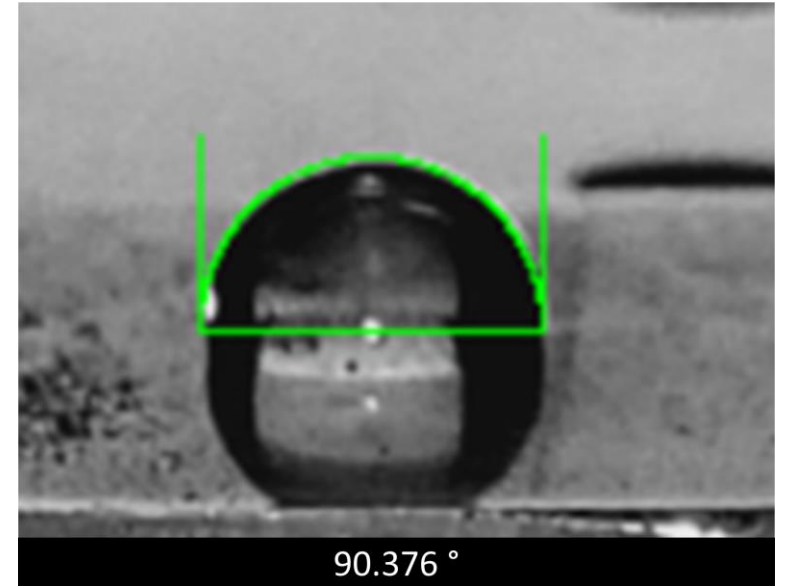
137.279 °

Polvos



55.609 °

Película delgada

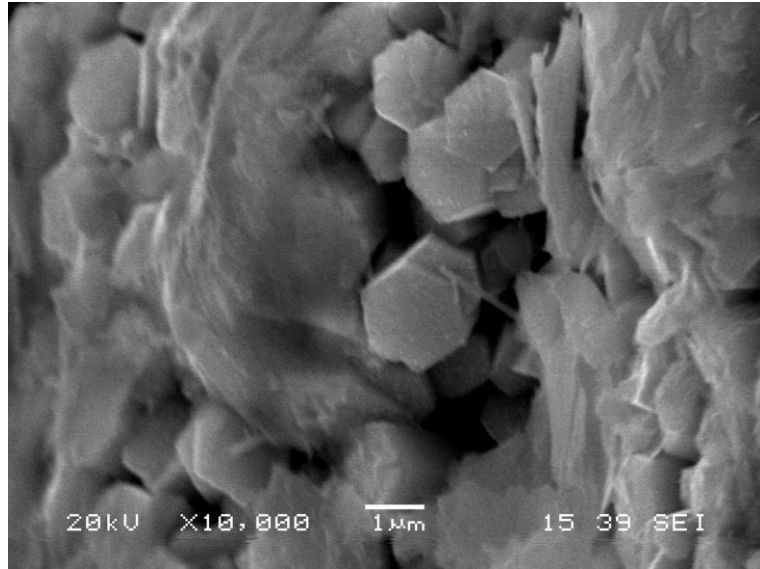


90.376 °

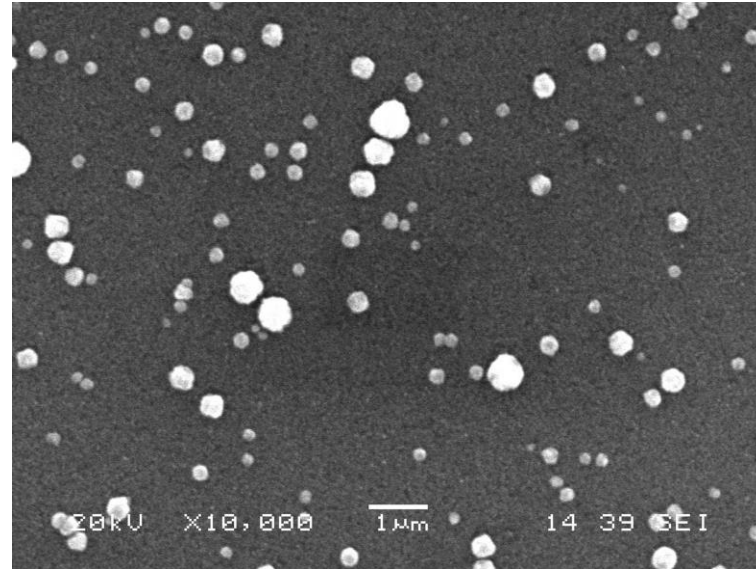
Nanocables

Nanoestructuras de óxido de zinc

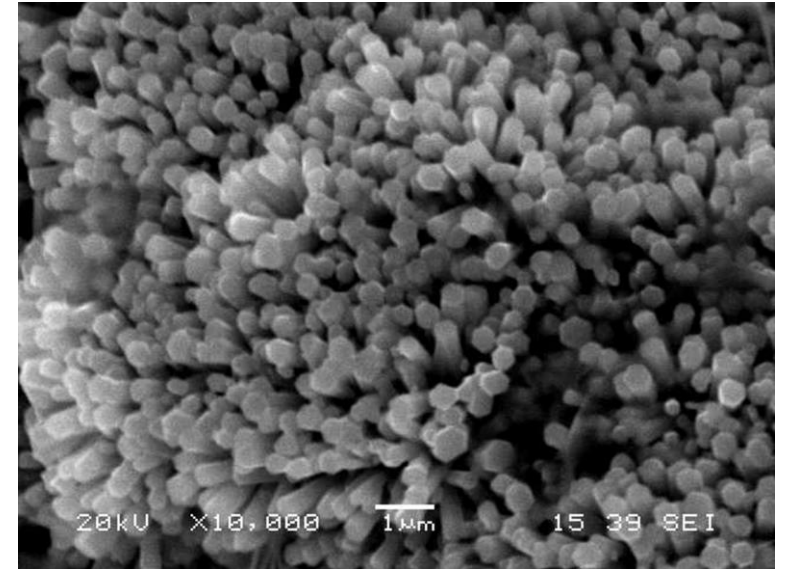
# Resultados: microscopia electrónica de barrido



Polvos



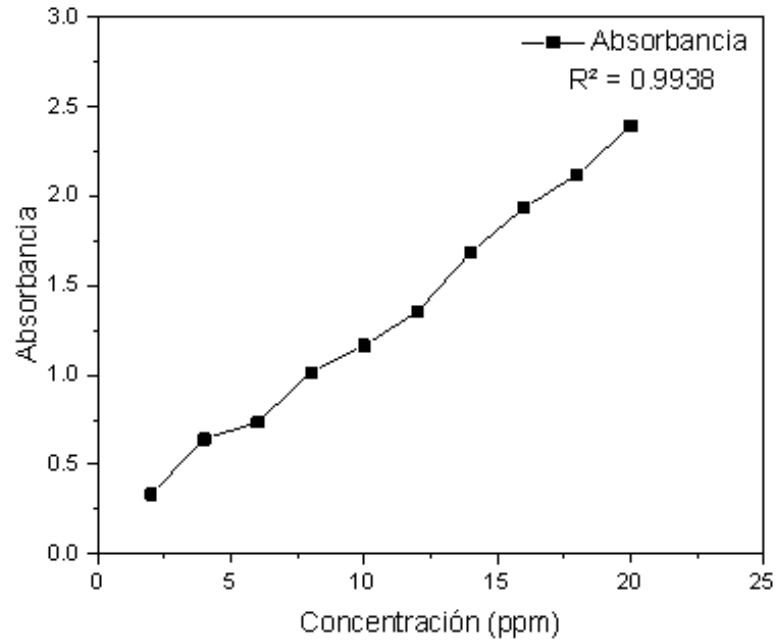
Película delgada



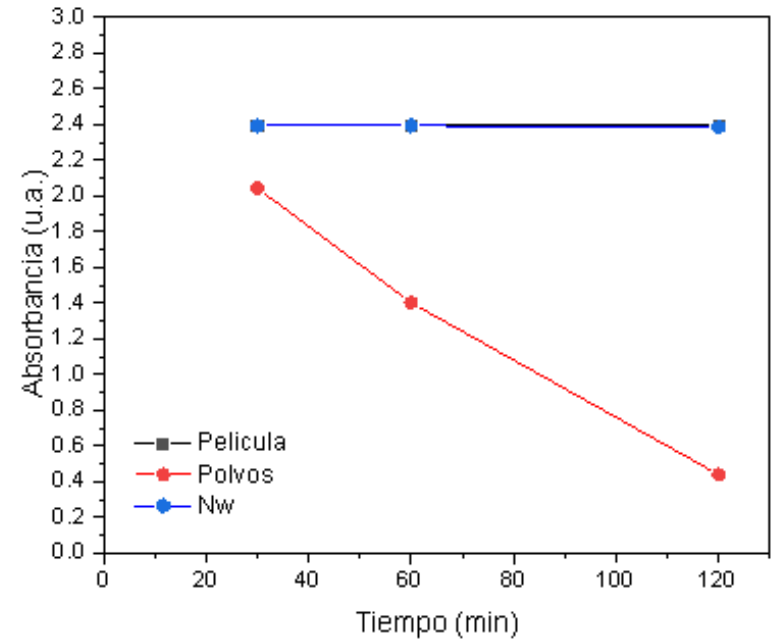
Nanocables

Nanoestructuras de óxido de zinc

# Resultados: fotocatalisis



Curva de calibración de naranja de metilo (NM)



Degradación de naranja de metilo con respecto al tiempo

# Conclusiones

Los resultados obtenidos en el desempeño fotocatalítico de los 3 tipos de nanoestructuras muestran un mayor desempeño para los nanopolvos de óxido de zinc, siendo que se obtuvieron degradaciones del mientras que las películas delgadas y los nanocables no presentan actividad fotocatalítica.

La tasa de degradación de naranja de metilo con los polvos de óxido de zinc aumentó con el paso del tiempo.

# Referencias

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