



Electrostatics

Identifying and controlling hazards, measuring properties, problem solving and developing commercial applications.

Providing practical solutions to industrial problems through:-

Consultancy Advice

Laboratory Testing

Research & Development

Monitoring Equipment

Training

Electrostatics

Electrostatic Hazards



FIBC Testing: Gas probe showing ignition by static discharge



Aluminium Dust Explosion Caused by Static

WHAT ARE ELECTROSTATIC HAZARDS?

Electrostatic hazards are unwanted effects that pose a risk to life and property. The greatest hazard of static electricity is its capacity to ignite flammable materials causing fires and explosions. High levels of static charge can also produce electric shocks that cause direct personal injury; and the reaction to shock can expose people to other hazards such as moving machinery.

YOUR RESPONSIBILITIES

All personnel have a responsibility for safety. However employers have a duty in law to provide certain minimum protection for their workforce and the public. In Europe, employers are required by national law (ATEX 137) to demonstrate that fire and explosion risks, explicitly including those due to static, are understood and have been addressed.

IMPORTANT QUESTIONS

How sensitive to ignition are vapours, gases and powders (including powders arising from attrition of solids) on your plant? As a dust cloud, many everyday materials can explode.

If a static spark (which is so small that it cannot be felt) can ignite your material, how do you know you do not have a static hazard?

Can you be sure that the conditions for charge accumulation have not been accidentally created?

HOW WE CAN HELP

We can provide everything you need to properly assess and control the static hazards on your site.

- **Laboratory Testing**

We undertake all relevant electrostatic testing of materials, find the sensitivity of all types of materials to ignition by static (and other ignition sources), and can determine the severity of subsequent explosions.

- **Professional assessments and advice**

Professional engineers with many years of specialist experience can undertake a range of static hazard assessments of single unit operations to complete plants. Well-written reports give recommendations and explain how they were reached. The aim is always to finish with practical advice for safe operation, without losing sight of business needs.

- **Documentation**

Our reports can provide the basis for the documentation that legislation requires as well as practical suggestions and guidance.

- **Training**

Understanding the background to safe practices is crucial. We deliver public and private on-site training for all levels of personnel.

WHAT ARE ELECTROSTATIC PROBLEMS?

Electrostatic problems are unwanted effects of static electricity which do not pose a hazard to life but can cause low yield, reduced plant capacity, poor product quality, customer dissatisfaction and employee discontent. Typical electrostatic problems are:-

- **Powder processing:** Powders stick in pipes and vessels and do not flow as required. Problems such as reduced sieve yields can often arise.
- **Packaging:** Static is a problem when packing many products.
- **Film and sheet handling:** Films and sheets may stick. Sheets may not stack.
- **Printing:** Definition may be poor when printing on highly charged materials.
- **Electronics and instrumentation:** Static can cause electronic equipment to behave erratically or fail.
- **Nuisance shocks:** Repeated small shocks can be hazardous and become a serious cause for personnel discontent.

In fact, there are as many problems as there are processes and it would be impossible here to provide an exhaustive list. What should be appreciated, however, is that dealing with electrostatic problems can increase profitability.

WHICH INDUSTRIES ARE AFFECTED?

Some of the industry sectors that have benefited from our services include: Chemicals, Electronics, Food, Furniture, IT, Pharmaceuticals, Plastics, Printing, Retail, Recording media, Telecoms

WHAT WE CAN DO

With on-site visits or desk-top analyses, our professional engineers with many years of personal experience, and access to Chilworth Technology's extensive laboratory facilities, can propose solutions to any problems due to static electricity. We can implement proposed changes on your behalf and provide expert consultancy advice to your engineers.

Our consultant engineers have strong industrial backgrounds and pride themselves on proposing practical and cost-effective solutions.

ELECTROSTATIC APPLICATIONS

Many beneficial applications can be derived from static electricity such as ink jet printers, powder coating and photocopiers. We have the skills and facilities to develop new applications and have worked on electrostatic spraying, powder deposition and materials separation, to name just a few.

The range of opportunities is huge so if you have even the glimmer of an idea for your own industry, talk to us. A new competitive edge could be closer than you think.

Electrostatic Problems



Resistivity and Charge Relaxation Time Testing



*Typical Electrostatic Application:
Electrostatic Spraying for Use in Operating Theatres*

Electrostatic Applications

THE BENEFITS

From Chilworth you obtain:-

- Impartial, professional and confidential consultancy advice.
- Fast and economical service.
- Expert guidance on the selection of tests and interpretation of results.
- Testing to British, European, American and International standards.
- The confidence of knowing that data comes from GLP compliant laboratories.
- Access to specialist in-company and open training courses.



Testing to GLP Standard



Consultancy



Training



CHILWORTH SERVICES

We offer a range of testing and consultancy services to the processing industry, covering:-

- Dust/Gas/Vapour Explosions
- Electrostatic Hazards
- Hazardous Area Classification
- Chemical Reaction Hazards
- Chemical Process Optimisation
- Regulatory Testing (NONS, CHIP, CPL, UN)
- ATEX / DSEAR Audits
- Major Hazards (Seveso II / COMAH)
- HAZOP
- Incident Investigation
- Expert Witness
- Safety Training

For further information and a comprehensive list of the testing services available, please contact one of our offices detailed below.

CONTACT

Process safety experts are on hand at the following sites:-

Chilworth Technology Ltd

Beta House, Chilworth Science Park,
Southampton, SO16 7NS, UK
Tel: +44 (0)23 8076 0722
Fax: +44 (0)23 8076 7866
E-mail: marketing@chilworth.co.uk
Internet: www.chilworth.co.uk

Chilworth Technology Inc

Princeton Corporate Plaza,
11 Deer Park Drive, Monmouth Junction,
NJ 08852, USA
Tel: +1 732 274 0900
Fax: +1 732 274 1371
E-mail: marketing@chilworth.com
Internet: www.chilworth.com

Chilworth Technology Italia

Tel: +39 339 38 99 723
Fax: +39 039 92 77 775
E-mail: info@chilworth.it
Internet: www.chilworth.it

For further information telephone +44 (0)23 8076 0722