

# **CHEMOSVIT – Nanoforce**

## **Nanodeals Generator**



# CHEMOSVIT GROUP

## Basic Data



**Headquarters:** Svit, Slovakia

**Number of subsidiaries and joint-ventures:** 12

**Production plants:** Slovakia, Ukraine and Finland

**Employees:** 2 345

**History:** 1934 – Establishment of the company  
1994 – Company privatisation by  
management and employees

**Market:** more than 50 countries all around the  
world

**Certified integrated management systems:** ISO  
9001:2008, ISO 14001:2004, ISO 22000:2005.....





# The Current Activities

- **Production of BOPP films** (packaging BOPP films, capacitor BOPP films)
  - TERICHEM, TERICHEM LUTSK, TERICHEM TERVAKOSKI
- **Production and converting of films** (production of PE films, cast PP and PE/PA films dyed in mass, pre-press, rotogravure, flexoprinting, metallisation, lamination, slitting, pouches, carrier bags)
  - CHEMOSVIT FOLIE, LUTSKCHIM LUTSK, CHEMOSVIT BOHEMIA
- **Production of PP multifilament yarn** - CHEMOSVIT FIBROCHEM
- **Machinery production** (machining, grey cast iron, ductile iron and steel casting, production of packaging machines)
  - STROJCHEM, STROJCHEM LUTSK
- **Manufacture of plastic-based products and packaging**, (waste processing)
  - CHEMOSVIT ENVIRONCHEM, TzOV LUTSKPLASTMAS
- **Another** (Industry area services) – CHEMOSVIT, a.s., PAT LUTSKPLASTMAS



# CHEMOSVIT - GROUP

## FILMS

BOPP Films

Converting



Tervakoski film



## YARN



## MACHINING



## OTHERS



Lutskplastmas  
TzOV

## Nanodeals Generator

### Description of the 1st proposal - **Antimicrobial nanomodified PP yarn**

Polypropylene yarn Prolen<sup>®</sup> is resistant to bacteria, moulds and fungi. This effect is enhanced by an antibacterial additive (nano-silver ions) in PP polymer matrix. The added substance inhibits microorganism germs from growing, which effectively prevents the reproduction of bacteria, moulds and fungi

### Description of the 2nd proposal - **Multifunctional nanoadditives for PP-based products**

Nanoadditives to enhance manufacturing, processing and utility properties of polypropylene-based products. It can be applied in the production of continuous yarn, staple yarn, non-woven textiles, packaging and non-packaging films, or plastic 3-D products.

R&D investment required: € 400.000



# The 1st proposal – Antimicrobial nanomodified PP yarn

## Technology & Product Description:

- Polypropylene (PP) textile multifilament yarn Prolen®, mass-dyed textile yarn from 50 to 3 000 dtex and technical yarn from 660 to 1 800 dtex. Technology of yarn production includes: POY (partially oriented yarn) and FDY (fully drawn yarn) spinning, friction texturizing, spindle texturizing, air texturizing, winding and twisting.
- All of these types can be modified by an antibacterial additive based on biogenic silver ions (nano-silver) harmless for human body and the environment. Silver ions inhibit and reduce spreading of infections by stopping the growth of bacteria, fungi and moulds, reduce unpleasant smell and keep biological balance of human skin.
- Antibacterial additive on the basis of biogenic silver ions has been patented by VUCHV, a.s. (No: SK 286186 from 2004 – An antimicrobial additive concentrate for doping of synthetic fibres and plastics). Antimicrobial polypropylene yarn (No: SK 286737) has been also patented by VUCHV, a.s. since 2005.
- **Certified nanomodified PP yarn is already available for many fields of market applications.**
- We would welcome any co-operation in the field of antimicrobial additive development and applying the yarn in textile and technical products.



## Scientific Competences & Managerial Experience

- Production Director of the company is Mr. Jaroslav Lučivjanský (58 years old), who has academic degree in macromolecular chemistry and fibres technology. He has been working for the company for over 30 years in different positions including top management. He is an author, or co-author of several original patented technological proceedings, masterbatches preparation, application and production of polypropylene yarns. He had set up a team of experts involved in continuous development of new products sold in the global market. The company has 260 employees, of which 15 are directly or indirectly working in R&D.
- Main skills: technical, R&D, management and commercial.



# The 1st proposal – Antimicrobial nanomodified PP yarn

## - cont.

### Market Size & Expected Growth

- Having regard to a certified antimicrobial finish and skin-friendly properties of Prolen<sup>®</sup> yarn, as well as its food safety, there is a huge market for its application, e.g. in *textile industry* - underwear, socks, hosiery, seamless, sports garments, leisure wear, knit-wear, warp knitting, woven fabrics for formal wear, elastomeric covering; *health industry* - bandages, knitted fabrics, various textiles for contact with skin; *furniture industry* - upholstery, mattresses, linings, taslan yarn; *automotive industry* - upholstery for seats, interiors, dashboard, back plateau, carpets, protective upholstery; *food industry* - filtration material, sieves and filtration fabrics for sugar refineries and mills, nets; *technical applications* - ribbons, belts, technical woven fabrics, filtration, nets, ropes





## The 2nd proposal – Multifunctional nanoadditives for PP-based products

### Technology & Product Description:

- Nanoadditives with synergy effect to enhance manufacturing, processing and utility properties of polypropylene-based products have been developed in co-operation with the Slovak partner, VÚCHV, a.s., Svit. Patent protection has also been in progress these days.
- The quality of polypropylene and nanoadditive-based masterbatches will be tested in technological production and processing of different polypropylene textile multifilament yarn, mass-dyed textile yarn from 50 to 3 000 dtex and technical yarn from 660 to 1 800 dtex, in packaging and non-packaging PP films, plastic products for industrial applications, automotive industry, or households.



# The 2nd proposal – Multifunctional nanoadditives for PP-based products - cont.

## Market Size & Expected Growth

- The development of special nanoadditive grades with synergy effect to enhance manufacturing, processing and utility properties of polypropylene-based products should be accomplished by the end of 2014, when application tests in different industrial segments are envisaged. These days, polypropylene is among the most demanded polymers applicable practically in all market segments: automotive, packaging, household, technical, fibre and textile industries. Due to this, it is assumed that nanoadditive-modified products have good prospects to penetrate existing and emerging markets.

## Scientific Competences & Managerial Experience

(as in the 1st Project)



# Production of PP multifilament yarn





# Thank you for your attention

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