

Nidacon News

The news letter from your ART supplier • No 2 • 2018

► Flexibility!

Flexibility is luxury today and something that you don't have a lot of in an IVF-lab. Exact time protocols to follow, patients arriving at a certain time etc., can sometimes be quite stressful.

Therefore we decided to have a look at the sperm freezing protocol for Sperm-CryoProtec™. Could we make it easier for the embryologist, while maintaining the high survival rate?

After a lot of testing and help from some of our customers (thank you Akademiska in Uppsala), two variables are now changed.

The first is the incubation time in the fridge after loading the straws.

The new range is now 10-60 minutes instead of earlier 30-60 minutes. If you look at the results when incubating for 60 minutes compared to 10, you can see

a slight increase when incubated for 60 minutes. The big difference is however

We will continue our work with improving the method for freezing sperm and any suggestions from you and your colleagues are always helpful.

between not incubating and incubating for 10 minutes.

The second change is the time on the CryoFloater in LN2 vapour.

The new recommendation is 10-30 minutes instead of only 30 minutes. We have again performed a lot of tests, both at Nidacon and with the help of Akademiska Hospital in Uppsala, Sweden. If you measure the temperature in the straw on the floater, it does go down quite fast and 10 minutes is more than enough but, in order to make it more flexible, we now re-

The so called CryoFloater used in our recommended protocol is available for free when you buy Sperm-CryoProtec™.

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commend the time range 10-30 minutes. No difference in results with regards to survival rate has been found in our tests between 10 and 30 minutes but it will give you the chance to take the coffee you so desperately need!

The changes can be found in the insert, starting with next batch produced and from now also on our website www.nidacon.com.

We will continue our work with improving the method for freezing sperm and any suggestions from you and your colleagues are always helpful.

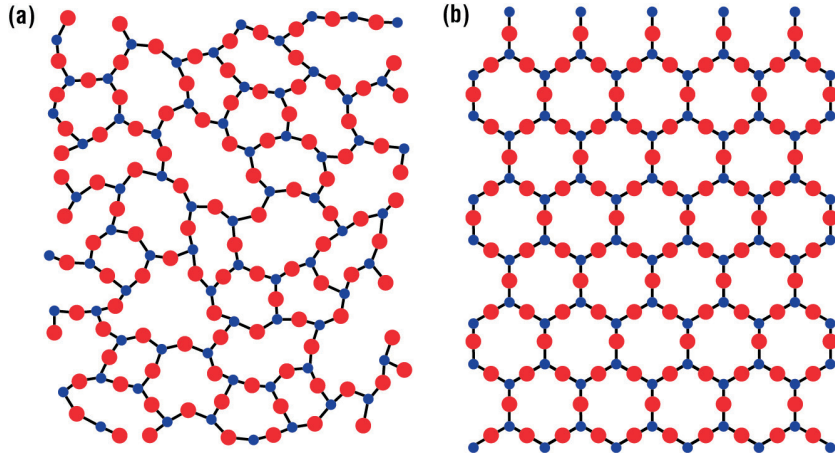


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What is PureSperm® and how does it work?

PureSperm® contains amorphous colloidal silica which has gone through the process of silanization.



a) The structure of amorphous colloidal silica compared to b) the crystalline structure of naturally occurring silica.

A colloid is a dispersion of particles that are small enough to not be affected by the force of gravity ($\leq 1 \mu\text{m}$) but large enough ($> 1 \text{ nm}$) to not be defined as a true solution (The colloidal chemistry of silica). It is this property which gives PureSperm® its specific functional characteristic.

Silica occurs naturally in crystalline form and it is the most abundant component of the earth's crust. It is also known to play an important role in many biological

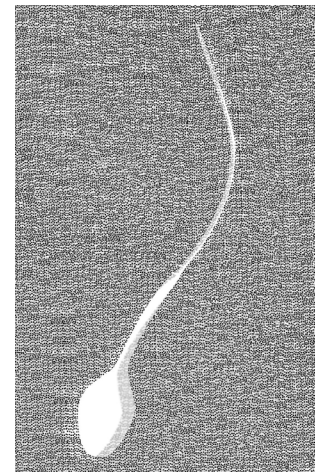
systems and in nature.

However, the silica present in PureSperm® is manufactured through an industrial process which ensures it meets our requirements and specifications. This synthetic colloidal silica is made up of amorphous silicon dioxide (SiO_2) particles. The spherical silica particles have a smooth surface and are dispersed in a fluid which is referred to a silica sol. The fluid in this case is water, and therefore it is better known as an aquasol

or a hydrosol. Furthermore, it is a stable dispersion. This means that the solid particles do not settle or agglomerate at any significant rate.

The silanization occurs during a special chemical reaction that results in a surface coating of the silica particles. The silica particles have a negative surface charge to begin with and the silane reduces the charge slightly and induces a steric stabilization of the particles. This means that they are even further protected against settling out of the dispersion.

In comparison to the silanized silica, the size of the sperm cell is as follows: the sperm head $3\text{-}5 \mu\text{m}$ in length, $2\text{-}3 \mu\text{m}$ in width, and the tail is $45\text{-}50 \mu\text{m}$ long (The Practical Guide to Basic Laboratory Andrology) see picture below. This is a ratio of approximately 1000:1.



Schematic diagram of a sperm cell surrounded by silica particles in the actual proportions of a sperm cell in a density gradient.

Heavy metals in PureSperm®

In the last few years there has been a discussion in the scientific community regarding the presence of heavy metals in density gradient media.

This has inspired us to test our own PureSperm® products for heavy metals. The test was performed at a certified laboratory here in Sweden (ALS Scandinavia) by the method of ICP-SFMS.

First and foremost we always recommend using our PureSperm® 100 together with our PureSperm® Buffer. Pure Sperm Buffer® contains EDTA (Ethylenediaminetetraacetic acid) which is a well known hexadentate ligand and chelating agent that will sequester metal ions present in the solution. By using the



PureSperm® Buffer one will not dilute the EDTA that is already present in the PureSperm® 100. The PureSperm® 40, PureSperm® 80 and PureSperm® 90 all contain EDTA as well.

The metals that have been in focus in the discussion are Fe, Al, and Cr, Cd, Ba, Pb and Cu and our results show that the ionic concentration of most of these elements are much lower than those reported and discussed over the last few years.

However, discussions like this one only inspires us to do further tests on our products and we are always looking for ways to improve our products.



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At the beginning of September, we attended the

Nordic lab association (NILS) meeting in Oslo



A very interesting and nice smaller meeting, that included both workshops, interesting lectures and, of course, a very nice dinner. It's so much easier to interact with people at smaller meetings like this; people are not rushing around like at, for example ESHRE meetings.

One of the lecturers; Sandro Esteves, held an interesting presentation on male infertility, highlighting some of the important changes in the management of male factor infertility and discussing their impact on the daily routines. This presentation was published in the Journal of Reprod.Genetics in 2016 Vol. 33; I do recommend you to read it.

Novel concepts in male factor infertility; clinical and laboratory perspectives.



► The Climate Conference 2018

Nidacon recently attended the first Climate conference held by The Perfect World Foundation, where we had the pleasure of listening to some of the leading experts in the field of environmental issues.

They gave their views on the situation for our climate and discussed issues on what we all can do to reduce the impact of climate change issues. A lot of focus was put on engaging the young people of the world in order to change consuming habits, the use of plastics, and the use of sustainable materials in fashion and the recycling of consumed goods.

Among others, we listened to Sir David Attenborough, British zoologist and writer, internationally known for BBC's nature programs "The Living Planet", "Planet Earth" and "The Blue Planet", Dr. Rajendra Pachauri, former chairman of IPCC and Nobel Prize winner 2007 for IPCC, Palle Stenberg, CEO Nudie Jeans,

Taegan Yardley, a 15 year animal activist mostly known for fighting to save elephants and to ban ivory trade, and Bethany Carney Almroth, Scientist at The University of Gothenburg, research area: oxidative stress, aquatic ecotoxicology and environmental pollution.

The Perfect World Foundation is a Scandinavian based, independent, non-profit organization established in 2010 to raise awareness, funding, and to take action through animal and nature conservation projects around the world. The climate conference 2018 was held in Gothenburg Botanical garden. The purpose of the conference was to join together some of the organisation's spokes persons, experts in the field of environmental issues, as well as ordinary people.

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Emma Holmes, Oscar Rymo and Manisha Olausson – Nidacon.

► Instructions for use

More detailed instructions on how to use our products will soon be available on our website.

These instructions will be more detailed compared to the ones that you can find in the inserts that are included in all packages.

We will include some of the tips&tricks (which you might have seen previously). These have been very popular and hopefully also useful.

The first products with more detailed instructions are VitriBlast™ and Thermo-

Blast™. How to use the product has not changed; we have only added more information.

If you have further ideas or comments of additions, please let us know.



► Upcoming events

- ASRM – Denver, Colorado, 6-10 October, 2018

Focus on the next generation

We will be exhibiting together with our distributors; Spectrum Technologies and NextGen LifeLabs.



► Do you find it difficult to open our Nidoil bottles?



We are aware of this problem; they are sometimes a bit tough to open.

Therefore we have made changes in the production and starting with the next produced batch, they will be a lot easier to open.

However, if you still find them difficult to open, or maybe feel that it's not tight enough, please let us know!

► Who to contact



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