
	<b>Project</b>	PUMP HOUSE J-7 UPGRADE	
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<b>DOCUMENT TITLE: : Foam Concentrate Proportioning Unit</b>			

**ENERGY INFRASTRUCTURE LTD.**

**KIRYAT HAIM TERMINAL**

**PUMP HOUSE J-7 UPGRADE**

**SPECIFICATION FOR**  
**Foam Concentrate Proportioning Unit**

**4575.26-012**

**June, 2024**

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APPENDIX "A" FOAM CONCENTRATE SPECIFICATIONS

P1	14.07.24	For Tender	Raslan Soboh	Zeev Sapoznikov	Zeev Sapoznikov		
P0	24.06.24	For Comments	Raslan Soboh	Zeev Sapoznikov	Zeev Sapoznikov		
<b>Rev</b>	<b>Date</b>	<b>Description</b>	<b>Prepared by</b>	<b>Checked by</b>	<b>Approved by</b>		
			PAZ Engineering				PEI

## 1. **GENERAL**

This specification covers the design and supply of one (1) proportioning unit for supply of foam/water concentrate mix to the firefighting installation in pump house j7 at t Kiryat Haim – tank terminal.

## 2. **DUTY AND REQUIREMENTS**

- 2.1 The unit should mix foam concentrate (AFFF 3%-3%) and (ARC 3%-6%) with Potable water to supply foam solution, accurately mixed irrespective of flow and pressure variations.
- 2.2 Admixture rate – 3%
- 2.3 The foam concentrates in use with typical properties specified in appendix A.
- 2.4 The solution is to be supplied to foam/water deluge systems.
- 2.5 The flow through the water motor will be horizontal.
- 2.6 The required premix flow rate is 20,000 l/m  
Water supply pressure upstream the system is 5 -16 bar operating (Max – 20 bar).
- 2.7 The proportioning system unit will be installed indoors.
- 2.8 The system is to be FM approved.

## 3. **SCOPE OF SUPPLY**

The system will be supplied pre-piped and mounted on a skid, complete with all accessories according to the requirements of NFPA 11 and shall include at least:

- 3.1 Water Driven piston-type proportioning pump.
- 3.2 Flow meter on return concentrate line.
- 3.3 Valve (full bore) on concentrate suction line.
- 3.4 Flow metering device on water main (optional).
- 3.5 Pressure indicators on concentrate line and water main.
- 3.6 3-way ball valve “Returning/Proportioning”, with limit switch.
- 3.7 Full functional test proving accuracy of proportioning rate in accordance with NFPA tolerances over the full design flow of the unit, using the selected foam concentrate.
- 3.8 Test shall be carried out on completed skid-mounted unit.

- 3.9 Vendor's technician to be present on site for performance-based commissioning test.
- 3.10 Drawings and data according to paragraph 5.
- 3.11 Packing suitable for transport and delivery to site.

#### 4. **CONNECTIONS**

Connections of the proportioning system to main piping will be flanged according to ANSI B16.5 150# RF.

#### 5. **DATA TO BE SUBMITTED WITH OFFER**

- Data Sheet.
- P&ID.
- Complete and detailed technical description.
- General arrangement drawing.
- FM approval certificate.
- Foundation requirements.
- Materials of construction.
- Catalogues.
- Itemized price list of recommended spare parts for two years.
- Operating Instructions.
- Maintenance instructions.

#### 6. **NAMEPLATE**

One 16 gauge 304 S.S. nameplate containing the following data shall be fixed to the proportioning system:

- Name of manufacturer
- Year of manufacture
- Oil Services Ltd Tag. No.
- Order number
- Manufacturers serial or reference number
- Model number
- Concentrate percentage
- Operating flow range

## 7. LOCATION

Prevailing weather conditions are as follows:

Temperature: Minimum winter      0° C

Maximum summer      +45° C

Altitude: 4 m above sea level

Maximum relative humidity: 90%

## 8. DEMONSTRATION

8.1 Prior to selection the vendor will be required to demonstrate the performance of the unit which is being offered.

8.2 Vendor will submit with proposal a list of installations in which similar equipment is in use and upon request the vendor will arrange an operating demonstration of the equipment.

8.3 All demonstration costs will be paid by the vendor.

## 9. TESTING and COMMISSIONING

9.1 The following tests will be conducted prior to shipping of the equipment:

- 1) The unit will be assembled and tested for full functionality under specified pressure and flow rate;
- 2) The unit will be assembled and tested for static pressure as specified.

The above mentioned tests shall be performed **using the selected foam concentrate**. The foam concentrate will be supplied by the Purchaser.

The above mentioned tests shall be performed in presence of an official representative of the manufacturer of the unit and Purchaser representative.

9.2 The same above mentioned tests will be conducted again after finalizing the assembling of the equipment at the customer's site, in presence of an official representative of the manufacturer and the customer.

Following these tests, the official representative of the manufacturer will submit to the customer a detailed report of those tests with compliance and performance certification documents.

## **10. GUARANTEE**

- 10.1 The Supplier guarantees that the equipment furnished is free from faults in design, workmanship and material, and is of sufficient size and capacity to meet the requirements of this specification.
- 10.2 Should any defects in design, material, workmanship, installation or operating characteristics develop during the first year of operation, the Supplier agrees to make all necessary or desirable alteration, repairs and replacement of equipment, free of charge .
- 10.3 Vendor is required to keep in stock a sufficient number of spare parts for all components.
- 10.4 Vendor is required to supply spare parts or service within 48 hours upon request.

## Appendix A

### 11. FOAM CONCENTRATE SPECIFICATIONS



# ORCHIDEE

fighting fire with innovation

Member of the INCENDIN Group

## CERTIFICATE OF ANALYSIS / CERTIFICAT D'ANALYSES

Customer /  
Petroleum & energy infrastructures Ltd.

Your reference / Votre référence:  
Terminal ISO Tank

Our reference / Notre référence:  
SOO09241-213

Date of signature / Date de signature:  
03/07/2024

Product / Produit: Orchidex ARC 3X6 UL

Propriétés du produit Product Properties		Results	Specifications	Unit	Standard
pH / pH-Value		8.0	6.0 – 9.5		EN 1568
Viscosity Sp3, 30rpm / Viscosité		1333	1300 - 2500	cP	
Density / Densité		1.02	1.02 – 1.04	g/ml	EN 1568
Refractive Index / Indice de réfraction		1.350	NA		
Surface Tension / Tension superficielle 3% Solution at 20°C		16.9	≤ 17.5	mN/m	EN 1568
Quality of Foam / Qualité de l'émulseur		Concentration d'utilisation Usage Concentration	3	%	
Potable Water / Eau potable	Expansion Ratio Taux de foisonnement	8.5	≥ 5.4		EN 1568-3
low Exp / Bas foisonnement	25% Drainage Time Temps de décantation	387	≥ 360	s	EN 1568-3
Analysis Conclusion / Conclusion de l'Analyse		Pass*	Pass / Fail		

Quality Department / Departement Qualité

\*Product mentioned above is in conformity with the specifications / Le produit mentionnés ci-dessus est conforme aux spécifications

Arno Lorent LA

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afdeling Mechelen  
0653809593

# ORCHIDEE

fighting fire with innovation

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## CERTIFICATE OF ANALYSIS / CERTIFICAT D'ANALYSES

Customer /  
Petroleum & energy infrastructures Ltd.

Your reference / Votre référence:  
Terminal - Sprinklers new

Our reference / Notre référence:  
SOO09241-209

Date of signature / Date de signature:  
03/07/2024

Product / Produit: Orchidex AFFF 3% UL

Propriétés du produit Product Properties		Results	Specifications	Unit	Standard
pH / pH-Value		8.3	6.0 – 9.5		EN 1568
Viscosity Sp2, 30rpm / Viscosité		200	100 - 200	cP	
Density / Densité		1.03	1.01 – 1.03	g/ml	EN 1568
Refractive Index / Indice de réfraction		1.354	NA		
Surface Tension / Tension superficielle 3% Solution at 20°C		16.7	≤ 18.5	mN/m	EN 1568
Quality of Foam / Qualité de l'émulseur		Concentration d'utilisation Usage Concentration	3	%	
Potable Water / Eau potable	Expansion Ratio Taux de foisonnement	7.9	≥ 5.4		EN 1568-3
low Exp / Bas foisonnement	25% Drainage Time Temps de décantation	215	≥ 150	s	EN 1568-3
Analysis Conclusion / Conclusion de l'Analyse		Pass*	Pass / Fail		

Quality Department / Departement Qualité

\*Product mentioned above is in conformity with the specifications / Le produit mentionnés ci-dessus est conforme aux spécifications

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## CERTIFICATE OF ANALYSIS

### ORCHIDEX FF 3% HP

Customer:	Orchidee Trading (OTL) Ltd
Contact:	Opher Nachshon
Your reference:	#33
Our reference:	SOO09266
Departure Date:	04/07/2024

BATCH NUMBER	Standard	pH	DENSITY	REFRACTIVE INDEX	VISCOSITY	SURFACE TENSION (3% Solution)	LOW EXPANSION (3% Solution)	
							EXPANSION RATIO	25% DRAINAGE
							EN 1568	EN 1568
							Unit	Unit
		/	g/ml	/	cP	mN/m	/	S
	Specifications	<b>7.0-9.0</b>	<b>1.07-1.11</b>	<b>1.390-1.393</b>	<b>3000-4000</b>	<b>≤27.0</b>	<b>≥6.0</b>	<b>≥900</b>
	PACKING							
E10493	IBC	7.9	1.08	1.391	3867	26.5	8.2	900
E11601	IBC	8.0	1.08	1.391	3867	27.0	9.3	900

Quality Department

Products mentioned above are in conformity with the specifications.

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