A GREENER FUTURE NEEDS ATTITUDE. BE BOLD. BE EPIC.

EPIC

Enzyme based detergency system to improve wastewater quality and to save on costs



- REDUCTION OF WASTEWATER PARAMETERS
- TARGETED STAIN REMOVAL AT THE LOWEST CHEMICAL CONSUMPTION
- LOWER CARBON FOOTPRINT
- COMPATIBLE WITH PURESAN & COOL CHEMISTRY WASH PROCESSES

PASSIONATE ABOUT LAUNDRY

CHRISTEYNS
LAUNDRY TECHNOLOGY



Wastewater. And, in particular the cost of wastewater disposal and the need to comply with ever stricter wastewater limits, is a big challenge for many commercial laundries.

With EPIC we offer you a new approach on washing: an approach that is sustainable and flexible at the same time. Making sure you comply with discharge limits and pay less wastewater taxes, without losing track of the environmental impact.

THE CONCEPT

Enzymatic **P**rocess **I**nnovation by **C**hristeyns - or simply EPIC - is an innovative detergency system boosted by enzyme technology. Introducing biological enzymes directly into the wash process will not only improve your wastewater quality, it will also help you to target specific staining at the lowest chemical consumption.

EPIC is a flexible detergency system. This means you can implement it quite easily in your current PureSan or Cool Chemistry wash process, by changing only the detergents. As a result, you will not only keep the advantages of these wash processes, you will also benefit from the savings it brings to your wastewater bill.

ONLY THE DETERGENTS CHANGE

NEW DETERGENCY SYSTEM

PATENTED CHEMISTRY

1. Innovative Detergent :
Cool EPIC or PureSan EPIC

- Containing a new generation of enzyme compatible surfactants
- Highly concentrated formulation
- Easy to integrate in the current wash process with existing FLUX dosing technology



Concentrated
DETERGENT

2. Enzyme mixtures :
EPIC-CORE = base mixture

- Replacing (part of) the surfactants' action by biological enzymes
- Enzyme mixture recipes are adapted to a specific type of soiling
- Prepared and dosed on-site by means of high-tech EPIX equipment
- STANDARD = base mixture **EPIC CORE**
- OPTIONAL = boost mixtures
  - Boost Hospitality: **EPIC-Boost HO**
  - Boost Healthcare: **EPIC-Boost HC**



Concentrated
ENZYMES



Low soiling degree
COOL/PURESAN EPIC
+
EPIC-CORE

High soiling degree
COOL/PURESAN EPIC
+
EPIC-CORE
+
EPIC-BOOST HO



All classifications
COOL/PURESAN EPIC
+
EPIC-CORE
+
EPIC-BOOST HC

EPIC is suitable for all kind of classifications - from lightly to heavily soiled linen:

- Hospitality
- Healthcare
- White Workwear
- Restaurant linen

Why introduce enzymes?

- Enzymes can stimulate the breakdown of dirt, protein or greasy stains and release smaller, easier-to-remove or soluble components
- Enzymes are highly specific:
  - One enzyme targets one component in a stain
  - Most laundry stains are complex: blood, food, grease and faeces



THE TECHNOLOGY



Thanks to EPIX, quantities as low as 0,05 grams per kilogram of textile can be dosed

Enzyme mixtures are introduced by means of EPIX, a high-tech unit that is developed in-house. This EPIX unit produces these enzyme mixtures on-site and doses them very precisely and safely directly into the tunnel washer or washer extractor.

Thanks to this EPIX technology, quantities as low as 0,05 grams per kilogram of textile can be dosed, depending on the type of stain and the soiling degree.

EPIX

- Integrated safety systems
- Autocalibration
- Highly flexible

PATENTED TECHNOLOGY

HOW IT WORKS



EPIX can prepare up to 4 different enzyme mixtures based on max. 6 products



Every enzyme mixture is linked to a daytank and a dosing pump



Multiple WE's and TW's can be connected to EPIX

FIELD TESTS

HOSPITALITY - LOW SOILING

HEALTHCARE - FLAT WORK/GARMENTS

DOSING

Prewash

- Temp: max 45°C
- pH 8-10
- Chemicals:
  - Cool/PureSan EPIC(*)
  - EPIC-CORE

(*) can also be dosed in the main wash

Main wash

- Temp: 40-60°C
- pH 8-10 (dep. on bleaching system)
- Chemicals:
  - Cool Brite



Prewash

- Temp: 30-40°C
- pH 9-10
- Chemicals:
  - Cool/PureSan EPIC
  - EPIC-CORE
  - EPIC-BOOST HC
  - Alkaline

Main wash

- Temp: 50-65°C
- pH 8-10 (dep. on bleaching system)
- Chemicals:
  - Cool/PureSan EPIC(*)
  - Disinfection
  - (Alkaline)

(*) only for high soil level

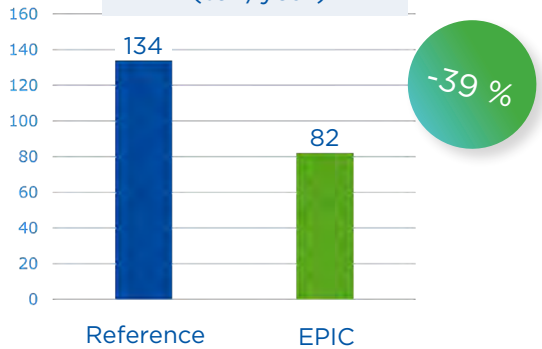
WASTEWATER PARAMETERS

	Reference	EPIC	
COD (mg/l)	1200	1000	-17%
Non-ionic (mg/l)	215	110	-48%

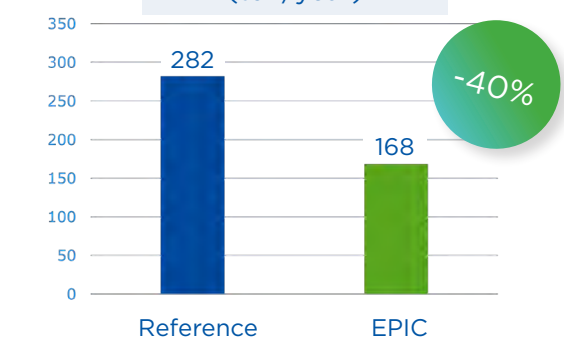
	Reference process	EPIC	
COD	2750	1850	-32%
Ecotoxicity	345	40	-88%
Waste Tax	69000	37000	-31%

LESS WAREHOUSING & HANDLING

Christeyns products (ton/year)



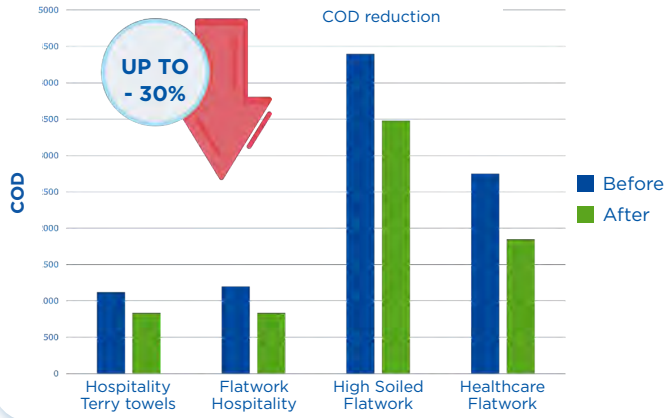
Christeyns products (ton/year)



WHAT'S IN IT FOR YOU?

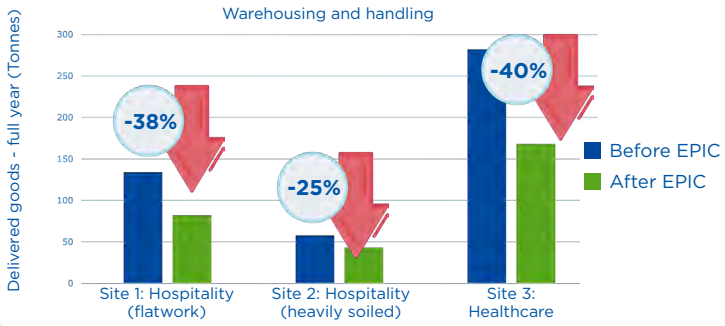
SUSTAINABLE INNOVATION

1. SUSTAINABLE OPERATIONS



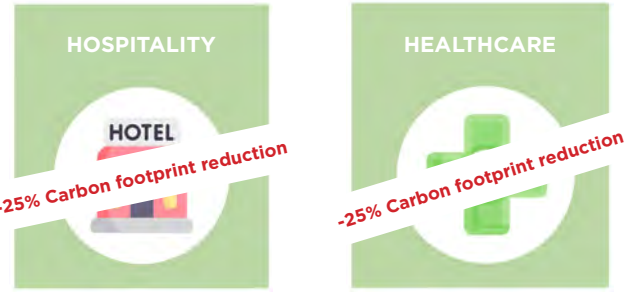
1. Lower wastewater load:

- COD reduction of 20-30%
- Reduction of ecotoxicity thanks to reduced surfactant level
- Lower level of AOX due to reducing chlorine dosages
- Reduced surfactant concentration
- Reduction of Hexane Extractable Material (HEM-oils/fat)



2. Less warehousing and handling:

- Concentrated detergent: the amount of surfactants is lowered by > 50%
- Concentrated enzymes: enzymes are dosed in very low quantities



3. Reduced carbon footprint

Only taking the chemicals used in the wash process into consideration:

- For Hospitality: reduction up to 25%
- For Healthcare: reduction up to 25 %

2. COST-EFFECTIVE SOLUTIONS

1. Lower wastewater costs:

- Lower wastewater pollution = lower levels of COD, AOX, BOD, ecotoxicity = less taxes

2. Further water & energy savings:

- Lower COD allows further optimisation (reduction) of water consumption (*)

( )In cases where optimisation was limited due to a regulation applying a max. COD concentration in wastewater*

3. GREENER BRANDING

1. Enzymes have a **biological origin** and are not derived from fossil fuels
2. The amount of surfactants (=non-biological resource) is lowered by > 50%



EPIC

- Lower wastewater load
- Less wastewater costs
- Better compliance with wastewater limits
- Tailor-made stain removal with micro-dosing
- Lower carbon footprint

THE NEW STANDARD FOR SUSTAINABLE WASHING

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