



Safety Alert

From the International Association of Drilling Contractors

ALERT 06 – 04

MICROWAVE OVEN HAZARD

WHAT HAPPENED:

While boiling liquids in a microwave oven is commonplace we should all be aware of a potentially dangerous situation that exists with this practice. The following information is important and you are encouraged to share that information with your family and friends.

When water or other liquids are placed in a microwave oven with the intent of boiling them, it is possible for the liquid to retain the energy introduced while not actually boiling. When the liquid is removed from the microwave and jarred, the stored energy can suddenly be released from the container. People have been injured by very hot liquid being propelled into their face and eyes. Microwave manufacturers have confirmed that these type of events can and do occur.

WHAT CAUSED IT:

A phenomenon known as super heating can occur anytime water / liquid is heated and will particularly occur if the container is new or when heating small amounts (less than half a cup). Water and other liquids do not always bubble when they reach their boiling point. Super heating occurs when the liquid heats faster than the vapor bubbles can form. If the container is new, it is unlikely to have small surface scratches inside that provide a place for the bubbles to form. If the bubbles do not form, the heat / energy is not released and the liquid heats up in excess of its boiling point. When taking the container from the microwave oven it is not always apparent that the liquid is boiling and the slightest bump or jarring action can be enough to shock the liquid. This shock will cause bubbles to rapidly form and expel the hot liquid from the container. This effect is similar to what happens when a carbonated beverage is shaken and the rapid formation of bubbles causes the beverage to release when opened.

CORRECTIVE ACTIONS: To address this issue, this company issued the following to their employees:

- Water or liquids should not be heated in a microwave oven, use alternative methods.
- Placing a non-metal object in the liquid to defuse the energy when heating such as a tea bag / wooden stir stick.
- Never heat small amounts, less than half a cup.
- Avoid new containers lacking small surface scratches or imperfections

We are now aware of this Risk / Hazard. Our behavior will determine what we choose to do. Actions taken to eliminate or mitigate this risk should be our choice.

IADC Note: Refer to Alert 00 – 08 and 03 – 24

The Corrective Actions stated in this alert are one company's attempts to address the incident, and do not necessarily reflect the position of IADC or the IADC HSE Committee.

This material is presented for information purposes only. Managers & Supervisors should evaluate this information to determine if it can be applied to their own situations and practices

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