

A row of glass vials in a pharmaceutical manufacturing setting. The vials are arranged in a line, and the background is a blurred industrial environment with metal structures and pipes.

# ARTHRUM

SYMPTOMATIC TREATMENT OF ARTHROSIS  
BY INTRAARTICULAR INJECTION

## Manufacturing process

MADE IN FRANCE

L C A P H A R M A C E U T I C A L

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# EDITORIAL

For over 15 years, LCA Pharmaceutical has been manufacturing viscoelastic solutions in France, for applications in Rheumatology, Ophthalmology and Dermatology.

Our staff strive daily to manufacture medical devices according to stringent regulations, for use all over the world.



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NaHA  
Material

02

Production

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Filling

04

Fitting the piston  
and labelling

05

Back-stop  
assembly

06

Syringe  
packaging

07

Syringe sterilisation,  
dismantling  
and cleaning equipment

08

Secondary  
packaging

09

LCA pharma  
specialities

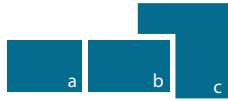
# NaHA MATERIAL

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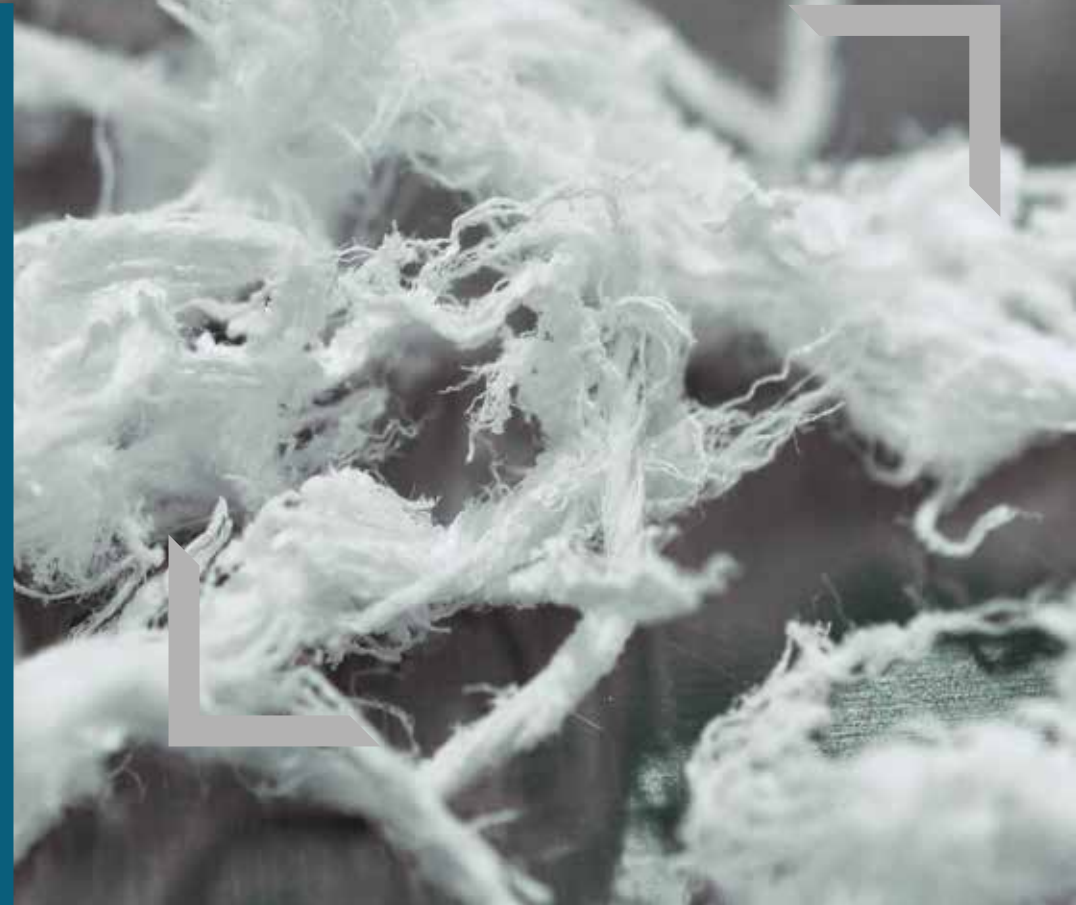
Manufactured using a bacterial fermentation process, sodium hyaluronate is the main component of our viscoelastic solutions. This raw material is produced in Brittany by our long-standing partner from bacterial culture (*Streptococcus equi*), which then undergoes several filtering and purification stages to get an injectable grade, European Pharmacopeia compliant.

This natural, non-cross-linked, chemically unmodified, sodium hyaluronate is similar to endogenous sodium hyaluronate.





- a. Filtration of solutions
- b. Product filter
- c. Pure sodium hyaluronate



# PRODUCTION

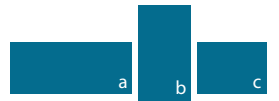
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Once the solution has been made up, the vats of viscoelastic solution are taken to the filling room and hooked up to the syringe filling machine.



**a.** The start of the filling line; syringes waiting to be filled in the foreground

**b.** Feeding the syringes

**c.** 1 vat

2 dosing pump

3 filling station

4 closing station



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# FILLING

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The syringes are vacuum-filled and closed, at a rate of 1,500 units an hour. These stages are carried out in a laminar flow hood (Class 100).



- a.** General view of the filling and closing area
- b.** Syringe being filled
- c.** Syringes before and after filling



## FITTING THE PISTON

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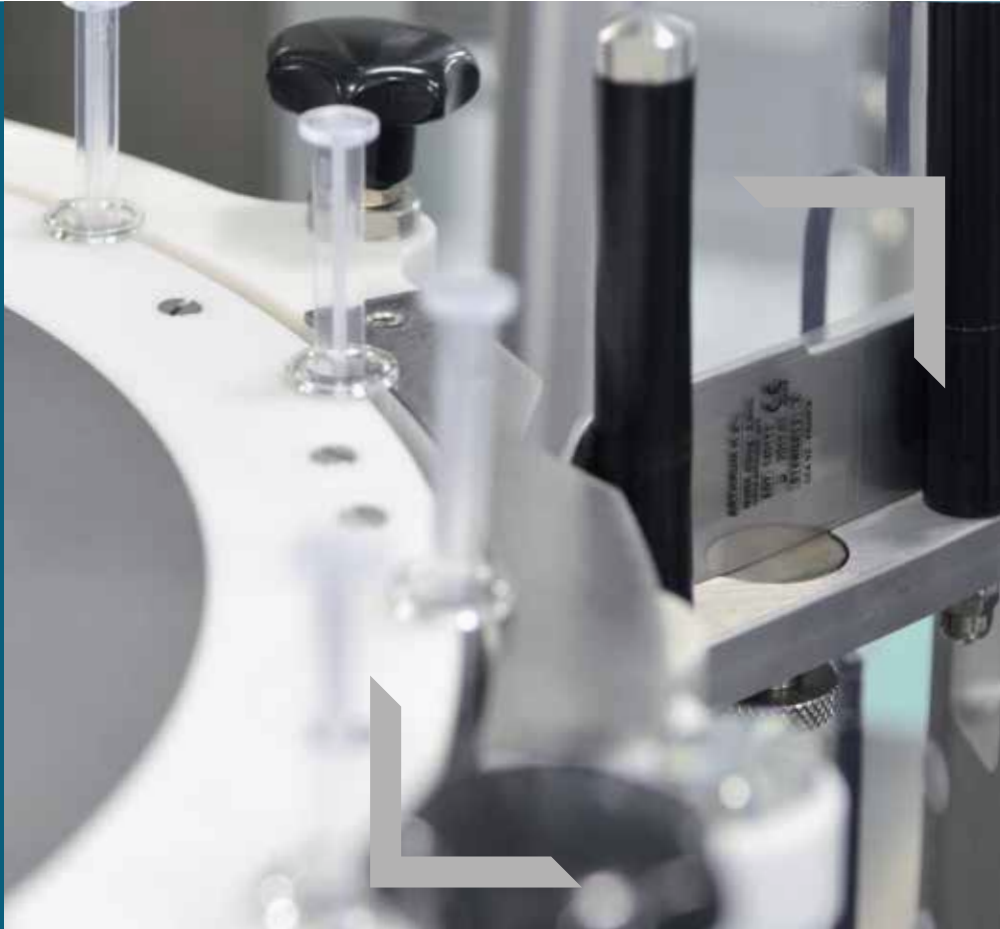


Once the piston seal has been fitted, the syringes are fitted with the piston pin, then labelled for identification.

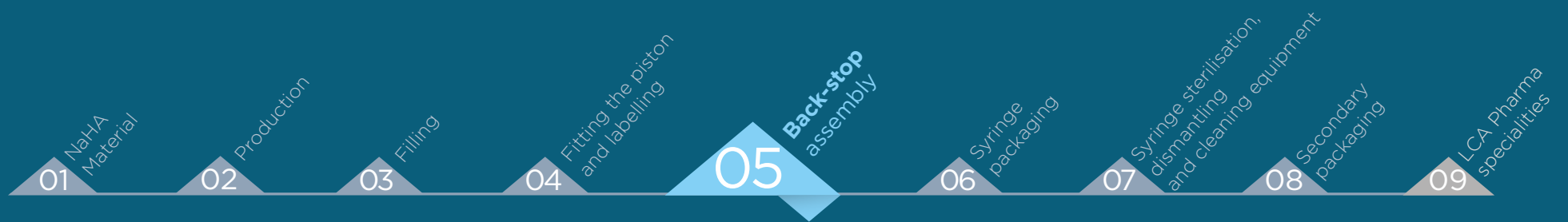


- a. General view of piston pin fitting and labelling
- b. Fitting the piston
- c. Printing and labelling
- d. Syringes moving on to have back-stops fitted

## LABELLING

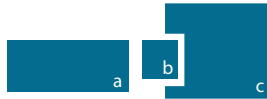






## BACK-STOP ASSEMBLY





- a. Vibrating bowl for back-stops
- b. Fixation star
- c. Fitting back-stops onto syringes

The syringes are then taken to the back-stop assembly machine.







# SYRINGE PACKAGING







- a. Syringes leaving the machine prior to bagging
- b. Bagging
- c. Sealing the bags

Once the back-stops have been fitted, the syringes are bagged and the bags sealed. These operations are carried out manually. The sealed bags are then stored in stainless steel baskets for sterilisation.



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# SYRINGE STERILISATION

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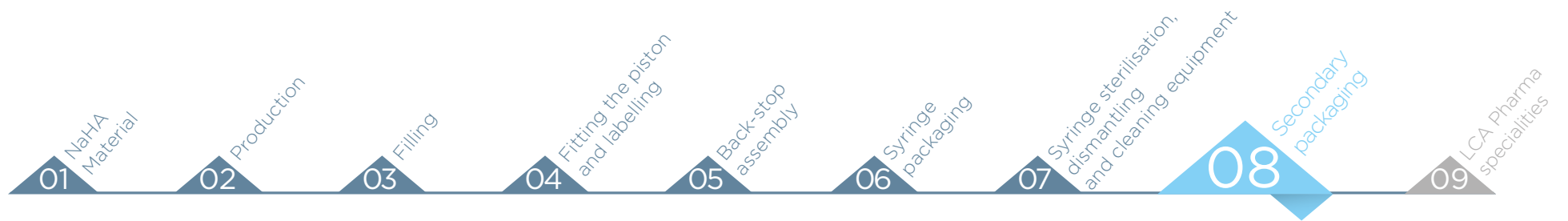
- a. Loading the sterilisation baskets
- b. Cleaning the production equipment
- c. Workstation for production and distribution of purified water

DISMANTLING AND CLEANING

# PRODUCTION EQUIPMENT







## SECONDARY PACKAGING





- a. Single boxes
- b. Boxes of 3
- c. Traceability labelling





# LCA Pharmaceutical SPECIALITIES

## Rheumatology



ARTHURUM H 2%  
COXARTHURUM  
ARTHURUM HCS  
ARTHURUM 2,5% Single Injection

ARTHURUM HCS Single Injection  
SYNOVIUM SURGICAL  
RHIZARTHURUM







# OTHERS SPECIALITIES

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## Ophtalmology



PHYLARM | Sterile single-dose, isotonic and preservative-free ophthalmic solution intended for the symptomatic treatment of ocular surface diseases

HYALINE | Sterile single-dose, isotonic and preservative-free ophthalmic solution for lubrication and hydration of the ocular surface. Contains 0.2% of Sodium Hyaluronate

PHYDOSE | Sterile single-dose and preservative-free physiological serum, intended for nose and eyes care

## Cataract surgery



Pre-loaded Intraocular Lenses | GENIUM HD

Bi-aspheric Intraocular Lenses | ISTACRYL HD QUAD and ISTACRYL HD CLOOP

A full range of Ophthalmic-Viscoelastic Devices for cataract surgery

IXIUM NaHA 1.5%

IXIUM NaHA 2%

IXIUM HPMC

IXIUM HCS

IXIUM TWIN

IXIUM DUO

Sterile, single use instrumentation RHEXIS (needles, canulas, ...)

Surgical packs URGIPAK

## Dermatology



HYALUDERM REVITALIZE

HYALUDERM REJUVENATION







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