

PRODUCT DATASHEET

DESCRIPTION: KOMPONENT® is a calcium sulfoaluminate (CSA) cement-based powder admixture used to create shrinkage-compensating concretes and grouts. It is engineered to prevent negative volume change and drying shrinkage cracking by creating controlled expansion during placement and cure. The designed expansion overcomes the inherent shrinkage of portland and blended cement concretes. KOMPONENT is combined with local ASTM C150 portland cement, ASTM C595 portland limestone or other blended cements to produce an ASTM C845 Type K shrinkage-compensating cement. Concretes and grouts made with KOMPONENT reduce permeability, provide up to 60% increased abrasion resistance, prevent slab curling and dominant joints, improve sulfate resistance, and help maintain dimensional stability.

USES: Use KOMPONENT to make Type K shrinkage-compensating concretes and grouts. It can also be used in low shrinkage concretes and grouts. KOMPONENT is ideal for use in industrial slabs, concrete containment structures, parking structures, bridge decks, topping slabs, composite decks, post-tensioned and chemically prestressed structures, architectural concrete, polished concrete, mat foundations, underground structures, and other cast-in-place concrete applications. Use anywhere improved dimensional stability, durability, aesthetics, and structural behavior are required.

ENVIRONMENTAL ADVANTAGES: Use KOMPONENT to reduce your carbon footprint and lower your environmental impact. Contact your CTS representative for EPD, LEED values and other sustainability information.

APPLICATION: Use KOMPONENT to replace approximately 5–17% of total cementitious content in the mix design. Mix designs vary depending on application and other mix design constituents. All mix designs must be qualified per ASTM C878 or C806 and verified by trial batching by the producer. Shrinkage-compensated materials made with KOMPONENT are produced at the batch plant by conventional production equipment and installation practices. Protect freshly placed concrete from premature drying and excessive cold or hot temperatures. Use standard industry best practices for hot and cold weather concreting. Protect concrete from freezing temperatures for 7 days after placement. Review the KOMPONENT Shrinkage-Compensating Concrete Technical Manual for design and installation considerations. Contact your CTS Komponent Representative for project support.

BATCHING & MIXING: KOMPONENT is added at the batch plant using industry standard bulk cement batching and mixing equipment and incorporation methods. Ensure thorough mixing and dispersion. When using bagged units for smaller projects, alternate portable concrete batching solutions are available. Contact a CTS Komponent Representative for more information. Approved mix designs use a lab qualified dosage of KOMPONENT to replace an equivalent weight of total cementitious content per cubic yard. For mix design guidelines and batching and mixing instructions, refer to the Komponent Shrinkage-Compensating Concrete Technical Manual for details.

WATER/CEMENT RATIO: Water/cement ratios between 0.40 and 0.55 are recommended. For lower water/cement ratio designs, contact your CTS Komponent Representative for project support.

CURING: For general applications, wet curing is required. Refer to the Komponent Shrinkage-Compensating Concrete Technical Manual and current ACI 223 guidelines for additional information.

COLD WEATHER: Environmental and material temperatures below 70°F (21°C), relative humidity, wind speed and solar radiation may affect setting time and the rate of strength gain. Lower temperatures will have a more pronounced effect. Thinner sections will be more significantly affected. To compensate for cold temperatures, keep material warm, use heated mix water and follow ACI 306 Procedures for Cold Weather Concreting. When average high and low temperature is expected to fall below 40°F (4°C) for three successive days, maintain delivered concrete mixture temperature within the temperature range required by ACI 301. Do not use frozen materials or materials containing ice or snow. Do not place concrete on frozen subgrade or on subgrade containing frozen materials.

OVERVIEW

Highlights:

- Prevent drying shrinkage cracking
- Prevent curling
- Reduce joints by up to 95%
- Eliminate dominant joints
- Reduce reinforcement
- Improve abrasion resistance up to 60%
- Increase durability and lower permeability
- Improve sulfate resistance
- Maximize placement sizes and minimize mobilizations
- Eliminate pour/delay strips
- Increase load capacity and reduce slab thickness
- Maintain dimensional stability
- Maintain long-term FF/FL
- Improve long-term structural behavior

Tested in accordance with:

ASTM: C845, C806, C878

MasterFormat® 2020

- 03 31 00 Cast-in-Place Concrete
- 03 31 19 Shrinkage-Compensating Structural Concrete
- 03 33 00 Architectural Concrete - Cast-In-Place Concrete
- 03 37 13 Shotcrete
- 03 47 00 Site-Cast Concrete
- 03 48 00 Precast Concrete Specialties
- 03 49 00 Glass-Fiber-Reinforced Concrete
- 03 53 19 Concrete Overlayment
- 03 61 00 Cementitious Grouting
- 03 62 13 Non-Metallic Non-Shrink Grouting
- 03 64 00 Injection Grouting
- 03 70 00 Mass Concrete

Manufacturer:

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WARM WEATHER: Environmental and material temperatures above 70°F (21°C), relative humidity, wind speed and solar radiation may affect setting time and the rate of strength gain. Higher temperatures will have a more pronounced effect. To compensate for warm temperatures, keep material cool, use chilled mix water and follow ACI 305 Procedures for Hot Weather Concreting.

PACKAGING & AVAILABILITY: KOMPONENT is available in bulk delivered by rail or tanker, 50 lb (22.7 kg) polyethylene-lined bags and 2000 lb (907 kg) bulk bags.

SHELF LIFE: KOMPONENT bagged units have a shelf life of 12 months from date of purchase when stored properly in a dry location, protected from moisture, out of direct sunlight, and in an undamaged package. Sealed bulk storage containers extend the shelf life of KOMPONENT up to 2 years when stored properly and protected from adverse environmental conditions.

USER RESPONSIBILITY: Before using CTS products, read current technical data sheets, bulletins, product labels and safety data sheets at www.CTScement.com/Komponent. It is the user's responsibility to review instructions and warnings for any CTS products prior to use.

TECHNICAL SUPPORT: CTS Cement Manufacturing Corp. provides contractors, engineers, and project owners with professional technical services on any KOMPONENT application. For detailed information on use and applications of KOMPONENT, refer to the Komponent Shrinkage-Compensating Concrete Technical Manual or contact your CTS Engineering representative for project support at 1-800-929-3030.

WARNING: DO NOT BREATHE DUST. AVOID CONTACT WITH SKIN AND EYES. Use material in well-ventilated areas only. Exposure to cement dust may irritate eyes, nose, throat, and the upper respiratory system/lungs. Silica exposure by inhalation may result in the development of lung injuries and pulmonary diseases, including silicosis and lung cancer. Seek medical treatment if you experience difficulty breathing while using this product. The use of a NIOSH/MSHA-approved respirator (P-, N- or R-95) is recommended to minimize inhalation of cement dust. Eat and drink only in dust-free areas to avoid ingesting cement dust. Skin contact with dry material or wet mixtures may result in bodily injury ranging from moderate irritation and thickening/cracking of skin to severe skin damage from chemical burns. If irritation or burning occurs, seek medical treatment. Protect eyes with goggles or safety glasses with side shields. Cover skin with protective clothing. Use chemical resistant gloves and waterproof boots. In case of skin contact with cement dust, immediately wash off dust with soap and water to avoid skin damage. In case of skin contact with wet cement, wash exposed skin areas with cold running water as soon as possible. In case of eye contact with cement dust, flush immediately and repeatedly with clean water, and consult a physician. If wet cement splashes into eyes, rinse eyes with clean water for at least 15 minutes and go to the hospital for further treatment.

Please refer to the SDS and www.CTScement.com for additional safety information regarding this material.

LIMITED WARRANTY: CTS CEMENT MANUFACTURING CORP. (CTS) warrants its materials to be of good quality and, at its option, will replace or refund the purchase price of any material proven to be defective within one (1) year from date of purchase. The above remedies shall be the limit of CTS' responsibility. Except for the foregoing, all warranties expressed or implied, including merchantability and fitness for a particular purpose, are excluded. CTS shall not be liable for any consequential, incidental, or special damages arising directly or indirectly from the use of the materials.

⚠ WARNING

CANCER and REPRODUCTIVE HARM - www.P65Warnings.ca.gov

TYPICAL PHYSICAL DATA

The mix designs provided here are EXAMPLES of slab-on-grade and grout mixes when using KOMPONENT. Contact a CTS Komponent Representative for assistance developing project specific mix designs or for specialty use applications. All mixes should be tested in a qualified lab using methods designed for shrinkage-compensating cements (i.e., ASTM C878, ASTM C806) to confirm suitability for the required application and verify dosage with regional materials.

Trial batching is necessary to verify actual performance of the mix. The project engineer, contractor, and concrete producer are responsible for ensuring the mix design properties are appropriate for the application and anticipated environmental conditions.

TYPE K CONCRETE made with KOMPONENT

Portland cement, portland limestone cement, or other blended cements	464 lb (210.5 kg)
KOMPONENT	100 lb (45.4 kg)
Fine Aggregate ASTM C33	1214 lb (550.7 kg)
Coarse Aggregate ASTM C33	1935 lb (877.7 kg)
Water	282 lb (127.9 kg)
Hydration Stabilizer ASTM C494	Minimum 2oz/ctw (0.06kg/ctw)
Water Reducer ASTM C494	17 OZ (0.48 kg)

Performance

Slump (+/-1.5") ASTM C143	5.75 in (146mm)
Expansion, 7 days ASTM C878	0.041%
Compressive Strength, 7 days ASTM C39	3283 psi (22.6 MPa)
Compressive Strength, 28 days ASTM C39	5120 psi (35.3 MPa)
Specific Gravity, KOMPONENT	2.87

NON-SHRINK GROUT made with KOMPONENT

Portland cement, portland limestone cement, or other blended cements	846 lb (383.7 kg)
KOMPONENT	100 lb (45.4 kg)
Fine Aggregate ASTM C33	2640 lb (1197.5 kg)
Water	434 lb (196.9 kg)
Hydration Stabilizer ASTM C494	Minimum 2oz/ctw (0.06kg/ctw)
Water Reducer ASTM C494	24 OZ (0.68 kg)

Performance

Expansion, 7 days ASTM C878	0.045%
Compressive Strength, 7 days ASTM C109 Mod.	4800 psi (33.1 MPa)
Compressive Strength, 28 days ASTM C109 Mod.	7250 psi (49.6 MPa)
Specific Gravity, KOMPONENT	2.87



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