



# Newsletter



## July 2018

[sdoenanodesk.europeanprojects.net](http://sdoenanodesk.europeanprojects.net)

IN THIS ISSUE

**NanoDESK - new technological and training tools for the plastics sector of the European Southwest: +6,500 companies, most of them SMEs, limited financial resources**

## Weaknesses

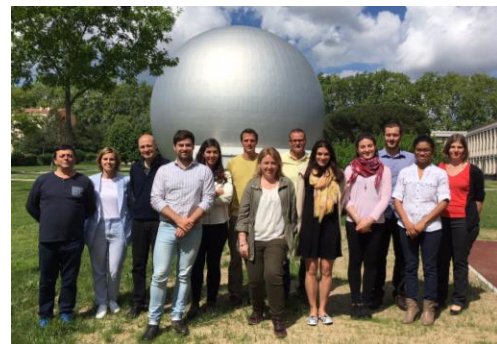
- High production costs
- Lack of information on toxicity & ecotoxicity of NMs
- No large company to SMEs knowledge transfer, which forces big investments in R & D
- New legal requirements applicable to and restricted use of nanostructured plastic materials

## NanoDESK helps by...

- Product innovation and reinforcement of the internationalisation
- Fostering competitiveness of SMEs based on more innovative production, with plastics with high added value
- Use of computer models for the risk assessment in the European legal frame, with consequently reduced costs in security and health
- Growth in the market and more applications with nanostructured plastics

## About NanoDESK

NanoDESK is a three year Interreg SUDOE project that runs from June 2016 to May 2019, being focused on promotion of the Nanotechnology to support the development of plastic materials with appealing performance. The NanoDESK project aims at contributing to strengthen the European plastic sector and safe use of nanomaterials (NMs)



## 3rd stakeholder's day

Took place last May 2018, at the CEMES – CNRS site in Toulouse (France).

Next meeting:

Tarragona – November 2018

# Dissemination on social networks



## Activity & progress

In order to gain as much visibility as possible for the project, actions are being taken on social networks, making it easier for the companies and users of any kind to be up-to-date of the latest news and releases of NanoDESK

# Exposure models – NanoDESK platform



```

q = (ivars["ach"]/60)*ivars["v"]
### Time intervals [min]
#
dt=np.linspace(0,ivars["td"],120)
dtf=np.linspace(0,ivars["nrep"]*ivars["td"],ivars["nrep"]*len(dt))
er = g
#
aux = 1.
if ivars["qr"] == 0 and ivars["epsrf"] == 0:
    if ivars["ql"] != 0 and ivars["epsf"] != 0:
        if ivars["epslf"] != 0:
            modeld = 209
            model = "2Box.CE.LevR.Gv"
            comm = "Ventilación general + recirculación LEV"
#eng
            comm = "general ventilation + LEV recirculation"
            epsn = ivars["ql"]/(ivars["ql"]+beta)
### cfss (cnss): average concentration of the far (near) field steady state (gamma=1)
# equivalent to C_F^*(bar) (C_N^*(bar)) in the article
#
cfss = (gamma*g*(1-(ivars["epsf"]*ivars["epslf"])\
-(epsn*ivars["epsf"]*(1-ivars["epsf"]))))\
/(q+ivars["ql"]*ivars["epslf"]) # + cbg CHECK
cnss = cfss + ((gamma*g*(1-ivars["epsf"])*epsn)/ivars["ql"])
    
```

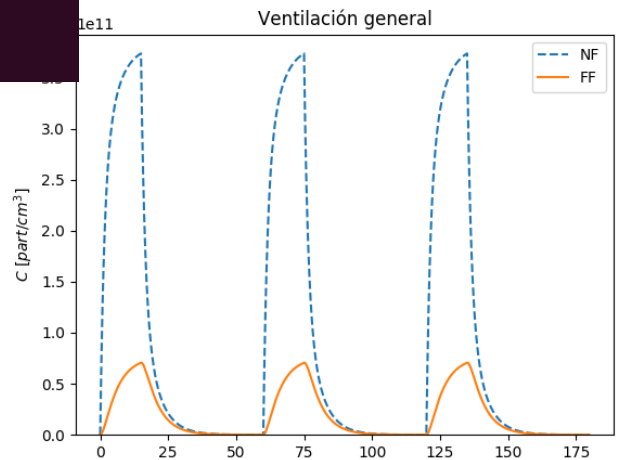
## Environmental model

Development of probabilistic models for the calculation of emissions of NMs to the environment (air, water and soil) in the SUDOE regions. The code is also implemented in Python, and minimal user input is required

## Occupational model

Occupational model has been implemented in Python, for estimating the exposure to NMs by inhalation. The model assumes space is divided in 2 parts: near field, small area surrounding the NM generation source and the far field, where the dispersion of the NM is ruled by different laws, less affected by the source

The model has 6 different exposure scenarios, depending on ventilation systems operation in the working area. Algorithm with implementation of the recently developed (Hewett *et al.* 2017) model equations. Applicable to the exposed population sectors to NMs, including workers and consumers



## Consumer model

Next step will be the development of the consumer model

All of them will be accessible from the NanoDESK platform

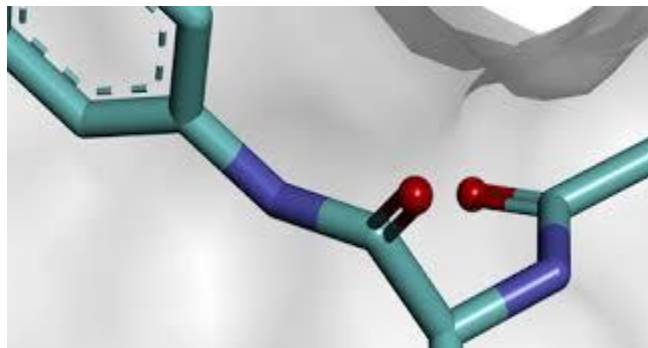
## QSAR models

### Activity & progress

**Quantitative Structure-Activity Relationship (QSAR)** models describe the statistical relationship between structural strokes and biological activity of a chemical substance

It allows for a prediction of a particular well-defined property on a moiety, by learning from a training set formed by other molecules, whose behaviour regarding this property is well-known

The models will be available for use under the platform of the the NanoDESK project, as will be the exposure models



U. PORTO



ProtoQSAR

## Bilbao Workshop



The progress and outcomes of the Project were presented last March 14th by the members of the consortium at the Bilbao Exhibition Centre (BEC) during the Imagenano Conference

The program included the following subjects:

- Overall view of the SUDOENanoDESK Project
- Nanotechnology and safety in the plastic sector.
- Exposure potential and risk management measures (RMMs) in workplaces.
- NanoDESK observatory on the safety of polymer based nanocomposites.
- NanoDESK Platform: new tools to support risk assessment and risk management.
- Round Table and networking with attendees



## Coming soon

### 4th Workshop

The 4th NanoDESK Workshop is coming up!

**When: 27th November**

**Where: Tarragona, Spain**

#### Platform

Including the QSAR and the exposure models for evaluating the risk for the human health and the environment of using NMs in plastics

#### Observatory

For accessing latest news and published articles, as well as information of relevance on the use of NMs, eligible by sector



#### Nanotechnology observatory

A virtual observatory to access information on nanomaterials applications, environmental health and safety issues and regulatory aspects of nanostructured polymers

## Consortium



INTERNATIONAL IBERIAN  
NANOTECHNOLOGY  
LABORATORY



UNIVERSITAT  
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