



# **CMC Rescue Technical Report #5**

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## **Carbon Monoxide and Rescue Lifeline**

Rescue lifelines stored on fire apparatus may be exposed to carbon monoxide (CO). This is usually due to exhaust from the apparatus or other power equipment leaking into storage compartments through ventilation openings.

Carbon monoxide is an inert, hydrocarbon compound that exists in a gaseous state. It is a combustion by-product that has a very low reactivity. Reactions involving CO require elevated temperature and pressure to proceed.

Lifelines stored in rope bags under ambient conditions are only exposed to low concentrations of CO on an intermittent basis, and as result they should not suffer any damage due to the CO exposure.

However, lifelines may discolor (turn yellow) if they are exposed to nitrogen oxides (NO<sub>x</sub>) combustion by-products. The discoloration, which is a topical effect, can occur due to the reaction between the NO<sub>x</sub> compound and the spin finish, which may be present on the rope yarns. This discoloration causes no physical damage to the rope and may be washed off with warm water and a mild detergent.

Determining the whether an exposure to a chemical, either in liquid or gas form, has caused significant damage to a lifeline is always difficult, particularly when there is no visible indication of the damage. Often it is a mixture of chemicals whose identity and concentration are unknown. As with any other suspected damage to a lifeline, if in doubt about its condition, it is always best to retire it.

Source: Wellington Commercial Cordage

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**CMC Rescue, Inc., PO Box 6870  
Santa Barbara, CA 93160**

**www.cmcrescue.com  
(805) 562-9120**