

# Soda ash production in Rosignano

May 2024



# Soda ash production

A safe and controlled process using natural materials









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Food/Feed e.g. Baking Soda



NOx & , SOx **Pollution Control** e.g. Flue gas treatment





Soda ash is produced with natural materials :



Limestone



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Salt Brine

Water



# **Soda ash process uses natural, inert materials** No heavy metals are used or added in process

- Soda Ash process requires solely natural materials including limestone.
- Limestone is a widespread material that you find in most cliffs along the Tuscan coast and in buildings such as Paris' monuments.
- Limestone, like many types of rock or stone, naturally contains traces of heavy metals that are imprisoned in the limestone - they cannot be absorbed by the body and are not harmful to living organisms, including people and fish.
- At the end of the production cycle, the powdery limestone remains and is released into the sea through an open channel contributing to the color of the white beaches.
- Both Solvay and the regulators (ARPAT, IAM-CNR) closely monitor every step of the process, as do independent academic institutions, which confirm that the offshore water quality is safe and similar to the rest of the Tuscan coast.



SOLVAY

# From limestone to sand

# A safe and controlled process using natural materials



# Solvay's effluent release method in Rosignano is in full compliance with EU regulations and is the preferred solution

For a land-locked

facility

For a facility near the sea

#### Post-production disposal techniques

Following every soda ash production cycle, there remains powdery limestone. It's crucial to note that these materials are inert, meaning they're neither toxic nor dangerous. To responsibly manage this residue, various disposal techniques are recommended by the EU Commission's Reference Document on Best Available Techniques (BAT). These techniques have been carefully evaluated based on their environmental impact and adherence to BAT principles.



**Dikes/Settling Pond** 

Pipes

(released offshore into the sea)

### Open Channel



(released into the sea)

BAT for Rosignano through an open channel

Implementing the EU's framework for BAT depends on the unique characteristics of each location. At Rosignano, after consulting with local, regional, and national authorities and supported by independent scientific bodies, an open channel release to the sea was determined to be the best and preferred solution. This approach ensures that the non-toxic limestone spreads evenly on the seabed, as required by BAT, and also helps stabilize the shore against erosion.

This complies fully with EU and Italian laws, including the IPPC permit issued by the Italian government. This permit aligns with EU BAT guidelines and mandates regular independent studies on the facility's impact on the marine environment.

This method is aligned with EU and Italian regulations and monitored regularly by ARPAT, the regional agency for environmental protection in Tuscany.

(EU Commission's Reference Document on Best Available Techniques (BAT) in the Large Volume Organic Chemical Industry (2007 edition).

# Our operations are safe and regularly monitored by scientific bodies third parties



#### 2023 Report comments

Quality of bathing is excellent<sup>1</sup>

 $\begin{array}{c} \mbox{Ecological and chemical status} \\ \mbox{at Rosignano in line with the} \\ \mbox{Tuscan Coast}^2 \end{array}$ 

Ecological and chemical status at Rosignano in line with the Tuscan Coast<sup>2</sup>

No impact on water quality resulting from Solvay's operations - In line with Tuscan Coast<sup>3</sup>

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1 https://www.arpat.toscana.it/temi-ambientali/acqua/balneazione/dati-del-monitoraggio/balneazione-in-toscana-stagione-in-corso 2 http://www.arpat.toscana.it/datiemappe/dati/stato-chimico-ed-ecologico-delle-acque-marino-costiere-della-toscana 3 IAS — "Monitoraggio dello stato di salute dell'ambiente marino nell'area antistante lo stabilimento solvay di rosignano ".

## Our ongoing sustainability journey in Rosignano

Our action plan to reduce the discharge of limestone residue released into the sea

In line with our sustainability goals, Solvay has invested >400m€ in the last 2 decades to improve its operations in Rosignano, focusing on reducing water consumption, energy usage, emissions, and waste production.

Solvay remains committed to ongoing optimization efforts to improve efficiency and sustainability across its manufacturing sites, in line with the STAR Factory program aiming for significant transformation across our 45 industrial sites.





In 2023, Solvay already achieved a 20% reduction compared to 2022. These results will be consolidated in the coming years considering the evolution of limestone quality and the progress of the action plan.

Solvay introduces e.Solvay, a new soda ash production process that cuts  $CO_2$  emissions by 50%, lowers water, brine, and limestone use, and minimizes limestone residues. Successful pilot testing in France sets the stage for integration in Solvay's plants in the near future.

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