Technical Overview of 96 Percent High Temperature Woven Silica Fabric

This document provides an engineering focused overview of high temperature woven silica fabric with a silica content of approximately ninety six percent. It describes material composition, thermal performance, and typical industrial applications. The document is intended for technical reference during material selection and system design.

Reference product page:
https://www.pkfiresleeve.com/96-high-temp-silica-fabric_p34.html

1 Introduction

High temperature industrial environments require insulation materials capable of maintaining thermal stability, mechanical integrity, and non combustible behavior under extreme operating conditions. High temperature woven silica fabric is widely used as a thermal protection material in systems exposed to sustained heat, radiant energy, and intermittent flame contact.

2 Material Composition and Structure

High temperature woven silica fabric is manufactured from high purity amorphous silica fibers. These fibers are woven into a dense yet flexible textile structure designed to balance thermal resistance with mechanical durability. The high silica content significantly improves temperature capability when compared with conventional fiberglass fabrics.

3 Thermal Performance Characteristics

The primary function of woven silica fabric is thermal insulation and heat containment. Its low thermal conductivity helps reduce radiant and conductive heat transfer in high temperature systems. The material remains stable during prolonged heat exposure and resists degradation under thermal cycling.

4 Mechanical and Physical Properties

Despite its high temperature resistance the fabric maintains sufficient flexibility for fabrication and installation. It can be cut sewn layered or formed into complex insulation components while retaining adequate tensile strength and abrasion resistance.

5 Chemical Stability and Environmental Resistance

Woven silica fabric exhibits excellent resistance to oxidation and most industrial chemicals. It performs reliably in environments containing combustion gases oil vapors and corrosive atmospheres contributing to long service life in harsh industrial settings.

6 Typical Temperature Ratings

High temperature woven silica fabric is commonly specified for continuous service temperatures up to approximately one thousand degrees Celsius. Short term exposure to higher temperatures may be tolerated depending on fabric thickness weave density and application conditions.

7 Common Industrial Applications

Typical applications include exhaust insulation blankets turbo heat shields furnace and kiln insulation linings welding blankets fire curtains removable insulation jackets and thermal protection for high temperature machinery.

8 Comparison with Other Insulation Fabrics

Compared with standard fiberglass fabrics woven silica fabric offers superior temperature resistance and long term stability. Compared with ceramic fiber textiles it provides improved flexibility and ease of handling while maintaining reliable thermal performance.

9 Engineering Considerations

This document provides a general technical overview. Material selection should consider operating temperature exposure duration mechanical stress and installation configuration. Additional technical details are consistent with the specifications described on the manufacturer reference page.

10 Reference Information

This document is intended for engineering reference purposes only. Material performance may vary depending on application conditions installation methods and operating environments.

Reference product page:
https://www.pkfiresleeve.com/96-high-temp-silica-fabric_p34.html