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REPORT

**Magnetic Field Interaction Testing Performed at 7-Tesla
on the Fire Extinguishers**

Project Conducted by:
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Presented to:
Victory Fire & Gas Inc
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This report pertains to magnetic field interaction testing conducted at 7-Tesla on the products listed in **Appendix I**.

According to information from Victory Fire & Gas, Inc., these products are made from “non-magnetic” or weakly magnetic materials and intended for use in a high magnetic field environment, such as that associated with a magnetic resonance (MR) system.

IMPORTANT NOTE: Each product is intended for use inside of the MRI environment (e.g., in the MR system room, close to the scanner). However, each product is not intended for use directly inside of the MR system (e.g., inside of the bore of the scanner), itself. As such, the assessment of magnetic field interaction for each product specifically involved a qualitative evaluation of magnetic field interaction (i.e., attraction) or force in relation to a 7-Tesla MR system. *This important information should be provided in the Instructions for Use for each product.*

Test site: MRI Center, University of Southern California Hospital, 1500 San Pablo Street, Los Angeles, CA 90033

MR system: A 7-Tesla (Terra, Siemens Medical Systems) scanner was used for the assessments of magnetic field interactions (**Figure 1**). This 7-Tesla MR system has a static magnetic field that is oriented horizontally and parallel to the bore of the scanner.

Tests: Magnetic field-related force at 7-Tesla and operation (i.e., discharge of the fire extinguisher)

MAGNETIC FIELD INTERACTION

The test for magnetic field interaction for each product was conducted with regard to exposure to a 7-Tesla MR system.

Prior to exposure to the MRI environment, each product was thoroughly evaluated using a powerful hand-held magnet to determine the presence of ferromagnetism for any metallic component or part.

For the formal assessment of magnetic field interaction, each product was assessed by applying a rope securely around the device. The end of the rope was tethered a suitable distance from the 7-Tesla MR system to prevent each product from becoming a projectile in the event that substantial magnetic field interaction was present.

Each product was slowly moved towards the MR system in a methodical, incremental manner. Accordingly, the product was placed as close as possible relative to the front opening of the bore of the 7-Tesla MR system (i.e., at a position that would be considered “worst-case” for the intended use of each product).

A small amount of “slack” was intentionally allowed in the rope so that any magnetic field interaction could be readily detected. Accordingly, each product was brought up as close as possible to the front entrance of the bore of the 7-Tesla MR system, which is essentially considered to be a “worst-case” position for a device used externally to the MR system (e.g., for a patient support product or other device).

Each product was then rotated 360 degrees relative to the bore of the MR system (approximately 6-inches from the scanner). This was done to qualitatively determine if there was any influence of the static magnetic field on the position of the product, or if the product attempted to “align” to the magnetic field (i.e., another indication that “positive” magnetic field interactions were present). Photographs were taken to illustrate the tests performed on each product (see attached). The following qualitative scale was applied to the results:

Magnetic field interaction:

0, no magnetic field interaction

+1, mild magnetic field interaction, the device slowly changed orientation or moved relative to the magnetic field

+2, moderate magnetic field interaction, the device moved gradually relative to the magnetic field and moved into the bore of the MR system

+3, strong magnetic field interaction, the device showed rapid and forceful movement towards the magnetic field and moved into the bore of the MR system

+4, very strong magnetic field interaction, the device showed very rapid and very forceful movement relative to the magnetic field and moved into the bore of the MR system

After testing each device, each extinguisher was “operated” (i.e., discharge of the fire extinguisher) when it was in a worst-case position as indicated above.

RESULTS AND DISCUSSION

Tables 1 summarizes the results of the tests performed to determine magnetic field interaction, force for the products. Notably, each product operated properly while in a worst-case position in association with the 7-Tesla MR system. Thus, this evaluation demonstrated that the each product is MR Conditional at 7-Tesla or less.

Please use the proper information and MRI labeling provided in this report for the products.

MRI LABELING BASED ON THE TEST RESULTS (Note: use verbatim)

MRI Information



MR Conditional

The Water Mist Fire Extinguisher, WM 6 L is MR Conditional. Testing demonstrated that this product can be used in the MRI environment according to the following conditions:

- Static magnetic field of 7-Tesla or less

IMPORTANT NOTE: This product is intended for use inside of the MRI environment (e.g., in the MR system room, close to the scanner). However, it should not be utilized directly inside of the MR system (e.g., inside of the bore of the scanner) while the scanner is operating.

MRI Information



MR Conditional

The Water Mist Fire Extinguisher, WM 2.5 GAL is MR Conditional. Testing demonstrated that this product can be used in the MRI environment according to the following conditions:

- Static magnetic field of 7-Tesla or less

IMPORTANT NOTE: This product is intended for use inside of the MRI environment (e.g., in the MR system room, close to the scanner). However, it should not be utilized directly inside of the MR system (e.g., inside of the bore of the scanner) while the scanner is operating.

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Table 1. Results of the testing for magnetic field interaction, force for the products.

Product	Magnetic force
Water Mist Fire Extinguisher, WM 6 L (6L watermist = WM6L)	0
Water Mist Fire Extinguisher, WM 2.5 GAL (2.5 USG watermist = WM2.5GAL)	0

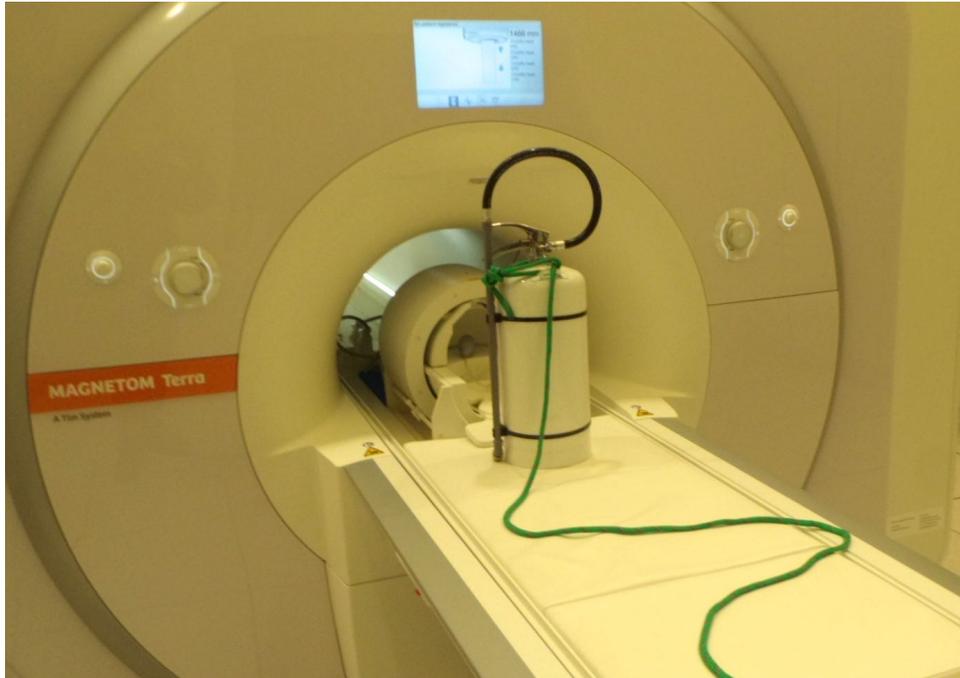
FIGURE 1. The 7-Tesla MR system used for MRI testing.



FIGURE 2. Testing the Water Mist Fire Extinguisher, WM 6 L (6L watermist = WM6L) during exposure to a 7-Tesla MR system. Note the lack of magnetic field translational attraction for this product while in front of the opening of the bore of the 7-Tesla MR system, as evidenced by the slack in the rope that was attached to this device (front and side views).



FIGURE 3. Testing the Water Mist Fire Extinguisher, Water Mist Fire Extinguisher, WM 2.5 GAL (2.5 USG watermist = WM2.5GAL) during exposure to a 7-Tesla MR system. Note the lack of magnetic field translational attraction for this product while in front of the opening of the bore of the 7-Tesla MR system, as evidenced by the slack in the rope that was attached to this device (front and side views).



Appendix I. The products from that underwent testing at 7-Tesla.

Water Mist Fire Extinguisher, WM 6 L (6L watermist = WM6L)

Water Mist Fire Extinguisher, WM 2.5 GAL (2.5 USG watermist = WM2.5GAL)