

# WATER CONSUMPTION

*In 2015, total water consumption relative to revenues decreased by 0.9%.*

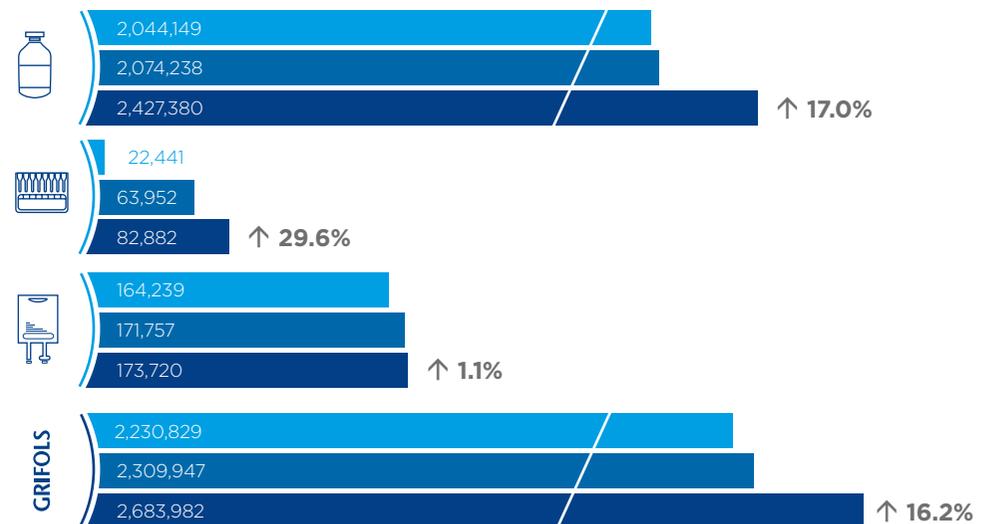
In 2015, total water consumption was 2,683,982 m<sup>3</sup>, an increase of 16.2% on 2014. Overall, 90.3% of the water consumed came from the water mains, with the remaining 9.7% coming from wells located at the production facilities in Spain.

The rise in the Bioscience Division's consumption in absolute values is due to increases in production. In terms of consumption relative to production, there was no change. A significant new contributor to consumption is the new fractionation plant in Clayton, North Carolina. When it begins to function at full capacity, savings will be achieved, since it will replace older facilities.

In 2015, the Diagnostic Division increased its water consumption in both absolute and relative terms. An incident involving the company's water meter was detected at the end of the year at one of the Sant Cugat buildings associated with this division. The incident was reported to the company, and is in the process of being resolved. This building was acquired by Grifols in 2014, and during 2015 was occupied by Grifols and other outside businesses.

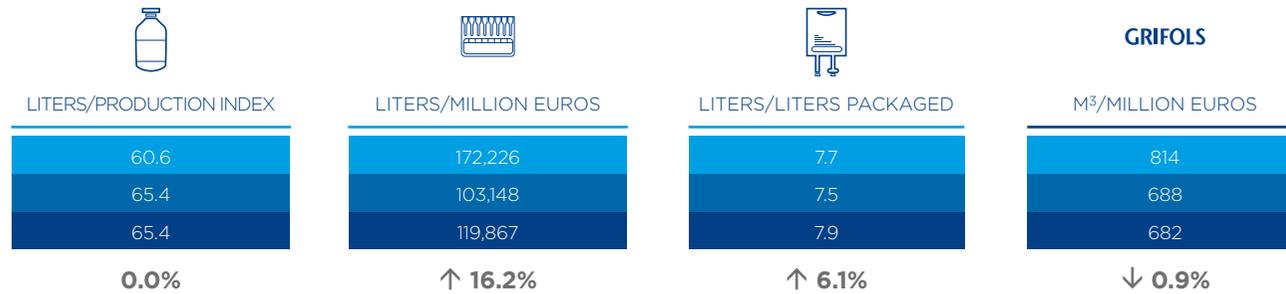
The Hospital Division's consumption has remained flat, but with an increase in relative value. Consumption has primarily increased in the Hospital Division's facilities in Murcia.

## WATER CONSUMPTION ABSOLUTE VALUE · m<sup>3</sup>



ENVIRONMENTAL PERFORMANCE  
**WATER CONSUMPTION**

**WATER CONSUMPTION**  
 RELATIVE VALUE



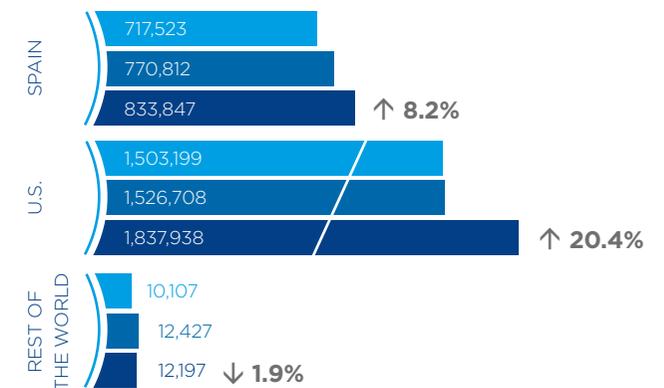
Grifols operates in three areas that could pose water-shortage risks at certain times: Catalonia and Murcia in Spain, and California in the United States. Because of this, the company applies preventive measures to reduce water consumption when designing new facilities, as well as modifying existing facilities to this effect. These measures include recovering water used in the production process for other auxiliary uses, automating processes to ensure water conservation, and reducing the amount of water used in cleaning reactors by installing automated CIP cleaning systems.

**WATER CONSUMPTION REDUCTION PROGRAM**

A program to reduce water consumption has begun at the Bioscience Division's production center in Los Angeles, California. The first stage, which started at the end of 2015, included seven measures intended to achieve a reduction of 45,488 m<sup>3</sup>:

- Eliminate use of water in a CO<sub>2</sub> tank
- Install water-saving systems in toilets
- Replace the open-cycle refrigeration system in the Quality Control autoclave with a closed-cycle system
- Replace the water softener system with a more efficient unit
- Reduce the washing system phases during the albumin purification process
- Recover condensates from the alcohol tower for the boilers
- Optimize the reverse osmosis system to minimize rejection

ABSOLUTE VALUE · m<sup>3</sup>



# WASTEWATER

*Grifols complies with the applicable regulations and permits required for wastewater discharge in all of its facilities. Wastewater is managed in proprietary or municipal treatment systems. Ultimately, all wastewater is discharged into the public sewer system.*

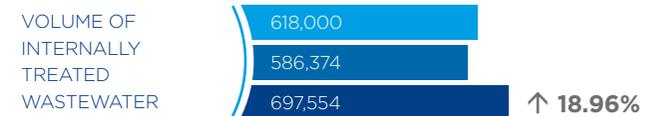
The volume of wastewater corresponds to 70% of the water consumed, since 30% of this water is incorporated in the product itself during the manufacturing process, or is used in auxiliary processes that do not involve discharge, such as the cooling towers.

In some of the Bioscience Division's facilities, wastewater is treated in-house with biological systems prior to discharge:

- The Bioscience Division's production facilities in Parets del Vallès, Barcelona have a membrane bioreactor (MBR) treatment plant to treat high-organic-load effluents from the manufacturing process. The treated water is separated from the reactor's biomass by means of a system of ultrafiltration membranes. In 2015, work continued to expand the plant to enable efficient treatment of wastewater resulting from the production increases expected in the next few years.
- The Clayton, North Carolina facility has a biological treatment plant that treats effluents using MBBR (Moving Bed Biofilm Reactor) technology.
- At the Los Angeles, California facility the industrial wastewater neutralization system has been improved, optimizing the CO<sub>2</sub> dosing system used in pH neutralization.

## WASTEWATER TREATMENT VOLUMES (SPAIN AND THE UNITED STATES)

ABSOLUTE VALUE · m<sup>3</sup>



The volume of wastewater processed in the treatment plants grew 19% due to the increase in water used by the Bioscience Division at the Clayton, North Carolina plant.

In 2015, improvements to the Clayton municipal wastewater treatment infrastructure were completed with the collaboration of Grifols. The company will be able to use these facilities to complement the wastewater treatment it carries out at its own facility.

■ 2013 ■ 2014 ■ 2015