



Marine & Offshore

Certificate number: 20406/C0 BV

File number: ACI 1400/027/005

Product code: 5410H

This certificate is not valid when presented without the full attached schedule composed of 7 sections

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TYPE APPROVAL CERTIFICATE

This certificate is issued to

BIO-EX SAS
MONTROTTIER - FRANCE

for the type of product

REGULAR FOAM CONCENTRATES
FLUOFOAM 3 / FLUOFOAM 6 / BIOFILM 3S / BIOFILM 6S /
FLUOPRO 3E / FLUOPRO 6E / BIO FOAM 5 / BIO FOR C / BIO FOR N

Requirements:

Bureau Veritas Rules for the Classification of Steel Ships Part C, Chapter 4 and Part D, Chapter 7
SOLAS Convention 74, as amended, Chapter II-2.
EN 1568-1 to -4

This certificate is issued to attest that Bureau Veritas Marine & Offshore did undertake the relevant approval procedures for the product identified above which was found to comply with the relevant requirements mentioned above.

This certificate is a renewal of certificate N° 20406/B0 BV expiring on 24/01/2018

This certificate will expire on: 24 Jan 2023

For Bureau Veritas Marine & Offshore,

At BV LYON, on 15 Jan 2018,

Jean-Marc Cabuzel



This certificate remains valid until the date stated above, unless cancelled or revoked, provided the conditions indicated in the subsequent page(s) are complied with and the product remains satisfactory in service. This certificate will not be valid if the applicant makes any changes or modifications to the approved product, which have not been notified to, and agreed in writing with Bureau Veritas Marine & Offshore. Should the specified regulations or standards be amended during the validity of this certificate, the product(s) is/are to be re-approved prior to it/they being placed on board vessels to which the amended regulations or standards apply. This certificate is issued within the scope of the General Conditions of Bureau Veritas Marine & Offshore available on the internet site www.veristar.com. Any Person not a party to the contract pursuant to which this document is delivered may not assert a claim against Bureau Veritas Marine & Offshore for any liability arising out of errors or omissions which may be contained in said document, or for errors of judgement, fault or negligence committed by personnel of the Society or of its Agents in establishment or issuance of this document, and in connection with any activities for which it may provide.

THE SCHEDULE OF APPROVAL

1. PRODUCT DESCRIPTION:

Regular Foam Concentrates :

FLUOFOAM 3 :	AFFF (Aqueous Film-Forming Foam) fluorosynthetic concentrate
FLUOFOAM 6 :	AFFF (Aqueous Film-Forming Foam) fluorosynthetic concentrate
BIOFILM 3S :	AFFF (Aqueous Film-Forming Foam) fluorosynthetic concentrate
BIOFILM 6S :	AFFF (Aqueous Film-Forming Foam) fluorosynthetic concentrate
FLUOPRO 3E :	fluoroproteinic concentrate
FLUOPRO 6E :	fluoroproteinic concentrate
BIO FOAM 5 :	synthetic concentrate
BIO FOR C :	foam wetting additive
BIO FOR N :	foam wetting additive

<u>Type</u>	<u>Concentration</u>	<u>Expansion ratio</u>	<u>Density (kg/dm³ @ 20 °C)</u>	<u>Viscosity (cSt @ 20 °C)</u>
FLUOFOAM 3	3%	9 / 50	1.01±0.02	4±2 cSt @ 20 °C
FLUOFOAM 6	6%	9 / 50	1.00±0.02	4±2 cSt @ 20 °C
BIOFILM 3S	3%	9 / 40	1.01±0.02	4±2 cSt @ 20 °C
BIOFILM 6S	6%	9 / 40	1.01±0.02	4±2 cSt @ 20 °C
FLUOPRO 3E	3%	9	1.03±0.02	4±2 cSt @ 20 °C
FLUOPRO 6E	6%	9	1.01±0.02	4±2 cSt @ 20 °C
BIO FOAM 5	6% 3%	14/ 150 / 750 10 / 60 / 800	1.01±0.02	5±2 cSt @ 20 °C
BIO FOR C	0.5%	10 / 100 / 800	1.03±0.02	30±2 cSt @ 20 °C
BIO FOR N	1%	10 / 50 / 800	1.02±0.02	9±2 cSt @ 20 °C

2. DOCUMENTS AND DRAWINGS:

As per Manufacturer technical data sheets :

- FLUOFOAM 3,	dated 25/04/2014#10
- FLUOFOAM 6,	dated 25/04/2014#10
- BIOFILM 3S,	dated 22/06/2016#8
- BIOFILM 6S,	dated 22/06/2016#9
- FLUOPRO 3 E,	dated 25/04/2014#8
- FLUOPRO 6E,	dated 25/04/2014#10
- BIO FOAM 5,	dated 24/04/2014#9
- BIO FOR C,	dated 28/04/2014#13
- BIO FOR N,	dated 28/04/2014#16

3. TEST REPORTS:

Type	Test report	Standard	Date	Laboratory
FLUOFOAM 3	N° S-89/01	EN 1568-3	05.04.2002	Institut der Feuerwehr NRW, Germany
FLUOFOAM 6	N° S-87/01	EN 1568-3	17.07.2002	Institut der Feuerwehr NRW, Germany
BIOFILM 3S	N° S-29/05 N° S-29/05-ICAO	EN 1568-3 ICAO (= level B)	25.05.2005 25.05.2005	Institut der Feuerwehr NRW, Germany
BIOFILM 6S	N° S-30/05 N° S-30/05-ICAO	EN 1568-3 ICAO (= level B)	25.05.2005 25.05.2005	Institut der Feuerwehr NRW, Germany
FLUOPRO 3E	N° FCX-0264	EN 1568-3	13.07.2001	CRTS, France
FLUOPRO 6E	N° FCX-0263	EN 1568-3	13.07.2001	CRTS, France
BIO FOAM 5	N° FCX-0216 N° FCX-0217 N° FCX-0714	EN 1568-1 EN 1568-2 EN 1568-3	02.02.2006 02.02.2006 06.09.2004	CRTS, France CRTS, France CRTS, France
BIO FOR C	N° S-78/01 - 1.Erg. N° S-78/01	EN 1568-1 EN 1568-3	25.03.2004 07.03.2002	Institut der Feuerwehr NRW, Germany Institut der Feuerwehr NRW, Germany
BIO FOR N	N° PN 06 7173 N° S-21/02	EN 1568-1 EN 1568-3	09.11.2006 17.06.2002	CNPP, France Institut der Feuerwehr NRW, Germany

4. APPLICATION / LIMITATION:

4.1 - Application for low expansion fixed foam fire protection systems in machinery spaces, in cargo pump rooms and in the cargo area of oil tankers or chemical tankers.

4.2 - May be used also as additive AFFF to water.

4.3 - For ships with service notation Chemical Tankers or Product Tankers the list of handled products will be approved on case by case basis.

4.4 - On board installation and maintenance to be as per manufacturer's instructions.

4.5 - Periodical controls of foam concentrates on board should be carried out according to IMO MSC.1/Circ. 1312, paragraphs 4 and 5.

5. PRODUCTION SURVEY REQUIREMENTS:

5.1 - The products are to be supplied by **Bio-Ex SAS** in compliance with the type described in this certificate.

5.2 - This type of product is within the category HBV of Bureau Veritas Rule Note NR320 and as such does not require a BV product certificate.

5.3 - **Bio-Ex SAS** has to make the necessary arrangements to have its works recognised by Bureau Veritas in compliance with the requirements of NR320 for HBV products.

5.4 - For information, **Bio-Ex SAS** has declared to Bureau Veritas the following production site(s):

Bio-Ex SAS
Z.I. La Petite Olivière
69770 Montrottier
France

6. MARKING OF PRODUCT:

As per IMO MSC.1/Circ. 1312, paragraph 3.13, foams containers should be marked with :

- name and address of manufacturer,
- product designation,

- type of foam (synthetic, protein-based, ...),
- intended use (regular or alcohol-resistant),
- batch number and reference to batch certificate,
- date of manufacture,
- expiry date,
- reference to test standard and approvals,
- recommended usage concentration,
- indication if seawater compatible,
- maximum and minimum storage temperature,
- required onboard storage tank materials,
- quantity of foam concentrate,
- indication of film forming capability,
- safety, health and environment information.

7. OTHERS:

7.1 - It is **BIO-EX SAS**'s responsibility to inform shipbuilders or their sub-contractors of the proper methods of fitting, use and general maintenance of the approved equipment and the conditions of this approval.

7.2 - This certificate supersedes the type approval N° 20406/B0 BV issued on 24/01/2013 by the Society.

***** END OF CERTIFICATE *****



Marine & Offshore

Certificate number: 20176/C0 BV

File number: ACI 1400/027/004

Product code: 5430H

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TYPE APPROVAL CERTIFICATE

This certificate is issued to

BIO-EX SAS
MONTROTTIER - FRANCE

for the type of product

MULTIPURPOSE FOAM CONCENTRATES

ECOPOL / HYDROPOL 3 / HYDROPOL 6 / FILMOPOL 3 / FILMOPOL 6 / BIO FILMOPOL 9 / POLYFILM 6 / POLYFILM 9 / BIO PROPOL 6

Requirements:

Bureau Veritas Rules for the Classification of Steel Ships, Part C, Chapter 4 - SOLAS 1974, as amended, Chapter II-2. EN 1568-1 to -4

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THE SCHEDULE OF APPROVAL

1. PRODUCT DESCRIPTION:

Multipurpose Foam Concentrates :

ECOPOL:	polyvalent 3x3 FFF (Fluorocompound-Free Foam) synthetic concentrate
HYDROPOL 3 :	polyvalent 3x3 AR (Alcohol Resistant) fluorosynthetic concentrate
HYDROPOL 6 :	polyvalent 6x6 AR (Alcohol Resistant) fluorosynthetic concentrate
FILMOPOL 3 :	polyvalent 3x3 ARAFFF* (Alcohol Resistant Aqueous Film-Forming Foam) fluorosynthetic concentrate
FILMOPOL 6 :	polyvalent 6x6 ARAFFF* (Alcohol Resistant Aqueous Film-Forming Foam) fluorosynthetic concentrate
BIO FILMOPOL 9 :	polyvalent 3x6 ARAFFF* (Alcohol Resistant Aqueous Film-Forming Foam) fluorosynthetic concentrate
POLYFILM 6 :	polyvalent 6x6 ARFFFP (Alcohol Resistant Film-Forming FluoroProtein) fluoroproteinic concentrate
POLYFILM 9 :	polyvalent 3x6 ARFFFP (Alcohol Resistant Film-Forming FluoroProtein) fluoroproteinic concentrate
BIO PROPOL 6 :	polyvalent 6x6 FFFP (Film-Forming FluoroProtein) fluoroproteinic concentrate

* ARFFF = A4P (Agent Produisant une Pellicule Protectrice Polyvalente)

Type	Concentration	Expansion ratio	Density (kg/dm ³ @ 20°C)	Viscosity (mPa.s @ 20°C)
ECOPOL	6% 3%	13 / 150 / 900 10 / 60 / 1000	1.06±0.02	1500±200 mPa.s @ 20°C
HYDROPOL 3	3%	10 / 50 / 600	1.05±0.02	1500±200 mPa.s @ 20°C
HYDROPOL 6	6%	10 / 120 / 1000	1.06±0.02	1000±200 mPa.s @ 20°C
FILMOPOL 3	3%	9 / 40 / 300	1.03±0.03	2300 ±200 mPa.s @ 20°C
FILMOPOL 6	6% 3%	8 / 60 / 500 8 / 40 / 300	1.03±0.03	1000±200 mPa.s @ 20°C
BIO FILMOPOL 9	6% 3%	9 / 60 / 500 8 / 40 / 300	1.03±0.02	700±200 mPa.s @ 20°C
POLYFILM 6	6% 3%	8 / 60 / 300 7	1.05±0.02	1000±200 mPa.s @ 20°C
POLYFILM 9	6% 3%	8 / 60 / 300 7	1.06±0.02	900±200 mPa.s @ 20°C
BIO PROPOL 6	6%	10 / 60	1.06±0.02	350 mPa.s @ 20°C

2. DOCUMENTS AND DRAWINGS:

As per Manufacturer technical data sheets :

- ECOPOL,	dated 28/04/2014#9
- HYDROPOL 3,	dated 25/04/2014#4
- HYDROPOL 6,	dated 25/04/2014#9
- FILMOPOL 3,	dated 04/09/2017#2
- FILMOPOL 6,	dated 04/09/2017#3
- BIO FILMOPOL 9,	dated 31/03/2011#8
- POLYFILM 6,	dated 16/02/2011#1
- POLYFILM 9,	dated 28/04/2014#4
- BIOPROPOL 6,	dated 20/04/2011#6

3. TEST REPORTS:

Type	Test report	Standard	Date	Laboratory
ECOPOL	N° S-31/02 N° S-31/02	EN 1568-1 & 2 EN 1568-3 & 4	30.10.2002 25.05.2005	Institut der Feuerwehr NRW, Germany
HYDROPOL 3	N° S-59/03	EN 1568-3 & 4	15.12.2003	Institut der Feuerwehr NRW, Germany
HYDROPOL 6	N° S-84/01 N° S-84/01	EN 1568-1 & 2 EN 1568-3 & 4	17.07.2002 07.03.2002	Institut der Feuerwehr NRW, Germany
FILMOPOL 3	N° S-60/03 N° S-60/03 Erg.1	EN 1568-3 & 4 EN 1568	15.12.2003 04.03.2004	Institut der Feuerwehr NRW, Germany Institut der Feuerwehr NRW, Germany
FILMOPOL 6	N° PN 02 6384	EN 1568-3 & 4	12.02.2003	CNPP, France
BIO FILMOPOL 9	N° S-83/01 N° PN 02 6384	EN 1568-3 & 4 EN 1568-3 & 4	17.07.2002 12.02.2003	Institut der Feuerwehr NRW, Germany CNPP, France
POLYFILM 6	N° PN 02 6382-1	EN 1568-3 & 4	12.02.2003	CNPP, France
POLYFILM 9	N° PN 02 6385	EN 1568-3 & 4	12.02.2003	CNPP, France
BIOPROPOL 6	N° FCX-0264 N° FCX-0265	EN 1568-3 EN 1568-4	12.06.2003 12.06.2003	CRTS, France CRTS, France

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