

# An Explanation of DSEAR/ATEX Legislation

The Legal Requirements for Thermal Fluid Systems and Representative Fluid Analysis  
DSEAR (Dangerous Substances & Explosive Atmospheres Regulations 2002).

## Introduction

Health and safety legislation, requiring that employers provide a safe working environment, has been around for a long time. In the past, just how that was to be achieved was largely up to the employer.

Now, where flammable materials that could create an explosive atmosphere are being handled, DSEAR (ATEX/CAD in Europe) set out a mechanism for minimising the risks. Employers have a legal obligation not only to abide by this but to prepare and maintain documentary evidence.

- Major new regulations came into force June 30th 2003
- Date for final, total compliance 1st July 2006
- Implements 2 x European directives:-
- Chemical Agents Directive (CAD) and Explosive Atmosphere Directive (ATEX 137)
- DSEAR sets minimum requirements for protection of workers from fire (& explosion) risks related to dangerous substances & potentially explosive atmospheres
- DSEAR complements the requirements to manage risks under the Management of Health & Safety at Work Regulations 1999

## DSEAR/ATEX legislation is applicable to thermal fluid systems and representative fluid analysis is required

Thermal fluids can become volatile and hazardous, resulting in an explosive atmosphere, if conditions are allowed to deteriorate:

- If there is a loss of containment or a fluid leak resulting hydrocarbons are released as vapour - these represent the most volatile offshoot of the product (known as the light ends);
- A leak may produce an 'aerosol' of finely divided material - the greater the pressure, the higher the risk
- The risk increases when thermal fluid has degenerated and flashpoints, boiling points and auto ignition temperatures have reduced – the lower the flashpoints, the higher the risk; and
- The hotter the system bulk fluid temperature, the higher the risk.

## Application

DSEAR will apply at any workplace where any substance or mixture of substances with the potential to create a risk from energy-releasing events, such as fire, is present. Classified by DSEAR as 'dangerous substances', these include petrol, solvents, LPG and certain types of dust.

**NOTE 1:** Thermal fluids experience falling flashpoints over time due to the effects of high temperature. This increases fire risk in the event of loss of containment and therefore would be considered as a dangerous substance under DSEAR. The regulations therefore apply to all closed heat transfer systems using thermal oils and synthetics.



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## Main Requirements for Employers Under DSEAR Legislation

**From 30th June 2003 (final compliance date July 2006) employers must:**

- Carry out assessment of the fire & explosion risks of any work activities involving dangerous substances, including thermal oils and synthetics;
- Provide measures to eliminate, or reduce as far as is reasonably practicable, the identified fire & explosion risks. For heat transfer oil this means monitoring of flashpoints by representative hot, closed sampling and to sustain and/or restore flash points by venting procedures or dilutions where the former is not an option;
- Apply measures, so far as is reasonably practicable, to control risks and to mitigate the detrimental effects of a fire or explosion. As above, plus maintain security of system to prevent leaks, remove sources of ignition and so on;
- Provide equipment & procedures to deal with accidents & emergencies; and
- Provide employees with information & precautionary training e.g. make engineers aware of the need to sample correctly, monitor and manage flashpoints.

## Where Explosive Atmospheres May Occur (also see NOTE 1):

- The workplace should be classified into hazardous & non-hazardous places;
- Hazardous places to be classified into zones on the basis of frequency & duration of an explosive atmosphere and where necessary marked with a sign;
- Equipment in classified zones should be safe & satisfy the requirements of Equipment & Protective Systems intended for use in potentially Explosive Atmospheres 1996; and
- The workplace should be verified as meeting the requirements of DSEAR by a competent person.

## Thermal Fluid Management in Line with DSEAR

Heat Systems offers the complete solution. We are able to assist you with all necessary documentation, maintenance schedules and training to keep you in line with legislative requirements.

## The Heat Systems Fluid Support Service:

- Provides a truly representative sample via a closed sample device;
- Tests and analyses fluid and produces accurate reports in line with insurance and DSEAR/ATEX requirements;
- Controls flashpoints by venting (system modifications available) and/or fluid dilution or renewal; and
- Thermocare® proactive preventative maintenance contracts available.