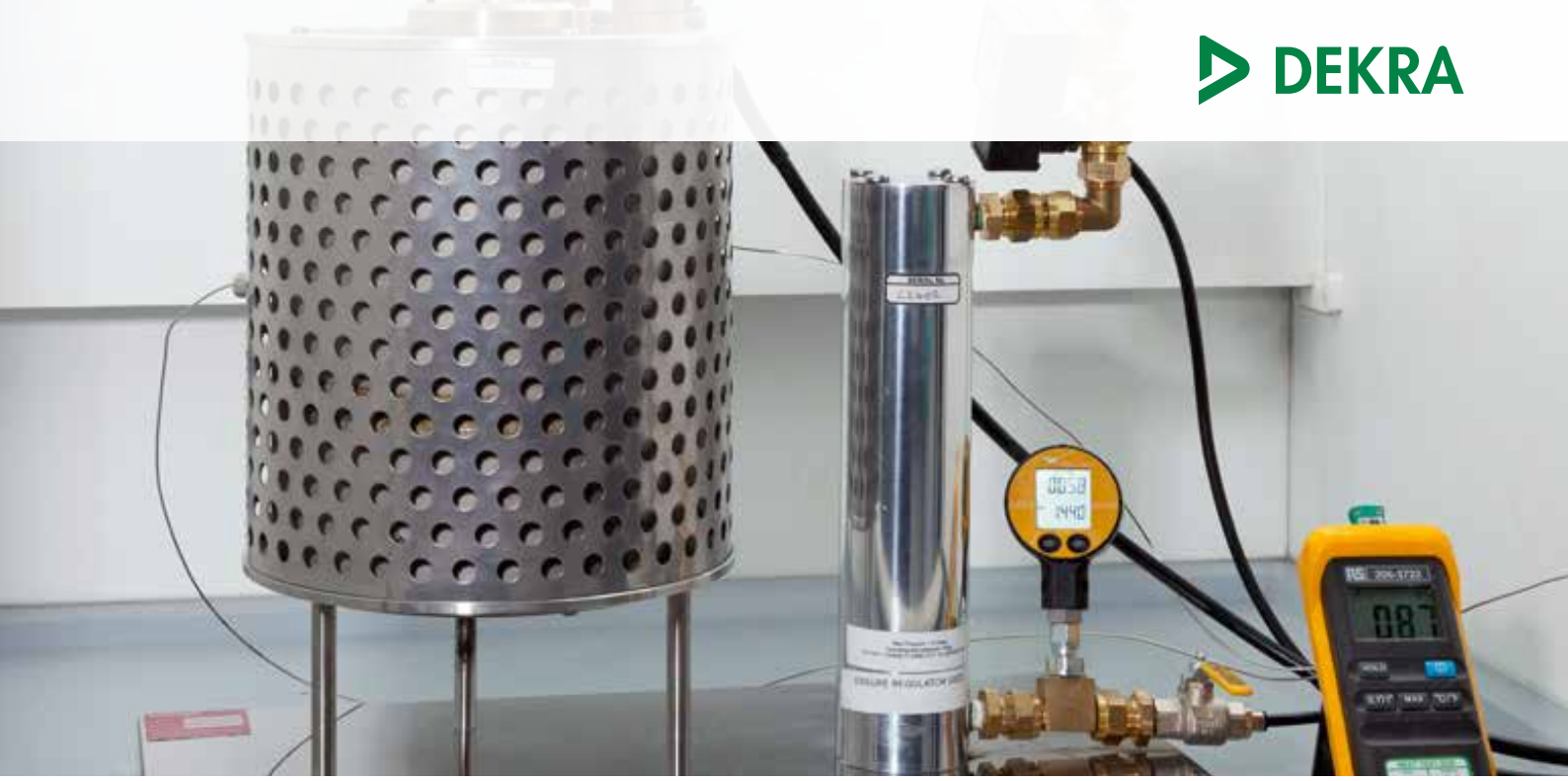


DATASHEET

A Question of Data - The Right Testing Package

Clients come to us at DEKRA Technology for a whole range of testing needs including data for regulatory purposes (REACH, CLP, GHS), transportation classification and process safety (ATEX / DSEAR). They may have one or one hundred powders to test, but in all cases they are looking for an expert assessment of their needs and a cost effective and reliable solution to their data requirements. With over 300 tests available, many different international standards and new test packages being introduced to our range, how does a client select the right package? This paper provides a flowchart and technical guidance for choosing the right package combination for your company.

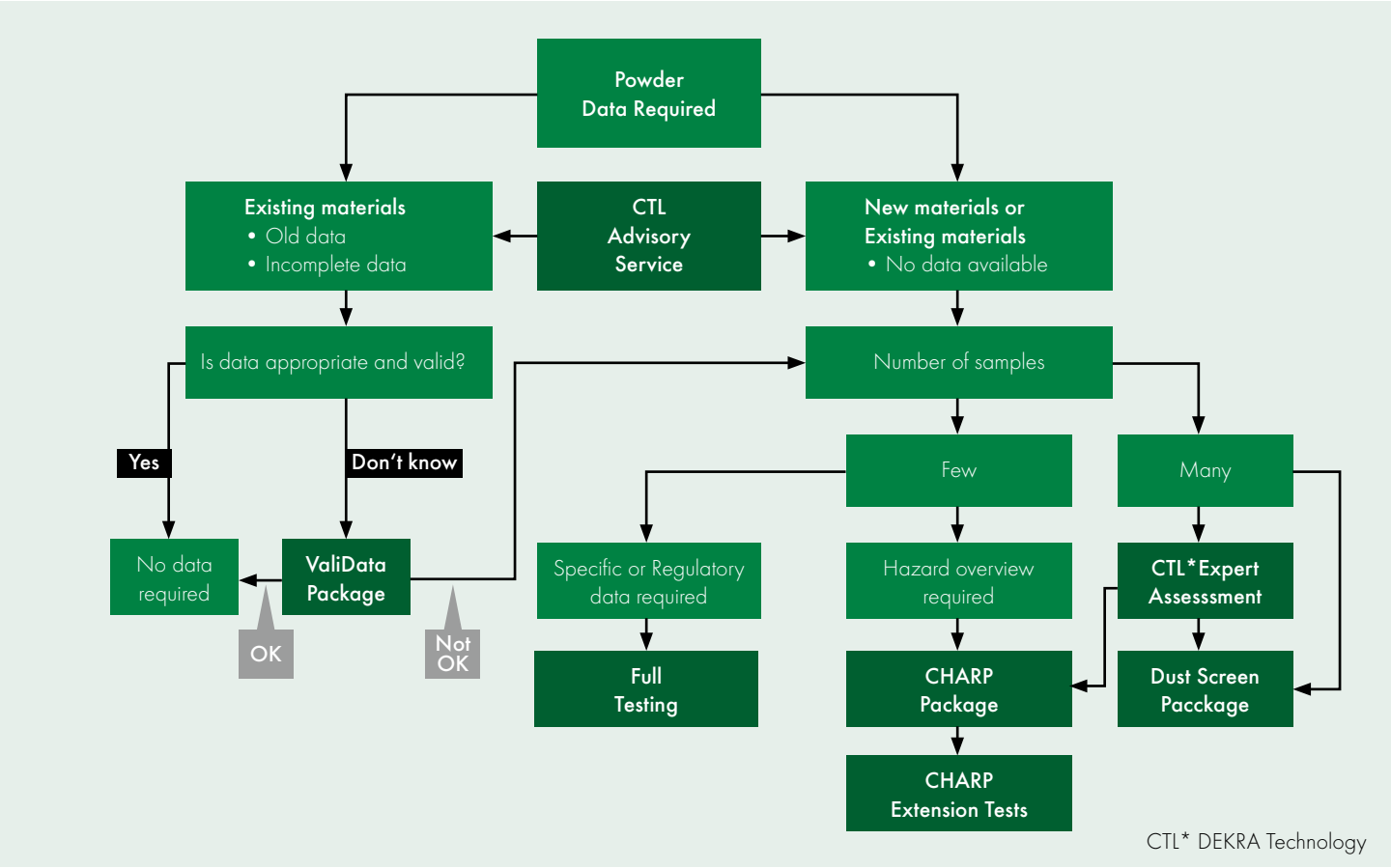
What Data Do You Need?

The ATEX 137 EU Directive, implemented as the Dangerous Substances and Explosive Atmospheres Regulations, (DSEAR 2002) in the UK, has placed legislative demands on companies handling flammable materials (gases, vapours or dusts) to identify and minimise the risk of fire and explosion by conducting a risk assessment. To do this satisfactorily requires safety data on the specific materials being handled or processed. Whilst information on gases and vapours is generally readily available, dust explosion data can be more difficult to obtain, and when it is, its applicability to your specific material or processes can be questionable.

DEKRA recognises the difficulties faced by many companies in obtaining reliable and dependable data and offer a comprehensive range of testing solutions tailored to any processing or handling eventuality.

Selection of the testing route is easily made using this flow-chart. Each package is aimed at a specific situation, with the aim to ensure that the necessary data is obtained in a cost effective manner; avoiding testing of unnecessary parameters or materials.

Selection Flow Chart



CTL* DEKRA Technology

CTL* Advisory Service

For companies who need to address dust explosion hazards for the first time or are unfamiliar with the wide range of tests available, the CTL* Advisory Service offers expert guidance on the approach they should take. This service is FREE to all our clients and can help tailor a test programme to your specific needs. In certain circumstances, we can also arrange for one of our technical team to visit your site to discuss your needs & offer this complimentary service. It also forms the foundation for identifying which test packages are suitable for your data needs.

Vali-Data Package

In situations where dust explosion data already exists, it is important to ensure that it is valid and relevant to the processing situation. Some of the conditions in which you might challenge the validity of your data are where:

> Old data exists – has the test method changed? Is the original test method still valid?
> The data source is unknown or dubious
> Data has been extracted solely from literature
> Significant variations in particle nature have occurred due to changes in processing methods or supplier. This will include composition, impurity profile, moisture content, particle size and / or particle shape / morphology.

The data validation package aims to critically review your existing data and identify whether it remains valid. Statements of validity can be prepared or, where applicable, re-testing can be undertaken at significantly reduced cost.

CTL* Expert Material Assesment

When you are processing many powders, the potential for testing costs to spiral creates a real concern. Our Process Safety Specialists can undertake a material audit to assist you in selecting specific

powders from your range for analysis. This will consiåder your specific processing conditions and identify only those tests needed to support your basis of safety. Our specialists will assess:

> Your full powder portfolio – to identify non-flammable materials, generic groups where selective testing can be applied and materials where adequate data exists
> Your specific processing conditions – to identify which tests are required to satisfy the needs of your operational basis of safety.

This assessment goes much further than the Advisory Service as it provides you with consultancy expertise to derive a "manageable" list of materials and tests that are essential for the basis of safety employed. The emphasis is placed on identifying & eliminating products and tests which are not required. This can appreciably reduce the scope (& hence cost) of a testing program and can prove an investment for companies with large powder portfolios.

DEKRA Hazard & Risk Profile (CHARP™)

In situations where an overview of a wide range of material properties is required, the award-winning DEKRA Hazard and Risk Profile (CHARP) package is a highly cost-effective mechanism for screening. Whilst not providing absolute results as achieved with a full test protocol, the package does provide screening for seven key areas of hazard. This package is ideally suited to when several materials require a hazard overview as potential for identifying worst-case materials.

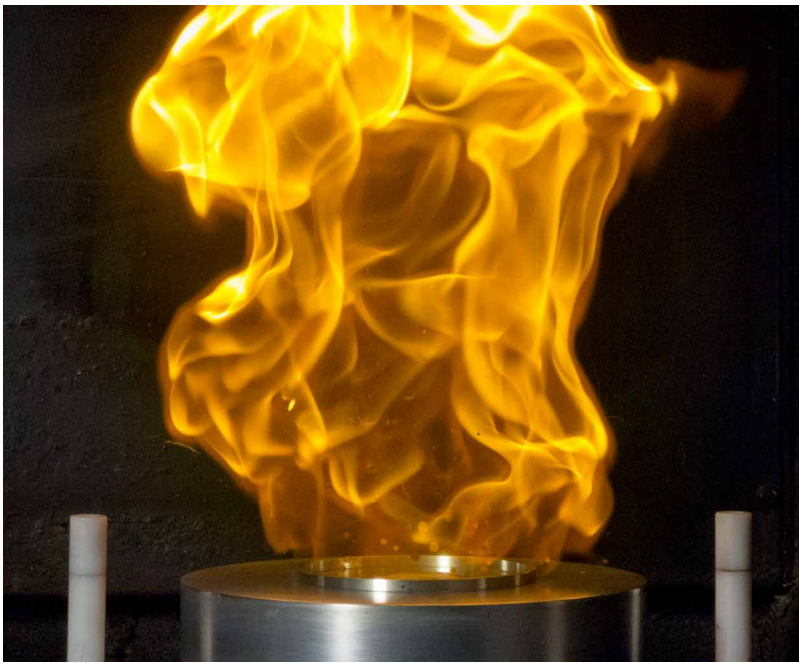
DustScreen

Where many materials are processed in a common plant and the safety system needs to be based on the properties of the worst case, DustScreen is the ideal solution. The parameters required for the agreed basis of safety are identified and a screening series of tests are performed, increasing in sensitivity to identify the worst-case result. Only those powders that fail at the first screening level undergo further testing keeping costs to a minimum whilst providing cost effective data on high risk materials.

Full Testing Package

Where only a few materials are under consideration or multiple materials are used but are handled in different areas of plant with corresponding different basis of safety, full testing is needed. This also applies to materials which are being tested for Material Safety Data Sheets (MSDS) or for other regulatory purposes. DEKRA Technology offers a comprehensive range of tests using international standards embracing all areas of dust explosion, electrostatic and thermal stability hazards.

DEKRA's Global Testing Capabilities



DEKRA has been a principal provider of specialist services for the prevention and control of fires, explosions, and accidental chemical releases in the chemical and process industries since 1986. The safe

operation of facilities in chemical and process industries requires solid safety management programs and systems, proficiency (competency, know-how, experience) among the staff and a culture that encourages excellence in process safety practice. Of course, management systems created and skills developed need to be suitable and correctly applied. They also need to be monitored and must be embedded and sustainable in the long term. Doing these things well will create process safety excellence and generate wealth for all stakeholders involved. Through our consulting and training services, and laboratory testing facilities in North America, Europe, and Asia Pacific, we have been helping our clients achieve process safety excellence.

DEKRA has state of the art ISO 17025 and GLP accredited dust explosion, gas and vapor flammability, and electrostatic testing laboratories and specialist facilities for the evaluation of thermal runaway reactions and energetic materials (pyrotechnics, propellants, explosives).

We hope that you have found this guide informative and helped broaden your understanding of how we help our customers select the most appropriate packages for their needs. For more details on our data selection services, or any of our other products, please get in touch using the information below.

Would you like to get more information?

Contact Us

DEKRA Process Safety

The breadth and depth of expertise in process safety makes us globally recognised specialists and trusted advisors. We help our clients to understand and evaluate their risks, and work together to develop pragmatic solutions. Our value-adding and practical approach integrates specialist process safety management, engineering and testing. We seek to educate and grow client competence to provide sustainable performance improvement. Partnering with our clients we combine technical expertise with a passion for life preservation, harm reduction and asset protection. As a part of the world's leading expert organisation DEKRA, we are the global partner for a safe world.

Process Safety Management (PSM) Programmes

- Design and creation of relevant PSM Programmes
- Support the implementation, monitoring, and sustainability of PSM Programmes
- Audit existing PSM Programmes, comparing with best practices around the world
- Correct and improve deficient Programmes

Process Safety Information/Data (Laboratory Testing)

- Flammability/combustibility properties of dusts, gases, vapours, mists, and hybrid atmospheres
- Chemical reaction hazards and chemical process optimization (reaction and adiabatic calorimetry RC1, ARC, VSP, Dewar)
- Thermal instability (DSC, DTA, and powder specific tests)
- Energetic materials, explosives, propellants, pyrotechnics to DOT, UN, etc. protocols
- Regulatory testing: REACH, UN, CLP, ADR, OSHA, DOT
- Electrostatic testing for powders, liquids, process equipment, liners, shoes, FIBCs

Specialist Consulting (Technical/Engineering)

- Dust, gas, and vapour flash fire and explosion hazards
- Electrostatic hazards, problems, and applications
- Reactive chemical, self-heating, and thermal instability hazards
- Hazardous area classification
- Mechanical equipment ignition risk assessment
- Transport & classification of dangerous goods

We have offices throughout North America, Europe, and Asia.
For more information, visit www.dekra-process-safety.co.uk
To contact us: process-safety-uk@dekra.com

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