

## Vigil Joseph CIV AFSC/SEGS

**Subject:** ALSAFECOM 007/01, PERSONAL PROTECTIVE EQUIPMENT (PPE) FOR LIQUID OXYGEN (LOX) SERVICING (RETRANSMISSION OF ALSAFECOM WITH CORRECTION NUMBER ASSIGNED)

**Importance:** Low

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USAF KIRTLAND AFB NM//SE//  
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HQ USAFA USAF ACADEMY CO//SE  
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**SUBJECT:** ALSAFECOM 007/01, PERSONAL PROTECTIVE EQUIPMENT (PPE) FOR LIQUID OXYGEN (LOX) SERVICING

1. THIS IS A RETRANSMISSION OF ALSAFECOM 002/99 ORIGINALLY ISSUED IN MARCH 1999. THE GUIDANCE SET FORTH IN THE ORIGINAL ALSAFECOM REMAINS IN EFFECT. LATEST AVAILABLE INFORMATION REGARDING THIS ISSUE IS INCLUDED IN PARAGRAPHS SIX AND SEVEN.
2. MAJOR HAZARDS ASSOCIATED WITH THE OPERATIONAL USE OF LIQUID AND GASEOUS OXYGEN ARE FIRE AND EXPLOSION. IN AN OXYGEN-RICH ENVIRONMENT, THE BATTLE DRESS UNIFORM (BDU), SYNTHETIC FABRICS AND THE CHEMICAL WARFARE DEFENSE ENSEMBLE (CWDE) MAY BECOME SATURATED WITH OXYGEN, IGNITE READILY, AND BURN VIOLENTLY. TO DATE, THERE IS NEITHER AN INDUSTRY STANDARD ON THE WEAR OF BODY PROTECTION WHEN CONDUCTING LOX OPERATIONS NOR A TEST THAT CAN BE APPLIED TO ALL MATERIALS TO PRODUCE IGNITION TEMPERATURE VALUES. LEAKING OR SPILLED LIQUID OXYGEN CAN FORM POTENTIALLY DANGEROUS, HIGH CONCENTRATIONS OF OXYGEN GAS.
3. THE NATIONAL AERONAUTICAL AND SPACE ADMINISTRATION (NASA) AND THE AIR FORCE (AF) IN A JOINT PARTNERING EFFORT, MET FROM 16-18 MARCH 1999, AND CONCLUDED: "TO MINIMIZE THE UNKNOWN IGNITION POTENTIAL OF ELECTRO-STATIC DISCHARGE (ESD), 100 PERCENT COTTON, CUFFLESS, LONG-SLEEVED COVERALLS WILL BE WORN AS THE OUTER GARMENT WHEN FLOWING LOX. WHEN AN INDIVIDUAL MAY BE SPLASHED WITH LIQUID, A RUBBER APRON WILL ALSO BE WORN." THIS CHANGE WILL REMAIN IN EFFECT UNTIL THE ESD POTENTIAL OF CLOTHING IS TESTED AND CONFIRMED. THIS MESSAGE SUPERSEDES ALL AIR FORCE PUBLICATIONS FOR BODY PROTECTION DURING LOX SERVICING.
4. CALGON COMMERCIAL DIVISION, THE MANUFACTURER OF THE CHEMICAL WARFARE DEFENSE ENSEMBLE (CWDE), NSN: 8415011371704, STATES IN THEIR MATERIAL SAFETY DATA SHEET (MSDS), "FIRE AND EXPLOSION HAZARD DATA: CONTACT WITH STRONG OXIDIZERS SUCH AS OZONE, LIQUID OXYGEN, CHLORINE, PERMANGANATE, ETC, MAY RESULT IN FIRE. REACTIVITY DATA: MATERIALS TO AVOID: STRONG OXIDIZERS SUCH AS OZONE, LIQUID OXYGEN, CHLORINE, PERMANGANATE, ETC." THE MSDS IS AVAILABLE ON THE WORLD WIDE WEB AT: [HTTP://WWW.HAZARD.COM/MSDS/H/Q202/Q150.HTML](http://www.hazard.com/msds/h/q202/q150.html)  
<<http://www.hazard.com/msds/h/q202/q150.html>>
5. EFFECTIVE IMMEDIATELY, CHEMICAL PROTECTIVE SUITS WILL NOT BE WORN WHEN SERVICING LOX IN AN EXERCISE OR TRAINING ENVIRONMENT. THE CWDE WILL BE REMOVED PRIOR TO START OF LOX FLOW AND WILL NOT BE DONNED UNTIL LINES ARE DISCONNECTED. PPE IN PARAGRAPH THREE WILL BE WORN.
6. SUBSEQUENTLY, SINCE MARCH 1999, THE AFSC HAS ALSO INCLUDED THE CHEMICAL WARFARE MASK C-2 FILTER CANISTER, WHICH FOR THIS ISSUE, WILL BE CONSIDERED AS PART OF THE CWDE. CALGON COMMERCIAL DIVISION, THE MANUFACTURER OF THE CHEMICAL WARFARE MASK C-2 FILTER, NSN: 4240011192315, STATES IN THEIR MATERIAL SAFETY DATA SHEET (MSDS), "FIRE AND EXPLOSION HAZARD DATA: CONTACT WITH STRONG OXIDIZERS MAY RESULT IN FIRE. REACTIVITY DATA: MATERIALS TO AVOID: STRONG OXIDIZERS SUCH AS OZONE, LIQUID OXYGEN, CHLORINE, PERMANGANATE, ETC." THE MSDS IS AVAILABLE ON THE WORLD WIDE WEB AT: [HTTP://WWW.HAZARD.COM/MSDS/H/Q494/Q443.HTML](http://www.hazard.com/msds/h/q494/q443.html) <<http://www.hazard.com/msds/h/q494/q443.html>>

7. AFSC WILL CONTINUE TO WORK WITH AF, DOD, AND OTHER AGENCIES IN AN EFFORT TO OBTAIN DEFINITIVE INFORMATION REGARDING POTENTIAL HAZARDS ASSOCIATED WITH OPERATIONAL USE OF LOX AND WEAR OF THE BDU AND CHEMICAL PROTECTIVE CLOTHING. IN THE ABSENCE OF HARD DATA, UNLESS FUTURE TESTS OR EXPERT OPINION IS RENDERED, PRECAUTIONS ESTABLISHED IN ALSAFECOM 002/99 WILL REMAIN PERMANENTLY IN EFFECT. THIS GUIDANCE IS ALSO APPLICABLE TO THE JOINT SERVICE LIGHTWEIGHT INTEGRATED SUIT TECHNOLOGY (JS-LIST). UNLESS DICTATED OTHERWISE, WHITE 100 PERCENT COTTON COVERALLS ARE THE REQUIRED OUTER GARMENT FOR LOX SERVICING OPERATIONS. FUTURE AF OCCUPATIONAL SAFETY AND HEALTH (AFOSH) GUIDANCE WILL BE CHANGED TO REFLECT THIS POSITION AS THE MINIMUM AF STANDARD FOR LOX SERVICING OPERATIONS. THIS IS AN AF/IL, AF/SE, AND AF/SG COORDINATED MESSAGE. POC FOR THIS SUBJECT IS MR. VIGIL, HQ AFSC/SEGS, DSN 246-0826.

SIGNED  
MR J. VIGIL  
HQ AFSC/SEGS, DSN 246-0826  
MESSAGE PREPARER

SIGNED  
MR JOHN RUSSELL, JR GS-15  
HQ AFSC/SEG  
MESSAGE RELEASER

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