



ARTECH TECHNOLOGIES INC  
*Superior Abrasion Resistant Materials*

# ACTCHEM® VC and TF

## General Drying and Firing Instructions

This standard provides general drying and firing instructions for ARTECH ACTCHEM® Vibration Cast (VC) and Trueflow (TF) Castables including:

ACTCHEM® 45 VC  
 ACTCHEM® 75 VC  
 ACTCHEM® 85 VC

ACTCHEM® 45 TF  
 ACTCHEM® 75 TF  
 ACTCHEM® 85 TF

### DRYING AND FIRING

The controlled release of moisture in the monolithic lining is required to prevent possible build-up of steam pressure and potential steam spalling. During curing, cover all exposed surfaces of the lining with a plastic film, or spray it with a curing compound. This will prevent water evaporation for proper cement hydration and maximum properties. Drying and firing of the lining can begin after being cured for a minimum of 24 hours.

During drying and firing, over half of the water is removed by 250°F (120°C). The remaining water is removed as the ACTCHEM® is heated from 250-800°F (120-425°C). At 800°F (425°C), all water is removed from ACTCHEM.

#### DRYING AND FIRING SCHEDULE

Step	Duration	Procedure
1	4 Hours	Ramp from ambient to 300°F (149°C) at the rate 50°F (28°C) per hour
2	1 Hour/1" (25mm) Thickness <sup>1</sup>	Hold temperature at 300°F (149°C)
3	3 Hours	Ramp to 450°F (232°C) at the rate of 50°F (28°C) per hour
4	1 Hour/1" (25mm) Thickness <sup>1</sup>	Hold temperature at 450°F (232°C)
5	6 Hours	Ramp to 600°F (315°C) at the rate of 25°F (14°C) per hour
6	1 Hour/1" (25mm) Thickness <sup>1</sup>	Hold temperature at 600°F (315°C)
7	8 Hours	Ramp to 1000°F (538°C) at the rate of 50°F (28°C) per hour
8	1 Hour/1" (25mm) Thickness <sup>1</sup>	Hold temperature at 1000°F (538°C)
9	Variable	Ramp to operating temperature at the rate of 100°F (55°C) per hour
10	Optional	Cool at a rate not to exceed 100°F (55°C) per hour

<sup>1</sup>Minimum hold: 6 hours

### NOTES

1. Extreme temperature during the setting and curing period can adversely affect the physical properties of ACTCHEM®. When the temperature falls below 60°F (15°C) or exceeds 90°F (30°C), corrective action is necessary.

ACTCHEM® must be protected from freezing from the time of placement until the full thickness has been dried to a minimum 250°F (120°C). Depending on the extent of setting, ACTCHEM® that freezes prior to the removal of moisture can crack.

2. Once begun, the drying and firing schedule should be followed without interruption except when the refractory surface begins to steam. If the ACTCHEM® surface begins to steam, hold temperature constant until steaming stops.
3. Do not fire the ACTCHEM® Castable to temperatures above the maximum recommended service temperature.



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4. For units having two or more hot face refractories, use the schedule with the slowest ramping rate.
5. All hold periods should be calculated using the total lining thickness of all components. Insulating board and blanket should not be included in this calculation.
6. Always control the schedule according to the hottest part of the unit. ACTCHEM<sup>®</sup> may be heated at a slower rate than recommended.
7. Good airflow is essential during all stages of the drying and firing schedule.
8. Flame impingement must be avoided at all times.
9. If you have questions concerning these instructions, please contact Artech Technologies.

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