

## TOWALEX ARC 1x1 MASTER AFFF-AR 1% Foam Concentrate

### Features

- 1% alcohol resistant concentrate
- Newtonian viscosity
- EN1568: 2008 approved and UL-162 listed
- Freeze protected to  $\leq -25$  [°C]
- For use on both hydrocarbon and polar solvents
- For use with aspirating and non-aspirating discharge devices
- Suitable for use with fresh, salt or hard water
- Supplied ready to use in 20, 25, 200 or 1000 litres packaging

### Description

TOWALEX ARC 1x1 MASTER AFFF-AR (Alcohol-Resistant Aqueous Film-Forming Foam) concentrate is formulated using a newly patented and proprietary technology. It has a complete Newtonian fluidity as compared to other polar-solvent type AFFF-AR concentrates available on the market. This viscosity enhances performance in all types of foam proportioning equipment.

It is intended for use as a 1% proportioned solution on both polar solvent and hydrocarbon fuels in fresh, salt or hard water.

### Performance

TOWALEX ARC 1x1 MASTER is measured against highest specifications and standards including Underwriters Laboratories Standard UL-162, latest edition and European Standard EN 1568 latest edition 2008. TOWALEX ARC 1x1 MASTER has also been validated according to LASTFIRE test protocol.

TOWALEX ARC 1x1 MASTER AR-AFFF concentrate offers many distinct advantages for ease of use and represents a continued commitment to quality by improving the first agent listed both by Underwriters Laboratories and EN1568 for use as a 1% concentrate on both polar solvent and hydrocarbon fuel fires.

There are three fire extinguishing mechanisms in effect when using TOWALEX ARC 1x1 MASTER on either conventional Class B hydrocarbon fuels such as gasoline, diesel fuel, etc., or Class B polar solvents (water miscible fuels) such as methyl alcohol, acetone, etc.

First, an aqueous film is formed in the case of a conventional hydrocarbon fuel, or a polymeric membrane in the case of a polar solvent fuel. This film or membrane forms a barrier to help prevent the release of fuel vapour. Secondly, regardless of the fuel type, a foam blanket is formed which excludes oxygen and drains the liquids that form the film or the polymeric membrane. Third, the water content of the foam produces a cooling effect.



### Application

TOWALEX ARC 1x1 MASTER can be used by most conventional foam equipment such as:

- Balance pressure pump proportioning equipment
- Bladder tank and related proportioners
- Around-the-pump proportioners
- Fixed and portable In-line venturi type inductors

TOWALEX ARC 1x1 MASTER can be used with both air aspirating and non-aspirating discharge devices.

To provide even greater fire protection capability, it may be used with dry chemical extinguishing agents without regard to the order of application.

Due to the velocity of the dry chemical discharge, care must be taken not to submerge the polymeric membrane below the fuel surface.

Sea water can be used without an increase in the application rate.

When used with fresh, salt or hard water at the correct dilution with most conventional foam making equipment, the expansion will vary depending on the performance characteristics of the equipment. Aspirating discharge devices produce expansion ratios of 5:1 to 10:1 depending primarily on the type of aspirating device used and the flow rate. Non-aspirating devices such as hand line water fog/stream nozzles or standard sprinkler heads give expansion ratios of 2:1 to 4:1. Medium expansion discharge devices produce typical expansion ratios between 20:1 to 60:1, depending primarily upon the type of device and operating conditions.

## Approvals

The fire performance of TOWALEX ARC 1x1 MASTER is measured and listed according to:

- UL-162 standard latest edition
- EN 1568 : 2008 Parts 3 and 4
- GOST-R (Russia)
- Tested against LASTFIRE protocol
- Complies with EPA 2015 Stewardship Program



## Storage and Shelf Life

TOWALEX ARC 1x1 MASTER has an operational temperature range of -18 to +50 [°C] . Limited exposure to temperatures above +50°C does not affect the fire fighting performance.

When stored in the packaging supplied (polyethylene drums or cans) or in equipment recommended by the manufacturer as part of the foam system and within the temperature limits specified, the shelf life of TOWALEX ARC 1x1 MASTER concentrate is about 20-25 years. The factors affecting shelf life and stability for SKUM foam agents are discussed in detail in our Technical Bulletin for storage recommendation.

If the product is accidentally frozen during storage or transportation, the concentrate can be thawed and used without any reduction in performance.

## Safety and Handling

See our corresponding "Material Safety data sheet".

## Materials of Construction Compatibility

Tests have been performed with TOWALEX ARC 1x1 MASTER Concentrate verifying its compatibility with standard carbon steel "black" pipe, pipe manufactured from various types of stainless steel, aluminium or brass compounds.

Alternative pipe, fittings and valves may be used in some cases if acceptable to the customer and/or the authority having jurisdiction.

For more information, please refer to our Technical Bulletin 13A which addresses acceptable materials of construction for use with SKUM foam concentrates.

Galvanized pipe and fittings must not be used in areas which could come into contact with undiluted concentrate as corrosion will result.

For more information regarding specific guidelines about construction materials, please email [info@skum.com](mailto:info@skum.com)

## Quality Assurance

TOWALEX ARC 1x1 MASTER - as with all TYCO Products is subject to very stringent quality controls throughout all stages of production, from incoming raw to the complete product and is manufactured in an ISO 9001:2008 controlled facility. Quality assurance is therefore guaranteed.

## Typical Properties at 20°C

■ TOWALEX ARC 1x1 MASTER	AFFF-AR 1x1
■ Fire Classes	A and B
■ Admixing ratio	1 [% Vol.]
■ Shape and colour	Pale yellow clear liquid
■ Expansion	Low, Medium
■ Density (20°C)	1.09 ± 0.02 [g/ml]
■ pH (concentrate, 20°C)	7.2 ± 0.5
■ Viscosity 20°C (*)	30 ± 5 [mm <sup>2</sup> /s]
■ Viscosity 0°C	100 [mm <sup>2</sup> /s]
■ Sediment (EN-1568)	≤ 0,05 [%]
■ Refractive index	1,3976
■ Expansion (EN-1568-3)	≥ 6.0
■ Drain Time 25%, (20°C, EN-1568-3)	≥ 2:00 [min:s]
■ Drain Time 50%, (20°C, EN-1568-3)	≥ 4:00 [min:s]
■ Surface tension (1%)	14.5 [dynes/cm]
■ Spreading coefficient	≥ 3
■ Pour Point	≤ -20 [°C]
■ Freeze Point	≤ -25 [°C]
■ Recommended storage/ Usage temperature	-18 to +50 [°C]

## Ordering Information

TOWALEX ARC 1x1 MASTER can be supplied in cans, drums, totes.

<u>Part No.</u>	<u>Description</u>
■ F111152C2	20 Litre can
■ F111152C1	25 Litre can
■ F111152D1	200 Litre drum
■ F111152T1	1000 Litre tote

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