

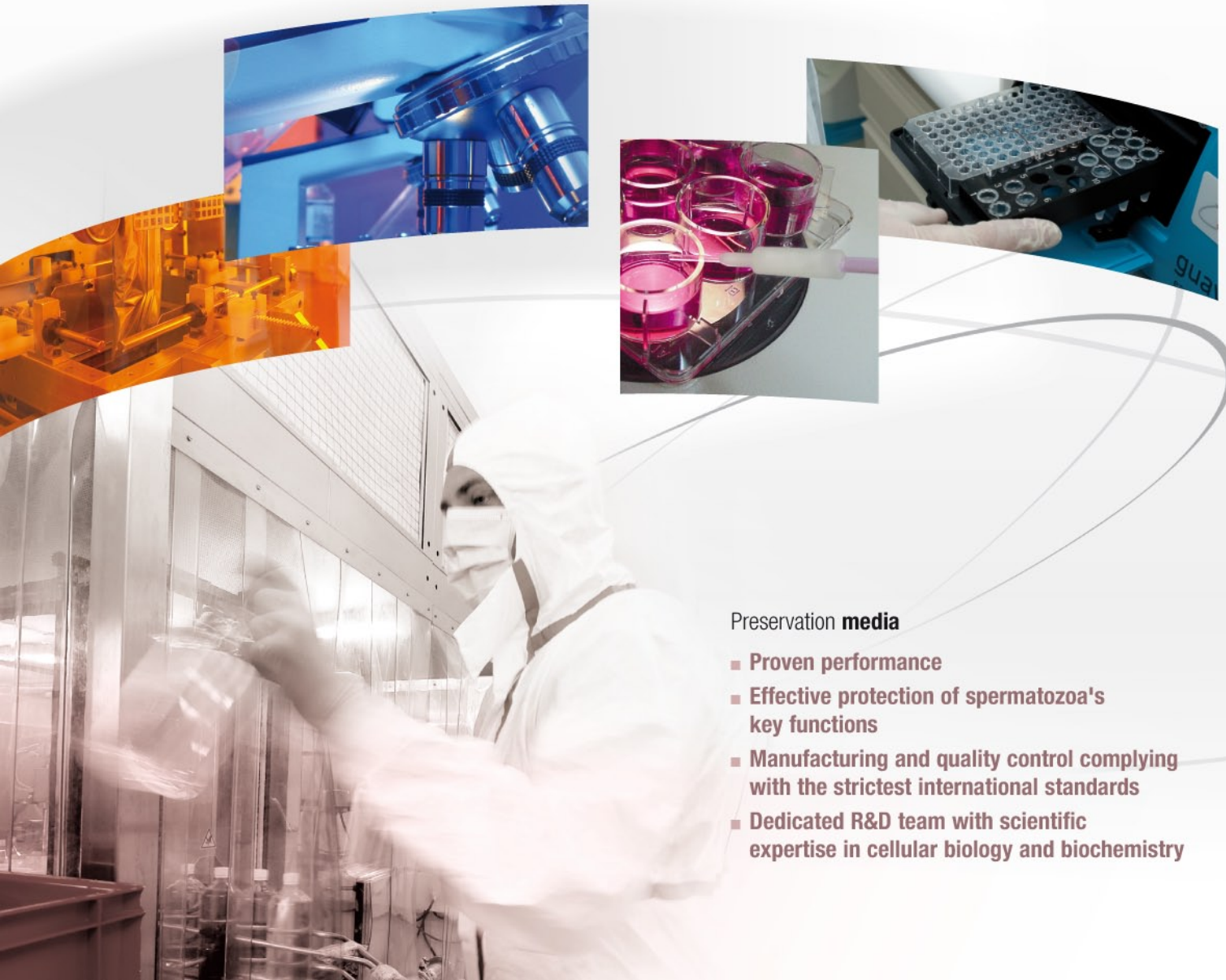


[www.imv-technologies.com](http://www.imv-technologies.com)



# Swine media

Optimal preservation to ensure maximal performance



## Preservation **media**

- Proven performance
- Effective protection of spermatozoa's key functions
- Manufacturing and quality control complying with the strictest international standards
- Dedicated R&D team with scientific expertise in cellular biology and biochemistry



«IMV Technologies Media are designed to maximize sperm cells fertility and performance.»

*Eric Schmitt*  
VP R&D

## An ideal environment for spermatozoa

- Physicochemical media that remains stable over time.
- **Buffers which guarantee physiological pH and stable osmolarity** removing any risk of osmotic shock.
- High quality sugars which provide an easily assimilated energy source for preserved spermatozoa.
- Molecules with high **antioxidant** content which minimize the degeneration and oxidation of sperm cells to ensure enhanced preservation.
- Specific **antibiotic compound formulations** to minimize bacterial growth.

## Maximizing reproduction performance

The expertise of our R&D team has allowed IMV to develop and patent several new technologies with a positive impact on fertility.



**Bioactivator** is a biological compound which amplifies Platelet Activating Factors (PAFS) biosynthesis. PAFS stimulate sperm motility, assist oocyte penetration and ultimately improve fertility. It has been shown that high-fertility boars have a higher level of PAFS than boars with low fertility (Cheminade et al, 2002).

	# Sows inseminated	% FR	BA	Fertility Index
Control	356	78.37	11.74	920
Control + BIO ACTIVATOR	360	84.72	11.6	982

**+ 6.7%**



This unique protein compound protects membranes and maintains their structure over time. It also acts as a fatty acid transport agent. These combined properties offer real advantages:

- protection against temperature variations and mechanical stress
- increased protection against oxidation
- slower capacitation induction
- improved real motility (% of progressive spermatozoa)
- improved agglutination control

	# Sows inseminated	% FR	BA	Fertility Index
Control	163 453	88	14	1 232
Control + BIO SHIELD	44 370	91	14.7	1 337

**+ 8.5%**





# Swine media



Maximal protection and optimal preservation of sperm cells

**Effective protection against:**

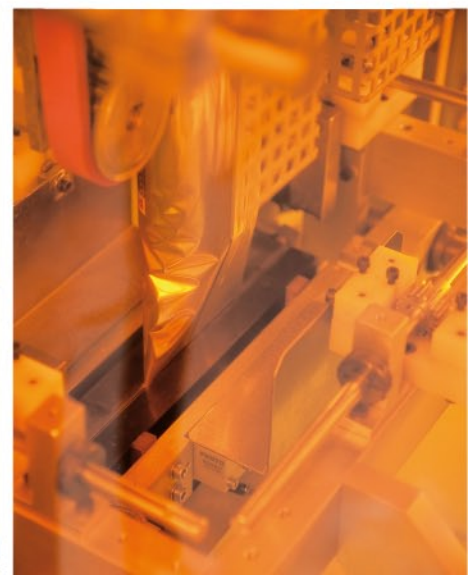
- Environmental variations (osmolarity, pH)
- Oxidation
- Temperature variations
- Bacterial and toxin contamination
- Mechanical shocks



**Optimization of boars' productivity:**

- Optimal adjustment of sperm cells per dose
- Optimal adjustment of collection frequency

**Improved organization of production centres:**

- Reduced frequency of transportation
- Optimization of collection days



	Storage Time (days)	Antibiotics	CEE*	Advanced Antioxidant	Blood protein free	Buffer	Bio Activator
<b>BTS</b>	3	++			■	+	
<b>PRIMXcell</b>	4	+++	■		■	+	
<b>NUTRIXcell</b>	6	+++	■	+	■	++	
<b>NUTRIXcell +</b>	6	+++	■	+++	■	++	
<b>TRIXcell</b>	7	++++		++		+++	
<b>TRIXcell +</b>	7	++++	■	++	■	+++	
<b>SAFEcell +</b>	7	++		+++		+++	

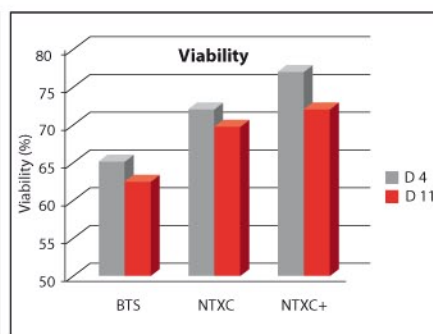
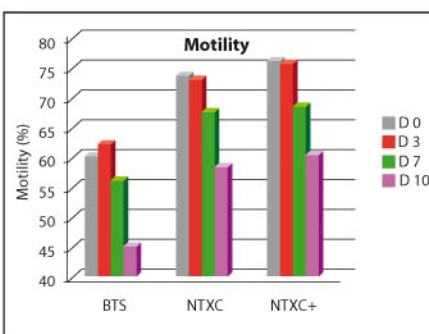
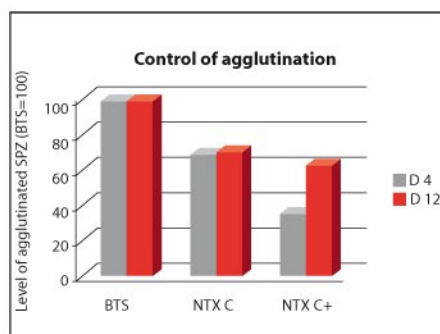
Compliant with directive 90/429/CEE on antibiotics for semen transport within the European Community.  
Available in 1L, 5L, 10L and 100L sizes.

## NUTRIXcell +

Based on the latest IMV R&D technological breakthroughs, **NUTRIXcell +** is a new high-performance preservation media which combines the additive properties of **BIO SHIELD** and **BIO ACTIVATOR**.





### Maximal protection against:

- Temperature variations
- Bacteria contamination
- Agglutination
- pH and osmolarity variations



	# Sows inseminated	% FR	BA	Fertility Index
Control	86	90	12.66	1134
<b>NUTRIXcell +</b>	87	89	12.97	1148

Internal IMV study

Bio Shield	Semen storage t (C°)		Presentation
	Min	Max	
	16	18	Powder
	16	18	Powder
	16	18	Powder
	12	18	Powder
	10	25	Powder
	12	18	Powder
	10	25	Liquid



## Flawless manufacturing

### Environment

IMV has its own ISO 9001V08 certified media production lab, in compliance with GMP standards. With its ISO8 clean room, equipped with Hepa filters, the lab produces media in the best conditions of temperature, hygrometry and sanitation. All production and QC stages are under the supervision of a veterinarian and a biochemist.

### Strict raw material selection

- Pre-selection of suppliers (ISO standards, GMP and pharmacopoeia)
- Each ingredient is subjected to tests for physicochemical effectiveness and biocompatibility with spermatozoa
- Each delivery requires a certificate of conformity from the supplier

## A unique expertise

An R&D department with 20 dedicated specialists that work continually to improve product quality. The IMV team has life science researchers, veterinarians, bio-chemists – all focused to provide innovative solutions for semen and embryo preservation (fresh, chilled, frozen, or vitrified).

With this in-house expertise – IMV is today proud to announce that it is manufacturing 50 different media products for over 15 species.

## Strictest quality control

### Each batch of final product is tested for:

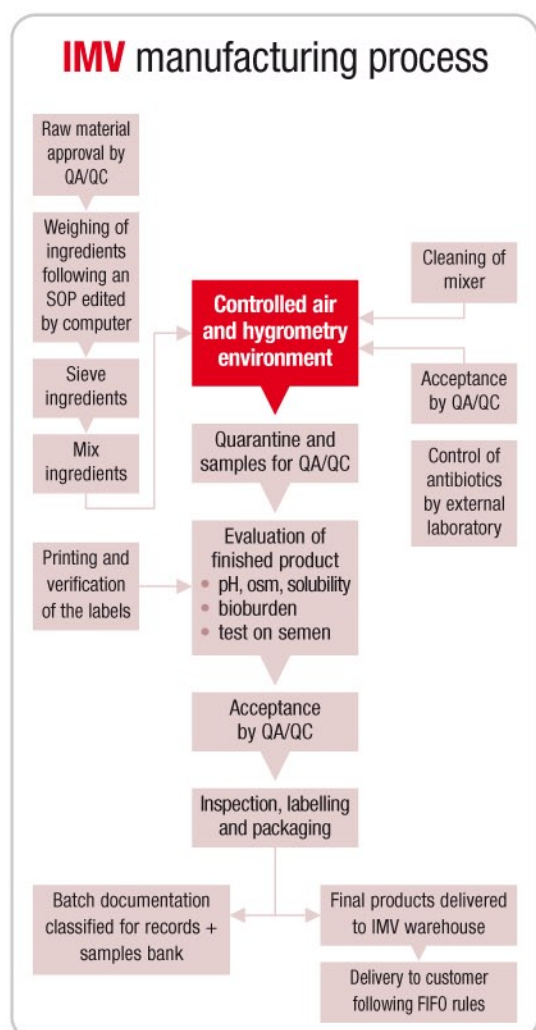
- Visual appearance
- Packaging
- Physico-chemical properties
- **In vivo testing** (test with semen): using CASA and flow cytometry
- **Bioburden**



**A sample from each batch is kept in our biorepository**

**Complete traceability of all components**

**Certificate of analysis available for every batch**







## ...Main publications

C.E. Kuster, G.C. Althouse – **The fecundity of porcine semen stored for 2 to 6 days in Androhep and X-Cell extenders** – *Theriogenology*, 52, p. 365-376

T. Haugana,b & al – **A retrospective study on effects of storage time of liquid boar semen on reproductive performance in Norwegian swine** – *Theriogenology*, 64, p. 891-901 (2005)

T. Haugana,b & al – **Fertility Results of Artificial Inseminations Performed with Liquid Boar Semen Stored in X-Cell vs BTS Extender** – *Reprod Dom Anim* 42, p. 94-99 (2007)

K.E. Waterhouse & al – **Effects of in vitro storage time and semen extender on membrane quality of boar sperm assessed by flow cytometry** – *Theriogenology*, 69, p. 1638-1651

WE Roudebush, JR Diehl – **Platelet-activating factor content in spermatozoa relative to boar fertility** – *Theriogenology*, 55, 1633-1638 (2001)

WE Roudebush, Fukuda AI, Minhas BS – **Enhanced embryo development of rabbit oocytes fertilized in vitro with platelet-activating factor (PAF) treated sperm** – *J. Assisted Reprod Genetics* (1993), 10: 91-4.

Céline Cheminade & al – **Platelet activating factor activators Improve Boar Sperm Motility and Fertility** – *Biology of Reproduction*, 66, 421-428 (2002)

Minhas BS – **Platelet-activating factor treatment of human spermatozoa enhances fertilization potential** – *Am J Obstet Gynecol* 168(4), 1314-7 (1993)

Kuzan FB, Geissler FT, Henderson WRJr – **Role of spermatozoal platelet-activating factor in fertilization** – *Prostaglandins* 39, p. 61-74 (1990)





- ISO 9001:2008 and medical reference ISO 13485:2003 certified
- Production site complies with the strictest standards of quality and safety
- Continuous improvement of product, production and quality control processes
- All materials and finished products potentially in contact with living cells tested for bio compatibility
- 95% made in France

  
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