



Web Sling & Tie Down Association

April 15, 2020

Subject: The disinfecting of synthetic slings and tie downs to prevent the transmission of the COVID-19 virus

Numerous parties have contacted WSTDA asking for advice on how to disinfect synthetic slings and tie downs to prevent the transmission of the virus that causes COVID-19. WSTDA is not aware of any proven way to disinfect synthetic slings and tie downs that will prevent the transmission of the COVID-19 virus or that will ensure or certify the absence of the COVID-19 virus once the slings have been disinfected.

In response to the requests for information the WSTDA would offer the following for your consideration:

- 1) While a complete and comprehensive understanding of the transmission and containment of the COVID-19 virus for humans by leading medical experts is yet to be determined, it is difficult for the WSTDA to opine on the same issues for inanimate objects, such as synthetic slings and tie downs.
- 2) Information that has not been verified by the WSTDA, but is available on the life expectancy of the COVID-19 virus, may be found at the following sites:

Medical News Today, February 15, 2020:

[Coronaviruses: How long can they survive on surfaces?](https://www.medicalnewstoday.com/articles/coronaviruses-how-long-can-they-survive-on-surfaces#How-long-do-coronaviruses-persist?)

<https://www.medicalnewstoday.com/articles/coronaviruses-how-long-can-they-survive-on-surfaces#How-long-do-coronaviruses-persist?>

BBC, March 17, 2020

[Covid-19: How long does the coronavirus last on surfaces?](https://www.bbc.com/future/article/20200317-covid-19-how-long-does-the-coronavirus-last-on-surfaces)

<https://www.bbc.com/future/article/20200317-covid-19-how-long-does-the-coronavirus-last-on-surfaces>

Specialty Fabrics Review, March 24, 2020

[IFAI Covid-19 Resource Center](https://specialtyfabricsreview.com/2020/03/24/new-covid-19-resource-center/)

<https://specialtyfabricsreview.com/2020/03/24/new-covid-19-resource-center/>

Apparently the virus lives longer on hard surfaces such as metal, when compared to softer surfaces such as woven products and can survive for up to 9 days. Other factors, such as but not limited to humidity, temperature and UV light also influence the COVID-19 lifecycle.

- 3) All mitigating actions should be carefully considered by Qualified Persons and must address many inter-related factors that may have profound and/or deleterious effects on synthetic sling and tie down strength and performance.
- 4) Washing slings and tie downs is expressly prohibited in the voluntary consensus standards promulgated by the WSTDA. The *Recommended Standard Specification for Synthetic Web Slings* (WSTDA-WS-1), 2015 revision, Section 4.6.29 states: "Do not wash web slings as a loss of strength is possible due to mechanical/chemical damage." The *Recommended Standard Specification for Synthetic Web Tie Downs* (WSTDA-T-1), 2015 revision, Section 4.7.10 repeats comparable language and also includes an additional warning against "power washing" web tie downs. Power washing synthetic slings and tie downs may not only physically damage fibers but may also force foreign particles into fibers and weave patterns, resulting in fiber distortion and/or internal abrasion that may affect not only the strength but the performance of synthetic slings and/or tie downs. In the case of a woven fabric, "washing" to remove contaminants would involve a certain amount of mechanical scrubbing due to the complexity of the weave construction. "Disinfecting" implies the use of chemical agents which upon contact and duration may in themselves have a harmful effect to the synthetic fibers.



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- 5) *The Recommended Standard Specification for Synthetic Polyester Roundslings (WSTDA-RS-1), 2019 revision, Section 4.9.2, and the Recommended Standard Specification for High Performance Yarn (HPY) Roundslings (WSTDA-RS-1HP), 2016, Section 4.8.2 states, "If roundslings are cleaned, use only mild soap and water. Rinse slings thoroughly and allow to dry completely before storing. Do not machine wash slings. Machine washing of roundslings will result in significant strength loss."*

It is important to understand that "rinsing" is not washing. Rinsing is a process whereby soap, detergent, dirt and/or impurities are removed from the surface of the synthetic sling or tie down by immersing the item into water or by washing off the foreign materials by gently spraying water over the cleansed item.

- 6) The Product Safety Bulletins and Warning Labels available from the WSTDA for synthetic web sling, roundslings (polyester and high performance fiber), and tie downs also state the same prohibitions for washing synthetic slings and tie downs. The previously mentioned Recommended Standard Specifications and other valuable information are available at www.wstda.com.
- 7) Another important consideration is the effect that chemicals may have on the synthetic nylon, polyester and high performance fibers which are the primary materials used in the manufacture of the webbing, thread, yarn and covers used in the fabrication of synthetic slings and tie downs. It is also important that only MILD soap (similar to soap used on clothing and/or dish washing soap) be used to prevent possible chemical degradation and fiber damage.
- 8) Chemically active environments and/or exposure can affect the strength of synthetic web slings and tie downs in varying degrees from little to total degradation. The degradation is a function of the type of chemical, exposure time, chemical concentration, i.e., 10% vs 60% and/or chemical condition, i.e., mist, vapor, liquid, powder, etc.
- 9) The Lifting and Equipment Engineers Association (LEEA), an international organization that provides safety information, training and third party accreditation for sling and rigging training companies, states in the *LEEA Code of Practice for the Safe Use of Lifting Equipment - Edition 8 (revised), Sept. 2015, Section 16.7.2(6): "Moderate chemical concentration in solution may be concentrated by evaporation."* Time, temperature, concentration, as well as the chemical "condition," i.e., solution vs. solid must be an inherent part of an evaluation process and resultant course of action relative to chemical compatibility.
- 10) Disinfecting inanimate "household" objects such as counter tops and produce by recommended and approved methods may be appropriate for those specific items, but may not be the best approach for synthetic slings and tie downs. As an example, bleach when properly diluted is recommended to disinfect household items at many reputable web sites, but that same approach may have adverse consequences when used on synthetic slings and tie downs.
- 11) Mechanical and environmental factors as previously mentioned must always be considered; in addition, consultation with a WSTDA member which fabricates synthetic slings and/or tie downs may also provide valuable insight.

Controlled experiments whereby new and unused slings and/or tie downs are deliberately exposed to various cleaning and/or disinfecting techniques, but NEVER USED for any other purpose, may assist in evaluating and determining an appropriate course of action.

Two sets of specimens, a "control" set and an "exposure" set, are produced at the same time, using identical materials and manufacturing technique, i.e., same web/yarn lot, thread lot, production equipment, fabricator, etc. The "exposed" set is carefully monitored by Qualified Persons and deliberately exposed on multiple occasions to the specific chemicals and process being considered. The "control" and "exposure" sets of specimens must never be used for lifting or securing cargo so that the proposed cleaning/ disinfecting process is isolated as an independent variable.



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After a predetermined period of time and multiple exposures, the “control” set (which have never been used or exposed) and the “exposed” set are examined by Qualified Persons and then pulled to destruction. It is important that the destruction testing be done on calibrated test machines by competent personnel and that the protocol and specifications for destructive pull testing in the applicable WSTDA Recommend Standard Specification is followed. The test results of the “control” and “exposed” sets are compared and a determination may be made to either perform more experimentation and destruction testing and/or to proceed with a proposed procedure.

While the ultimate goal may be to disinfect synthetic slings and tie downs using appropriate means which do not mechanically or chemically degrade and/or affect the strength and performance of synthetic slings and tie downs, the WSTDA cannot offer any assurance or guarantee that slings and/or tie downs which have supposedly been disinfected may no longer be contaminated by and/or “transmission free” of the COVID-19 virus.

When the prior instances of MERS, SARS and H1N1 are considered the causal link between synthetic sling and tie down contamination and ultimately the transmission of the aforementioned, viruses has gone unreported. That is not to say that the same may be expected with the COVID-19 virus.

A prudent individual and societal approach may be to use the same measures in the workplace recommended by the Centers for Disease Control and Prevention (CDC) for the general public. This information is available at www.cdc.gov. Sling and tie down users should maintain appropriate social distancing, frequently hand wash, avoid touching one’s face, cleaning common touch areas, etc.

The CDC information for disinfecting “common touch areas” with a diluted concentration of bleach and/or alcohol, however, may not be appropriate and may damage and affect the strength and performance of some fibers. If disinfecting techniques for synthetic slings and tie downs are to be used, any course of action must involve an evaluation process by Qualified Persons. Always ensure that planning and evaluation are integral parts of any and all load handling and load securement activities, including the cleaning and/or disinfecting of synthetic slings and tie downs.