

### Physical Properties

Color Black	Flash Point 620°F	Specific Gravity @ 77° F (25°C) 1.33
Ductility @ 77° F, 5cm/min 6.0		

### Approvals and Certifications

Meets Federal Specification SSS-210.

Certified to ANSI/NSF 61 for use in potable water systems.

### Description

SF302 - SYNKO-FLEX® WATERSTOP is a specially formulated non-swelling preformed joint sealant that provides a lasting, watertight bond to both fresh and cured concrete surfaces. SF302 - SYNKO-FLEX® WATERSTOP is a single-component, self-sealing adhesive compound, extruded in a square cross-section between two quick-release protective wrappers. It bonds to cured concrete surfaces and fuses with fresh concrete during the hydration and curing process to achieve a watertight seal within cold joints at footing, walls and slabs on a wide variety of concrete structures. It does not rely on swelling to achieve its watertight seal, and therefore, it is unaffected by rain or wet conditions which may occur prior to joint completion.

Features:

- Easy to install
- Eliminates split forming, wiring to rebar, heat welding of splices
- Unaffected by rain or wet conditions during installation
- Excellent chemical resistance
- Bonds to most all substrates
- Unaffected by cyclic wetting and drying
- Never a risk of fracturing concrete like swelling type waterstops
- Safe for use in potable water structures

### Usage

SF302 - SYNKO-FLEX® WATERSTOP is designed to provide a watertight seal of cold joints in a wide range of concrete structures including; residential and commercial basements, secondary containment structures, highway tunnels, concrete lined storm drainage and irrigation channels, pedestrian tunnels and below-grade walkways, swimming pools and water features, below-grade parking garages, waste-water treatment plants, fish hatcheries and aquariaiums, potable water reservoirs, and water theme parks. SF302 - SYNKO-FLEX® WATERSTOP may also be used to seal around concrete, steel, PVC, or HDPE pipe penetrations through concrete walls or floor slabs. SF302 - SYNKO-FLEX® WATERSTOP is also ideal for use as a joint sealant on precast structures such as box culverts, septic tanks and utility vaults.

### Surface Preparation

Joint surfaces should be clean and dry before priming and just prior to placing the SF302 - SYNKO-FLEX® WATERSTOP strips. Concrete should cure a minimum of 24 hours prior to priming. Ensure that concrete surfaces are free from form oils, release agents, curing compounds, laitance, and other dirt and debris. Use a wire brush or stiff bristle brush to clean surface prior to priming.

### Application

SF302 - SYNKO-FLEX® WATERSTOP is generally positioned in the center of the joint. It may be placed at the bottom of a keyway, if a keyway is incorporated into the joint design. However, a keyway is not required for the use of this product. Two inches of concrete coverage is recommended.

## Standard Application Method:

Apply SF302 - SYNKO-FLEX® WATERSTOP to the cured surface and allow to dry. Drying time generally takes 2 to 3 hours. Drying time will take longer in low temperatures and in humid environments.

Peel the protective release paper from one side of product strip. Place the strip onto the primed surface, pressing firmly along the entire length of the strip. The strip should be depressed to approximately 5/8 inch in thickness forcing it to widen to approximately 1 1/2 inches. Splice strips together with a 1 inch overlap or side lap. Remove the remaining release film. Fresh concrete may then be poured directly against the SF302 - SYNKO-FLEX® WATERSTOP. The waterstop sealing system is complete when the fresh concrete cures.

In cold weather, both the SF302 - SYNKO-FLEX® WATERSTOP strips and the concrete surface should be warmed just prior to application.

## Alternate Application Method:

SF302 - SYNKO-FLEX® WATERSTOP may also be installed directly in the fresh concrete.

**Horizontal Applications:** Peel the protective release paper from one side of the SF302 - SYNKO-FLEX® WATERSTOP strip. While concrete is still wet, carefully press product strips into the fresh concrete, leaving approximately 1/2 inch exposed above the concrete surface. When concrete cures, remove the remaining release film, and continue to pour.

## Vertical Applications:

Peel off release paper from one side of the strip, leaving the polyethylene release film on the formwork side of SF302 - SYNKO-FLEX® WATERSTOP strip to prevent the Synko-Flex® from adhering to the formwork and to keep the Synko-Flex® clean once the forms are removed. The SF302 - SYNKO-FLEX® WATERSTOP is then nailed to the inside of the concrete form using small finishing nails. Chamfer strips (1/2") should be positioned on each side of the Synko-Flex® strip. Finishing nails will pull through the Synko-Flex® strips when end form is removed.

**Limitations:** SF302 - SYNKO-FLEX® WATERSTOP is designed for use in non-moving or reinforced joints. Contact manufacturer regarding applications where limited movement could be expected.

## Caution

**CAUTION!** Do not heat container or store at temperatures greater than 120°F. **DO NOT TAKE INTERNALLY!** Use protective measures to avoid contact with eyes and skin. If swallowed, **CALL PHYSICIAN IMMEDIATELY!** In case of eye contact, open eyelids wide and flush immediately with plenty of water for at least 15 minutes. **GET MEDICAL ATTENTION!**

**KEEP OUT OF REACH OF CHILDREN!**

**DO NOT ALLOW PRODUCT TO FREEZE.**

**Warning:** This product contains detectable amounts of chemicals known to the State of California to cause cancer, or birth defects, or other reproductive harm.

Employers should obtain a copy of the Material Safety Data Sheet (MSDS) from your supplier or directly from Henry at the toll free number or website below.

## Product Sizes

NON SIZE ITEM	25 (1in x 3.25ft(1m)) STRIPS/CASE	35 (1in x 3ft) STRIPS/CASE (61.25
---------------	-----------------------------------	-----------------------------------

## Limited Warranty

Specifications and other information contained herein supersede all previously printed matter and are subject to change without notice. All goods sold by the seller are warranted to be free from defects in material and workmanship and meet the physical and chemical requirements of Federal Specification SSS-210. The foregoing warranty is in lieu of and excludes all other warranties not expressly set forth herein, whether express or implied by operation of law or otherwise, including but not limited to any implied warranties of merchantability or fitness. Seller shall not be liable for incidental or consequential losses, damages or expenses, directly or indirectly arising from the sale, handling or use of the goods, or from any other cause relating thereto, and seller's liability hereunder in any case is expressly limited to the replacement (in the form originally shipped) of goods not complying with this agreement or at seller's election, to the repayment of, or crediting buyer with, an amount equal to the purchase price of such goods, whether such claims are for breach of warranty or negligence. Any claim by buyer with reference to the goods sold hereunder for any cause shall be deemed waived by buyer unless submitted to seller in writing within 30 days from the date buyer discovered or should have discovered any claimed breach.



# SPEC DATA

This Spec-Data sheet conforms to editorial style prescribed by The Construction Specifications Institute. The manufacturer is responsible for technical accuracy.

## 1. PRODUCT NAME

SYNKO-FLEX® Preformed Plastic Adhesive Waterstop

## 2. MANUFACTURER

SYNKO-FLEX PRODUCTS  
Division of Henry Company  
1277 Boyles Street  
Houston, TX 77020  
Phone: (713) 671-9502  
(800) 231-4551  
FAX: (713) 673-7714

## 3. PRODUCT DESCRIPTION

**Basic Use:** SYNKO-FLEX Waterstop is a specially formulated preformed joint sealant that provides a lasting, watertight bond to both fresh and cured concrete surfaces. SYNKO-FLEX is designed as an alternative to conventional waterstops that are used on cold joints at footings, walls or slab joints, and it does not rely on swelling upon contact with fresh concrete to achieve its watertight seal and waterstop capabilities. SYNKO-FLEX Waterstop is a single-component, self-sealing plastic adhesive compound, extruded in a square cross-section between two quick-release protective wrappers. It bonds to cured concrete surfaces and fuses with fresh concrete during the hydration and curing process to achieve a watertight seal.

SYNKO-FLEX is packaged in 3-foot strips for easy application to cured concrete where a cold joint will be located. Apply SYNKO-FLEX Primer to the cured surface and allow to dry. Peel one of the two protective wrappers off of the SYNKO-FLEX strip. Place the strip onto the primed area and remove the second wrapper. Fresh concrete can then be poured directly against the SYNKO-FLEX. The Waterstop

sealing system is complete when the fresh concrete cures (see illustrations on reverse side). Positioning of SYNKO-FLEX is not as critical of a factor as found with other joint sealants that rely on swelling to achieve a watertight seal. Simply place the SYNKO-FLEX in the keyway, if one exists, or in the center of the area on the cured concrete surface where the cold joint will be located. Since the SYNKO-FLEX formula bonds with the cured concrete from the previous pour and fuses with the fresh concrete during the

curing process (rather than swelling upon contact with fresh concrete), there is never a danger of a SYNKO-FLEX joint ever "blowing out."

For heavily steel-reinforced areas, conventional waterstops are difficult to position and maintain while concrete is being poured. Other joint sealants packaged in coils are also difficult to install due to the size of the coils and the lack of space to properly attach the coils with cut nails to the cured concrete surface. The short 3-foot SYNKO-FLEX strips with high self-adhesion

TABLE 1

CHEMICAL/PHYSICAL PROPERTIES	TEST METHOD	REQUIREMENT	TEST RESULTS
Hydrocarbon Content	ASTM D 4	50% to 70%	65.81%
Inert Filler	AASHTO T111	30% to 50%	32.88%
Volatile Matter	ASTM D 6	2.0% maximum	1.30%
Specific Gravity	ASTM D 71	1.20 to 1.35	1.3153
Ductility	ASTM D 113	5.0 minimum	8.0
Softening Point	ASTM D 36	320 minimum	320
Penetration (150 GTL)	ASTM D 217	50 to 120	70
Flash Point	ASTM D 92	600 minimum	610
Flow Resistance	Fed Spec SSS-210	1" wide joint in vertical position 5 days at 135°	No flow
<b>CHEMICAL RESISTANCE</b>			
Samples immersed for 30 days at 77°F in each of the following:			
5% Solution of Caustic Potash	Fed Spec SSS-210	No visible deterioration	Complies
5% Solution of Hydrochloric Acid	Fed Spec SSS-210	No visible deterioration	Complies
5% Solution of Sulfuric Acid	Fed Spec SSS-210	No visible deterioration	Complies
Saturated Hydrogen Sulfide Solution	Fed Spec SSS-210	No visible deterioration	Complies

This unit has been updated to indicate references to both *MasterFormat*™ 1995 Edition and *MASTERFORMAT*® 1988 Edition. The references to the numbers and titles in *MasterFormat* 1995 Edition are indicated above the references to the numbers and titles in *MASTERFORMAT* 1988 Edition.

The ten-point SPEC-DATA® format has been reproduced from publications copyrighted by CSI, 1964, 1965, 1966, 1967, and used by permission of The Construction Specifications Institute, Alexandria, VA 22314.



allow easy installation inside the heavily steel-reinforced areas, thus, eliminating application conflict with the rebar.

SYNKO-FLEX's unique formula and packaging provides a simple, easy-to-install solution for effective waterstop sealing. It is also resistant to acids, alkalis, and hydrogen sulfide gases over the life of the concrete structure.

SYNKO-FLEX has been used since 1968 as a waterstop for cold joints on highway tunnels, airport terminals, marine animal theme parks, hospitals, performing art theaters, parking garages, hotels, office buildings, fish hatcheries, enclosed potable water reservoirs, warehouses, sports complexes and wastewater treatment plants.

#### 4. TECHNICAL DATA

SYNKO-FLEX meets or exceeds all requirements of Federal Specification SSS-210. Quarterly testing is performed through outside independent laboratories to assure that SYNKO-FLEX meets the chemical and physical requirements (see Table 1). These reports are available upon request and are included with every SYNKO-FLEX Certification. Additional tests have been conducted by Shilstone Testing Laboratory, Inc. and Southwest Research Institute to prove SYNKO-FLEX's adhesive bond strength in tension, bond resistance to pneumatic (hydrostatic) pressure, resistance to chemicals and long-term resistance to accelerated hydrostatic pressure.

**Adhesive Bond Strength in Tension:** This test was performed to demonstrate the suitability of the material for application to fresh-poured concrete to provide flexible watertight seals.

Tension tests were made to determine the comparative strength of adhesion of SYNKO-FLEX to concrete on joints fresh-poured on each side of the compound, and on joints with fresh, wet concrete on one side and cured concrete on the other. Concrete test blocks cast in 2-inch cube molds were allowed to set for seven days before application of the primer. Suitable threaded bolts were cast in blocks for gripping in the tension machine.

SYNKO-FLEX did not separate from the concrete in any manner or pull apart. The elongation took place within the body of the compound, and yielding was in cohesion rather

than adhesion.

**Bond Resistance to Pneumatic (Hydrostatic) Pressure:** This test was performed to determine the resistance of the material to dislodgement by hydrostatic (or pneumatic) pressures exerting a force parallel to the bond-face plane. The SYNKO-FLEX plugs resist being forced from the nipples for at least one hour.

SYNKO-FLEX retains bond strength against lateral pressure through its union with other materials for extended periods of time. In addition, it does not flow or blow through under fluid pressure.

**Resistance to Chemicals:** The sealing compound, when immersed separately in a 5% solution of caustic potash, a 5% solution of hydrochloric acid, a 5% solution of sulfuric acid and a saturated hydrogen sulfide solution for 30 days at ambient room temperature, showed no visible deterioration.

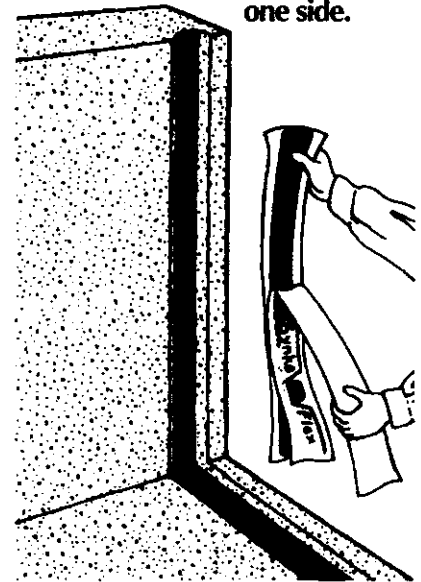
SYNKO-FLEX is inert to acids and alkalis and shows no reaction or deterioration in any of the above exposure conditions. However, SYNKO-FLEX is not resistant to petroleum-based liquids such as gasoline.

**Long-Term Resistance to Accel-**

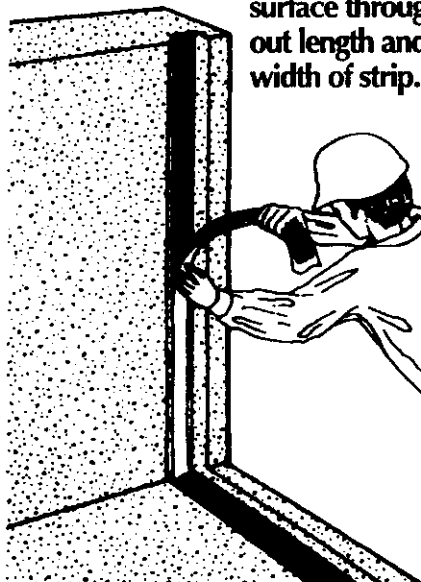
**PRIME** Brush apply 2"-3" wide strip of Synko-Flex Primer and allow to dry thoroughly (2-3 hours).



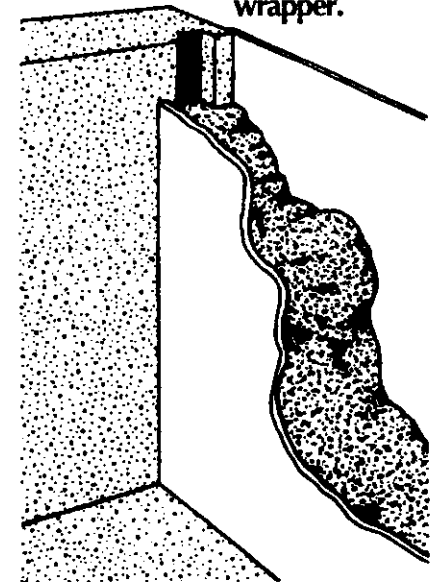
**PEEL** Peel protective film from one side.



**PLACE** Press firmly against primed surface throughout length and width of strip.



**POUR** After removing remaining paper wrapper.



**erated Hydrostatic Pressure:** This test was performed to gauge how much hydrostatic pressure SYNKO-FLEX could resist and for how long, to determine if SYNKO-FLEX primer increased the resistance to pressure, and to see if placing SYNKO-FLEX in a keyway versus a flat surface made a difference in resistance to hydrostatic pressure.

Four separate concrete cylinder specimens were poured. Each had a floor joint and ceiling joint with SYNKO-FLEX as the sole waterstop in both joints. A hollow cavity was formed in the center of each specimen so that water could be piped inside each to force an internal hydrostatic pressure upon both SYNKO-FLEX joints. Specimens 1 and 2 had keyway joints and were primed prior to installing SYNKO-FLEX. Specimen 3 had keyway joints without primer. Specimen 4 had butt joints (flat surface-no keyway) and was primed.

Specimens 1, 2 and 3 each had a total of 413 to 437 hours of continuous hydrostatic pressure with no leaks. After 413 hours, the pressure on Specimen 3 was raised to 46 psi/105 foot head, resulting in a greater than 1/16 inch crack developing in the concrete at the cold joint; however, no leaks were observed. Specimen 4 had 30.0 psi/69 foot head for 211 hours with no leaks (see Table 2 for complete results).

## 5. INSTALLATION

SYNKO-FLEX is basically a prime, peel, place, and pour procedure (see illustrations herein). Joint surfaces should be clean and dry before priming and just prior to placing the SYNKO-FLEX strips. Splice the end of each strip to the next strip with a 1 inch overlap. Press firmly so that no air is trapped at the overlap.

During damp or cold conditions, flashing the joint surface with a safe, direct flame should warm and dry the surface adequately. Dipping SYNKO-FLEX strips in warm water during cold weather will soften the material so it can achieve maximum bond to the cured, primed concrete joint area in the coldest weather conditions.

A properly bonded SYNKO-FLEX strip will not come loose if it is pulled on after 30 minutes of being installed. IF STRIPS COME OFF EASILY, REMOVE AND START OVER. Phone (800) 231-4551 if the condition persists.

## 6. AVAILABILITY AND COST

**Availability:** SYNKO-FLEX is available throughout the United States, Canada, the United Kingdom, Northern Europe, the Far East, Middle East, South Africa and Mexico. It is supplied by a growing network of SYNKO-FLEX Authorized Master Distributors. In areas where no Distributor has yet been appointed, SYNKO-FLEX Waterstop is supplied directly from one of six field warehouses operated by SYNKO-FLEX PRODUCTS, Division of Henry Company.

**Cost:** SYNKO-FLEX Waterstop costs significantly lower than all other conventional and non-conventional waterstops. Installation time is minimal compared to all other waterstops, making SYNKO-FLEX the least expensive waterstop, whether compared on a product or applied-cost basis.

## 7. WARRANTY

Specifications and other information contained herein supersede all previously printed matter and are subject to change without notice.

All goods sold by seller are warranted to be free from defects in material and workmanship and meet the physical and chemical requirements of Federal Specification SSS-210.

The foregoing warranty is in lieu of and excludes all other warranties not expressly set forth herein, whether express or implied by operation of law or otherwise, including but not limited to any implied warranties of merchantability or fitness.

Seller shall not be liable for incidental or consequential losses, damages or expenses, directly or

indirectly arising from the sale, handling or use of the goods, or from any other cause relating thereto, and seller's liability hereunder in any case is expressly limited to the replacement (in the form originally shipped) of goods not complying with this agreement or at seller's election, to the repayment of, or crediting buyer with, an amount equal to the purchase price of such goods, whether such claims are for breach of warranty or negligence.

Any claim by buyer with reference to the goods sold hereunder for any cause shall be deemed waived by buyer unless submitted to seller in writing within thirty (30) days from the date buyer discovered or should have discovered any claimed breach.

## 8. MAINTENANCE

None required

## 9. TECHNICAL SERVICES

Complete technical information and literature is available from Authorized SYNKO-FLEX Master Distributors or directly from SYNKO-FLEX PRODUCTS, Division of Henry Company. Job site support for the contractor is available upon request from SYNKO-FLEX PRODUCTS. A fee for jobsite travel expenses can be negotiated with the contractor.

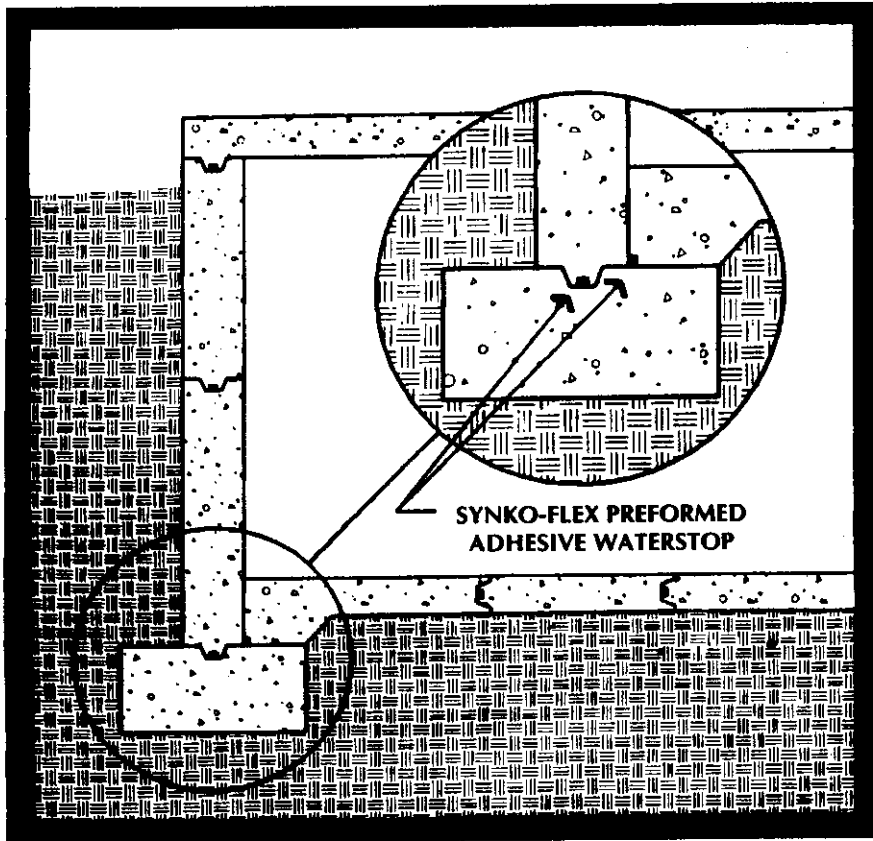
## 10. FILING SYSTEMS

- CSI's SPEC-SEARCH™
- IHS' SPEC-DATA® II
- SYNKO-FLEX Technical Reference Binder
- The Aberdeen Group "Concrete Sourcebook"

TABLE 2

Long Term Resistance to Accelerated Hydrostatic Pressure—No Leaks		
Specimen No./Description	Hours	Pressure/Head
1. Keyway, Primed	244.5	11.5 psi/26.4'
	169.3	30.0 psi/68.7'
2. Keyway, Primed	24.5	9.5 psi/21.8'
	244.5	11.5 psi/26.4'
	169.3	30.0 psi/68.7'
3. Keyway, Not Primed	244.5	11.5 psi/26.4'
	169.3	30.0 psi/68.7'
	.0**	46.0 psi/105.0'
4. No Keyway, Primed	32.0	11.0 psi/25.2'
	64.0	15.0 psi/34.5'
	211.0	30.0 psi/68.7'

\*\*When pressure raised to 46 psi, a crack greater than 1/16-inch developed at the cold joint, no leaks were observed and the test was ended.



**DESIGNED AS AN ALTERNATE TO CONVENTIONAL WATERSTOPS FOR USE  
IN COLD JOINTS AT A FOOTING, WALL OR SLAB JOINT.**