

INDUSTRIAL BIOTECHNOLOGY • BIOSURFACTANT SKILL DEVELOPMENT



NTHRYS
OPC PVT LTD



Biosurfactants Industrial Manufacturing Training Programs

A complete industrial catalogue of hands-on biosurfactant fermentation training modules — from rhamnolipids & sophorolipids to surfactin lipopeptides.

56

PROGRAMS

10

CATEGORIES

2026

EDITION

Program Categories at a Glance

This catalogue lists every microbial biosurfactant our training programs are equipped to manufacture and teach, organised into 10 technology streams. Each program carries a unique product code for easy reference, enrolment and certification.

STREAM	CATEGORY FOCUS	DESCRIPTION	COUNT
NSF-GL	Glycolipid Biosurfactants	Rhamnolipid, sophorolipid & MEL production	6
NSF-LP	Lipopeptide Biosurfactants	Surfactin, iturin & fengycin production	6
NSF-PM	Polymeric & Particulate Biosurfactants	Emulsan, liposan & bioemulsifier production	5
NSF-PF	Phospholipid & Fatty-Acid Biosurfactants	Phospholipid, mycolic-acid & lecithin production	5
NSF-PR	Production Strains & Fermentation Technology	Pseudomonas, Bacillus & yeast fermentation	6
NSF-SU	Low-Cost Substrate & Feedstock Processing	Waste-oil, glycerol & molasses feedstock processing	5
NSF-DS	Downstream Recovery & Purification	Precipitation, foam-fractionation & purification	6
NSF-PE	Petroleum & Environmental Applications	MEOR, oil-spill & soil-remediation surfactants	6
NSF-CP	Cosmetic, Pharma & Food Applications	Skin-care, antimicrobial & food-emulsifier grades	6
NSF-FT	Agriculture, Cleaning & Formulation	Adjuvant, green-cleaning & application formats	5
Total training programs			56

HOW TO READ A CODE

NSF – GL – 01

NSF Nthrys Biosurfactant Program GL Category stream 01 Program number

01

CATEGORY • NSF-GL

Glycolipid Biosurfactants

Rhamnolipid, sophorolipid & MEL production

6

PROGRAMS

CODE	TRAINING PROGRAM	DESCRIPTION
NSF-GL-01	Rhamnolipid	Pseudomonas glycolipid surfactant.
NSF-GL-02	Mono-Rhamnolipid	Single-sugar rhamnolipid.
NSF-GL-03	Di-Rhamnolipid	Double-sugar rhamnolipid.
NSF-GL-04	Sophorolipid	Starmerella yeast glycolipid.
NSF-GL-05	Mannosylerythritol Lipid (MEL)	Yeast MEL surfactant.
NSF-GL-06	Trehalose Lipid	Rhodococcus trehalose lipid.

02

CATEGORY • NSF-LP

Lipopeptide Biosurfactants

Surfactin, iturin & fengycin production

6

PROGRAMS

CODE	TRAINING PROGRAM	DESCRIPTION
NSF-LP-01	Surfactin	Bacillus cyclic lipopeptide.
NSF-LP-02	Iturin	Antifungal lipopeptide.
NSF-LP-03	Fengycin	Antifungal lipopeptide.
NSF-LP-04	Lichenysin	Bacillus licheniformis lipopeptide.
NSF-LP-05	Viscosin	Pseudomonas lipopeptide.
NSF-LP-06	Mixed Lipopeptide Complex	Multi-lipopeptide blend.

03

CATEGORY • NSF-PM

Polymeric & Particulate Biosurfactants

Emulsan, liposan & bioemulsifier production

5

PROGRAMS

CODE	TRAINING PROGRAM	DESCRIPTION
NSF-PM-01	Emulsan	Acinetobacter polymeric emulsifier.
NSF-PM-02	Liposan	Yeast polymeric emulsifier.
NSF-PM-03	Alasan	High-MW protein-polysaccharide surfactant.
NSF-PM-04	Biodispersan	Particulate dispersant.
NSF-PM-05	Bioemulsifier Complex	Polymeric emulsifier blend.

04

CATEGORY • NSF-PF

Phospholipid & Fatty-Acid Biosurfactants

Phospholipid, mycolic-acid & lecithin production

5

PROGRAMS

CODE	TRAINING PROGRAM	DESCRIPTION
NSF-PF-01	Microbial Phospholipid	Membrane phospholipid surfactant.
NSF-PF-02	Fatty-Acid Biosurfactant	Free fatty-acid surfactant.
NSF-PF-03	Corynomycolic Acid	Mycolic-acid surfactant.
NSF-PF-04	Spiculisporic Acid	Fungal fatty-acid surfactant.
NSF-PF-05	Microbial Lecithin	Bio-lecithin emulsifier.

05

CATEGORY • NSF-PR

Production Strains & Fermentation Technology

Pseudomonas, Bacillus & yeast fermentation

6

PROGRAMS

CODE	TRAINING PROGRAM	DESCRIPTION
NSF-PR-01	Pseudomonas Production Process	Rhamnolipid fermentation.
NSF-PR-02	Bacillus Production Process	Lipopeptide fermentation.
NSF-PR-03	Yeast Production Process	Sophorolipid / MEL fermentation.
NSF-PR-04	Engineered-Strain Production	Recombinant overproducer hosts.
NSF-PR-05	Strain Development & Screening	High-yield strain selection.
NSF-PR-06	Foam-Control & Bioreactor Process	Foaming-broth fermentation.

06

CATEGORY • NSF-SU

Low-Cost Substrate & Feedstock Processing

Waste-oil, glycerol & molasses feedstock processing

5

PROGRAMS

CODE	TRAINING PROGRAM	DESCRIPTION
NSF-SU-01	Waste-Oil Substrate Process	Used-oil-fed production.
NSF-SU-02	Glycerol Substrate Process	Biodiesel-glycerol feedstock.
NSF-SU-03	Molasses Substrate Process	Sugar-molasses feedstock.
NSF-SU-04	Agro-Residue Substrate Process	Lignocellulose feedstock.
NSF-SU-05	Dairy / Food-Waste Substrate	Whey & food-waste feedstock.

CODE	TRAINING PROGRAM	DESCRIPTION
NSF-DS-01	Acid Precipitation	pH-based surfactant recovery.
NSF-DS-02	Solvent Extraction	Organic-solvent extraction.
NSF-DS-03	Foam Fractionation	In-situ foam recovery.
NSF-DS-04	Membrane Ultrafiltration	Membrane concentration.
NSF-DS-05	Chromatographic Purification	High-purity polishing.
NSF-DS-06	Drying & Concentration	Finishing & formulation.

08

CATEGORY • NSF-PE

Petroleum & Environmental Applications

MEOR, oil-spill & soil-remediation surfactants

6

PROGRAMS

CODE	TRAINING PROGRAM	DESCRIPTION
NSF-PE-01	MEOR Biosurfactant	Microbial-enhanced oil recovery.
NSF-PE-02	Oil-Spill Dispersant	Spill cleanup biosurfactant.
NSF-PE-03	Soil-Washing Surfactant	Contaminated-soil remediation.
NSF-PE-04	Hydrocarbon Bioremediation Aid	Degradation-enhancing surfactant.
NSF-PE-05	Tank / Pipeline Cleaner	Petroleum-equipment cleaner.
NSF-PE-06	Heavy-Metal Removal Surfactant	Metal-chelating biosurfactant.

09

CATEGORY • NSF-CP

Cosmetic, Pharma & Food Applications

Skin-care, antimicrobial & food-emulsifier grades

6

PROGRAMS

CODE	TRAINING PROGRAM	DESCRIPTION
NSF-CP-01	Cosmetic-Grade Biosurfactant	Skin-care surfactant.
NSF-CP-02	Antimicrobial Biosurfactant	Lipopeptide antimicrobial.
NSF-CP-03	Drug-Delivery Surfactant	Pharma emulsifier carrier.
NSF-CP-04	Food Emulsifier	Food-grade bioemulsifier.
NSF-CP-05	Antibiofilm Agent	Biofilm-disrupting surfactant.
NSF-CP-06	Wound-Care / Biomedical Grade	Biomedical surfactant.

10

CATEGORY • NSF-FT

Agriculture, Cleaning & Formulation

Adjuvant, green-cleaning & application formats

5

PROGRAMS

CODE	TRAINING PROGRAM	DESCRIPTION
NSF-FT-01	Agricultural Biosurfactant	Pesticide-adjuvant & biocontrol.
NSF-FT-02	Detergent / Cleaning Surfactant	Green-cleaning surfactant.
NSF-FT-03	Liquid Formulation	Stabilised liquid product.
NSF-FT-04	Powder / Spray-Dried Format	Dried surfactant product.
NSF-FT-05	Concentrate & Blend	Application concentrate & blends.

ENROL • FERMENT • EMULSIFY

Build a Career in Biosurfactant Manufacturing

Every program in this catalogue is delivered as hands-on training on working fermentation and recovery equipment — covering producer-strain handling, low-cost-substrate fermentation, foam-fractionation & recovery, purification, application formulation, assay & QC and quality compliance. Mix and match programs to design a track that fits your goals.

56 training programs

10 technology streams

Unique **product code** for every module

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