
Technical Information

Kollipro[®] Antifoam P 2000

Polypropylene glycol as antifoaming agent for the biopharmaceutical industry



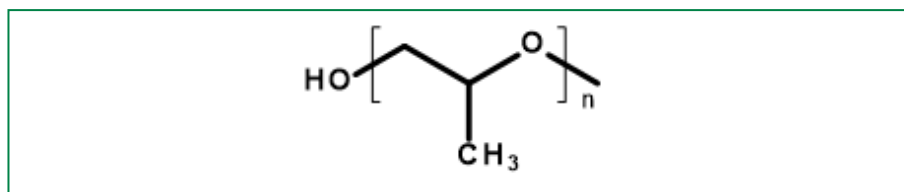
1. Introduction

BASF's Kollipro® Antifoam P 2000 is a clear colorless to yellowish liquid at room temperature which provides excellent antifoam properties. It is a fit-for-purpose biopharmaceutical processing aid for use in microbial fermentation as antifoaming agent.

2. Chemical and Physical Properties

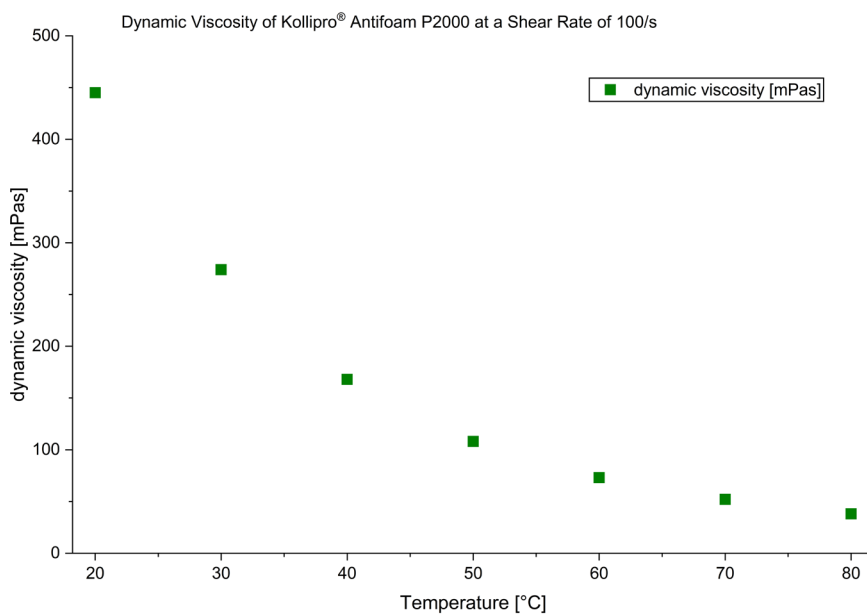
BASF's Kollipro® Antifoam P 2000 is obtained by polymerization of propylene oxide.

Chemical name	Polypropylene glycol
Average Molecular weight	Approx. 2000 g/mol
CAS number	25322-69-4



Density	Approx. 1.0 g/cm ³ (DIN 5157, 23 °C)
Kinematic viscosity 20 °C 40 °C	(DIN 51562) Approx 440 mm ² /s Approx. 150 mm ² /s

Dynamic viscosity:



Cloud Point: Kollipro® Antifoam P 2000 is a cloud point antifoam which shows a concentration dependent cloud point of < 25 °C.¹

¹ WO 2022/049228

Solubility: Kollipro® Antifoam P 2000 is miscible in all proportions with organic solvents. It is practically insoluble in water.

Water absorption: Kollipro® Antifoam P 2000 is very slightly hygroscopic at 25 °C.

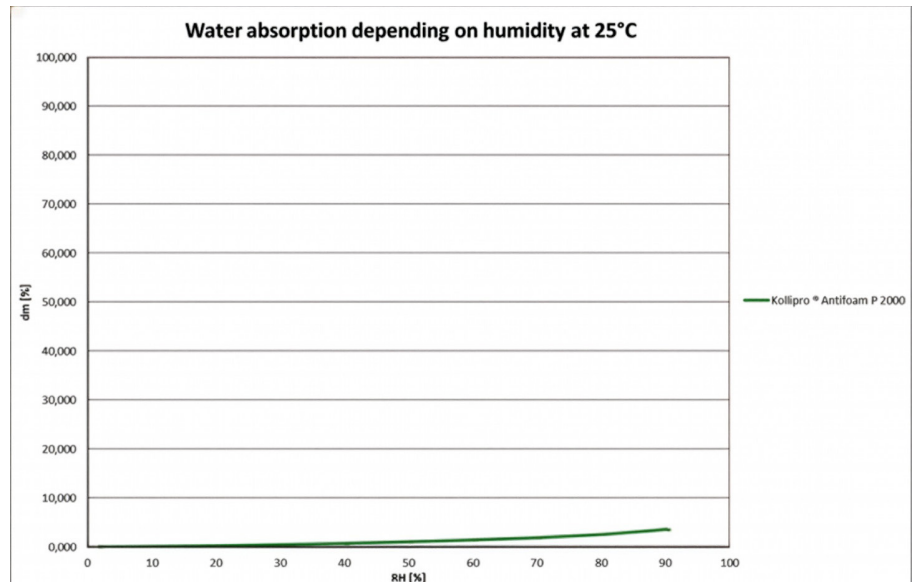


Figure 1: Water absorption of Kollipro® Antifoam P 2000 depending on the relative humidity at 25 °C. The y-axis shows the relative mass uptake and the x-axis the relative humidity.

Autoclavability: Kollipro® Antifoam P 2000 is suitable for sterilization under autoclave conditions. The table below shows selected analytical parameters showing no change in values before and after the autoclave procedure (15 minutes @ 121 °C, 2 bar, in glass bottle).

Sample*	pH	Acid value [mg KOH/g]	OH value** [mg KOH/g]	Molecular weight [g/mol]***
Before autoclave	4.6	0.2	56.2	1996
After autoclave	4.7	0.3	57.1	1964

* Batch 2500329U0 **OH value corrected by acid value ***calculated from OH value

Biodegradability: Kollipro® Antifoam P 2000 is readily biodegradable (OECD 301 F).

Storage stability: Kollipro® Antifoam P 2000 was stored for 6 months at 40 °C and 75 % relative humidity in a closed PE bottle showing neither discoloration nor changes in the relevant product parameters. Though, the acid value shows a slight increase over the storage period.

Sample*	pH	Acid value [mg KOH/g]	OH value** [mg KOH/g]	APHA color number**
0 months	4.6	0.2	56.2	< 20
3 months	4.4	0.6	56.2	< 20
6 months	4.3	1.0	56.0	< 20

* Batch 2500329U0 **OH value corrected by acid value ***Measured in a 50 mm cuvette



Figure 2: Storage test of Kollipro® Antifoam P 2000 at 40 °C at 75 % relative humidity. Storage was conducted in PE bottles. The product shows no discoloration after 6 months of storage.

3. Functionality

Kollipro® Antifoam P 2000 is a powerful defoaming agent for microbial fermentation. It shows excellent foam suppression, while cell densities, pH and oxygen transfer rates (OTR) are not affected. In addition, Kollipro® Antifoam P 2000 avoids the common issues associated with silicone-based antifoam alternatives such as surface adherence and downstream filter clogging.²

² Liew et al., *Biotechnology and Bioengineering*, 1997, 56, 89–98.

4. Handling instructions

Kollipro® Antifoam P 2000 is a clear colorless to yellowish liquid at room temperature. It should be stored in its original packaging, which should be kept tightly sealed. Storerooms must not be overheated.

5. Example Applications

Kollipro® Antifoam P 2000 is a potent antifoaming agent in microbial fermentation. To support the antifoaming properties of Kollipro® Antifoam P 2000, data of a small-scale fermentation system (Ambr® system, Sartorius) is shown. It must be noted that the Ambr® system reflects a worst-case system in comparison to large-scale bioreactors. The following conditions were used in the Ambr® system:

- Cells: E.coli TG10,
- Fermentation: fed batch 72 h
- Antifoams tested:
 - 3 batches Kollipro® Antifoam P 2000
 - 1 batch Antifoam C Emulsion (Merck KGaA, Germany)

Antifoam C Emulsion was chosen as an example of a silicone emulsion. Silicone-based antifoams are commonly used in fermentation processes.³

- Initial volume: 200 mL

³ Junker, *Biotechnol. Prog.*, 2007, 23, 767-784.

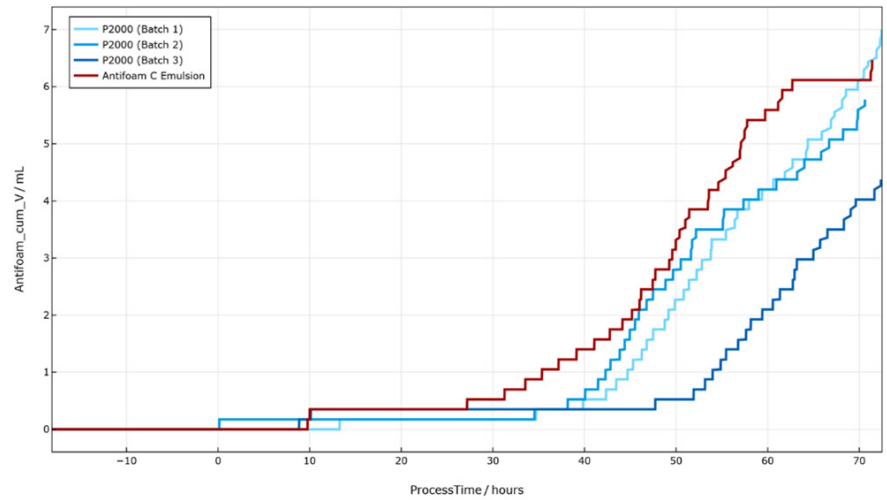
Antifoam addition:

Figure 3: Antifoam addition over process time to keep a constant volume in the system. Similar volumes of antifoaming agents were added. Please note, the slight differences in volume do not reflect a significant difference between the Kollipro® Antifoam P 2000 batches and the silicon-based Antifoam C Emulsion.

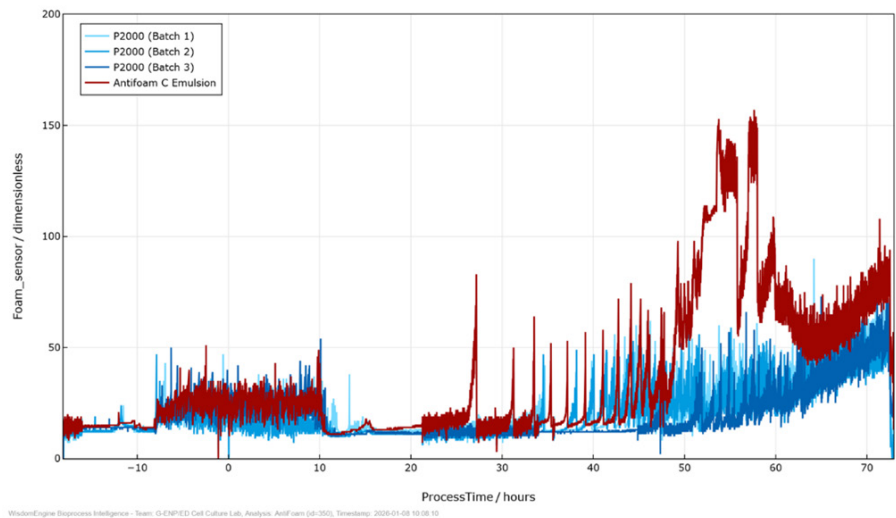
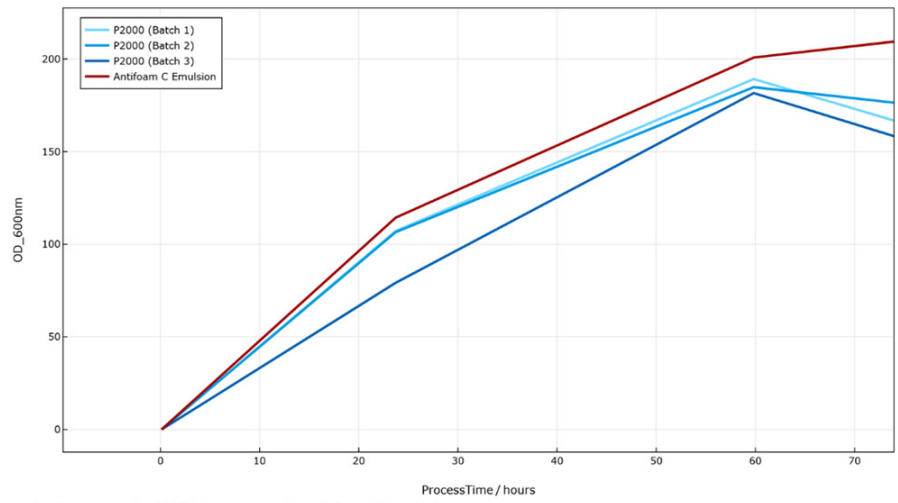
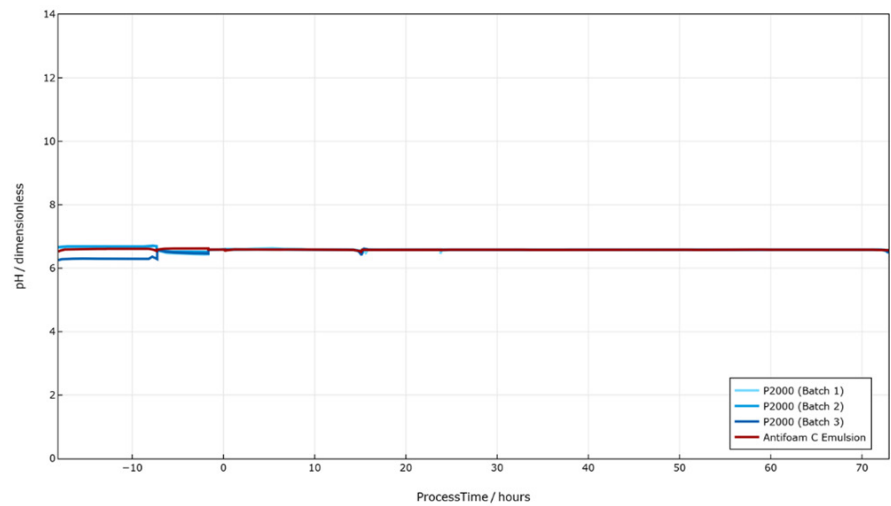
Foam Level:

Figure 4: Foam level during the Ambr® experiment. In this set of experiments, the foam level for Antifoam C was high after 50 hours, leading to overpressure and shutdown. However, until 50 hours were reached, all tested antifoams showed comparable results.

Cell Density (OD₆₀₀):

WatersEngine Bioprocess Intelligence - Team: G-ENPED Cell Culture Lab, Analysis: Antifoam (p-200), Timestamp: 2026-01-08 10:09:47

Figure 5: Cell density (OD_{600nm}) over process time. Cell growth and cell densities are comparable for all tested antifoams.

pH:

WatersEngine Bioprocess Intelligence - Team: G-ENPED Cell Culture Lab, Analysis: Antifoam (p-200), Timestamp: 2026-01-08 10:11:40

Figure 6: No effect of Kollipro® Antifoam P 2000 or the silicon-based defoamer on the pH was observed.

Oxygen Transfer Rate (OTR):

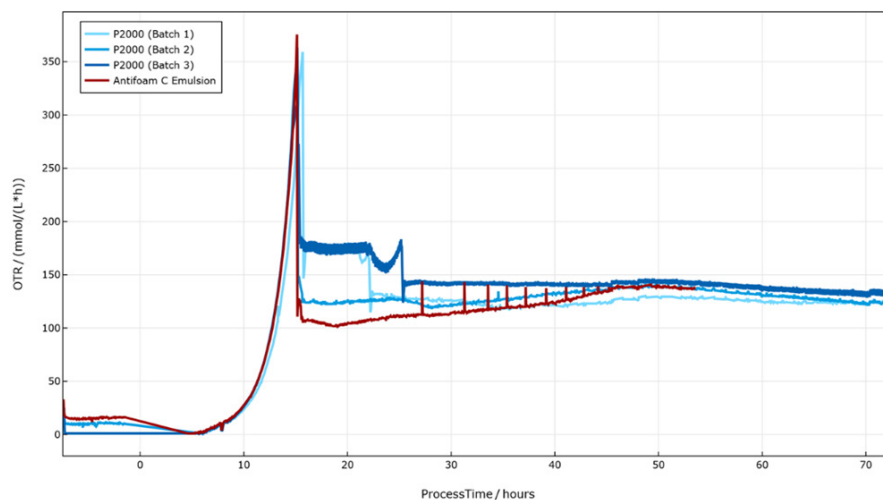


Figure 7: Oxygen Transfer Rate (OTR) over process time. The investigated antifoams did not affect the OTR.

Summary: The Ambr® data clearly shows the strong defoaming properties of Kollipro® Antifoam P 2000 which is comparable to a silicon-based antifoaming agent. Kollipro® Antifoam P 2000 features the advantage of improved microfiltration properties in comparison to silicon-based defoamers due to the weaker adsorption to pore walls and the lower adhesion to membranes. Polypropylene glycol-based antifoams (such as Kollipro® Antifoam P 2000) cause orders of magnitude less membrane fouling than silicone based antifoams, resulting in much higher permeate fluxes and lower hydraulic resistance across all tested membranes.³

³ Junker, *Biotechnol. Prog.*, 2007, 23, 767-784.

6. Stability and Safety

The product is typically stable for 24 months after date of production provided storage under recommended conditions. The current retest period and storage conditions can be found in [MyBASFWorld](#).

The current version of the safety data sheet is accessible via [MyProductWorld](#) and send with every consignment.

7. Available Articles and Packaging

Product name	PRD-No.*	Article number	Article	Packaging
Kollipro® Antifoam P 2000	30864493	50888443	5 kg commercial article	PE jerrycan

* BASF's commercial product number.

8. Documents, Quality &

Regulatory Information

The current versions of documents, quality and regulatory information are accessible via [MyBASFWorld](#) or from your local BASF sales representative.

Disclaimer

This document and any information provided herein does not constitute a legally binding obligation of BASF and has been prepared in good faith and is believed to be accurate as of the date of issuance. Unless expressly agreed otherwise in writing in a supply contract or other written agreement between you and BASF:

- a) To the fullest extent not prohibited by the applicable laws, BASF EXPRESSLY DISCLAIMS ALL REPRESENTATIONS, WARRANTIES, CONDITIONS OR GUARANTEES OF ANY KIND, WHETHER EXPRESS OR IMPLIED, WRITTEN OR ORAL, BY FACT OR LAW, INCLUDING ANY IMPLIED WARRANTIES, REPRESENTATIONS OR CONDITIONS OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, SATISFACTORY QUALITY, NON-INFRINGEMENT, AND ANY REPRESENTATIONS, WARRANTIES, CONDITIONS OR GUARANTEES, ARISING FROM STATUTE, COURSE OF DEALING OR USAGE OF TRADE AND BASF HEREBY EXPRESSLY EXCLUDES AND DISCLAIMS ANY LIABILITY RESULTING FROM OR IN CONNECTION WITH THIS DOCUMENT OR ANY INFORMATION PROVIDED HEREIN, including, without limitation, any liability for any direct, consequential, special, or punitive damages relating to or arising therefrom, except in cases of (i) death or personal injury, (ii) BASF's or its agents and assistants willful misconduct, fraud or fraudulent misrepresentation or (iii) any matter in respect of which it would be unlawful for BASF to exclude or restrict liability under the applicable laws;
- b) Any information provided herein can be changed at BASF's sole discretion anytime and neither this document nor the information provided herein may be relied upon to satisfy any obligations you may have to undertake your own inspections and evaluation;
- c) BASF rejects any obligation to, and will not, automatically update this document and any information provided herein, unless required by applicable law; and
- d) You are responsible for confirming that you have retrieved the most current version of this document from BASF.

April 2026