



FORMATION - DÉPANNAGE - HYGIÈNE - AUDIT MAINTENANCE - MANAGED SERVICES - LOCATION

Chailly-Montreux, September 2024

ECCO CLEAN SUPPLIER PRODUCTS SAFETY

Bacterial based cleaning products (BBCP) from our supplier have been manufactured and commercialised for more than 29 years. They have been used in hospitals, food plants, restaurant, schools and many other sectors, with an impeccable track record of safety and innocuity. In Canada, their use in food plants is approved by Health Canada.

These BBCPs contain bacterial strains of the *Bacillus* family and enzymatic fermentation extracts that provides unique cleaning performance.

Our supplier uses the following species of *Bacillus*:

- *Bacillus subtilis*
- *Bacillus amyloliquefaciens*

These species are known to be safe and are commonly used in cleaning products, probiotic supplements, animal feed additives and many other market segments.

In the last decade, BBCPs have gained popularity in the cleaning market and among the main reasons is their safety aspect, their performance and their potential to be used as probiotic cleaning products.

Our supplier has been collaborating in many research projects involving the use of beneficial bacterial cultures in cleaning products for the health care sector (i, ii, iii).

Our supplier is skilled at manufacturing and is the reference in term of quality for the manufacturing of high quality BBCPs (iv). Its fermentation processes and its strict quality assurance program have been developped in collaboration with the Ministry of Agriculture of Canada (Agriculture and Agri-Food Canada). All of our supplier products are certified to be free from pathogenic microorganisms including the following : *Escherichia coli*, *Bacillus cereus*, *Pseudomonas aeruginosa*, Yeast and mold, *Staphylococcus aureus* and *Salmonella sp.*

The safe use of our supplier BBCPs in hospitals, food transformation plants and many other sectors have been proven to provide effective and environmental sound solutions to hygiene and safety problems commonly met in these sectors. As a reference, the second largest pediatric hospital of North America - Ste-Justine - has been using our suppliers BBCPs for more than 7 years with great satisfaction and demonstrated performance results and innocuity (v).

Please look at the following details and let us know should you have any further questions.
Best regards.

A handwritten signature in blue ink, appearing to read 'M. Drouillet'.

Marjorie Drouillet
Service Director

The bacterial strains of *Bacillus subtilis* and *Bacillus amyloliquefaciens* used by our supplier :

- are recognized as safe and nonpathogenic group 1 bacteria according to the European directive 2000/54/EC (vi).
- are listed by the European Food Safety Authority (EFSA) as microorganisms that qualify for presumption of safety (QPS) as sources of food and feed additive (vii).
- have shown to be free from enterotoxigenic factors (viii).
- have a natural and stable antibiotic sensitivity profile which is intrinsic and not acquired, as defined by the EFSA guidance (ix).
- are all wild type strains and are not genetically modified.
- are approved for use in cleaning products by the Nordic Ecolabel, the European Ecolabel and the Canadian Ecologo programs.
- are produced under sterile bioprocesses at and by our supplier
- are properly identified to the species and sub-species level by using Ribosomal Intergenic Spacer (RIS) DNA and 16S ribosomal DNA sequencing.
- are non phytopathogenic bacteria (no impact on plants).
- are non zoopathogenic bacteria (no impact on animals).
- present no risk for aquatic organisms (x).

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- (i) I-Text, Intelligent use of innovative textiles, Jesper Hedin and Ulla Elofsson, SP Technical Research Institute of Sweden, 2017.
 - (ii) Biocontrol of solid surfaces in hospitals using microbial-based wipes, Dural-Erem, A. et al., Textile Research Journal, 2019, Vol. 89(2) 216–222.
 - (iii) Can probiotic cleaning solutions replace chemical disinfectants in dental clinics ? Al-Marzoop, F. et al., European Journal of Dentistry, Volume 12, Issue4, October-December 2018
 - (iv) Teasdale S and Kademi A (2018), Quality challenges associated with microbial-based cleaning products from the Industry Perspective. Food Chem Toxicol 116:20-24.
 - (v) Ste-Justine, Pediatric University Hospital, Montreal. Reference letter available upon request.
 - (vi) Directive 2000/54/EC of the European parliament and of the Council of 18 September 2000 on the protection of workers from risks related to exposure to biological agents at work <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:02000L0054-20200624>.
 - (vii) European Food Safety Authority, The 2021 updated list of QPS Status recommended biological agents in support of EFSA risk assessments – 2nd revision (new addition), <https://zenodo.org/record/4917383#.YTJTrS3MzEY>
 - (viii) Tested with Duopath™ cereus enterotoxin detection kit, Merck Chemicals, product No. 1041460001. Data available upon request.
 - (ix) European Food Safety Authority. 2012. Scientific opinion on guidance on the assessment of bacterial susceptibility to antimicrobials of human and veterinary importance. EFSA J. 10:2740.
 - (x) Tested according to: Guidance Document for Testing the Pathogenicity and Toxicity of New Microbial Substances to Aquatic and Terrestrial Organisms, Environment and climate change Canada. Report EPS 1/RM/44, Second Edition - December 2016. Data are available upon request.