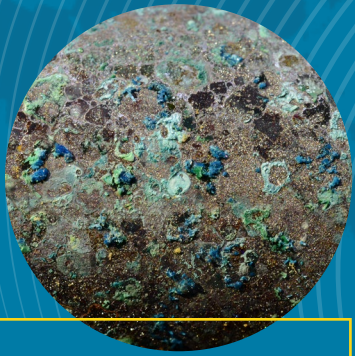
Hawkins
Leaders in forensic investigation



MATERIALS FAILURE

Providing specialist forensic investigation and root cause analysis for all aspects of materials failure.

www.hawkins.biz

Composites | Concrete & Aggregates | Electronic Materials
Fibres & Textiles | Glass & Ceramics | Metallurgy | Packaging | Paint & Coatings
Pipe & Plumbing Fittings | Plastics/Polymers | Water | Wood

Established in 1980, Hawkins specialises in forensic investigation and root cause analysis for the insurance, legal and risk management professions. Our clear, concise and timely reports will provide the understanding you need to make the correct decisions on your risks.

With a recognised and growing global presence, we have over 150 experts providing worldwide coverage from offices in Europe, MEA, and Asia, as well as key locations across the UK & Ireland. Our experts can advise, investigate, and assist at any stage of an incident, including pre-loss prevention and risk assessment, root cause analysis, post-failure remediation advice and expert witness services.

All our experts are highly experienced forensic scientists, consulting engineers, and quantity surveyors from a wide range of disciplines with proven expertise and practical experience.

"Clients come back to Hawkins because of our honesty and integrity. Our subject matter experts have sound technical knowledge and expertise, married with a real commercial awareness of what our clients need. Hawkins provides a rapid response, giving timely, accurate advice and communication of the evidence in a way our clients can act upon."

Dr Andrew Prickett, Managing Director, Hawkins

We understand that you need to get your business up and running again quickly. A preliminary report is normally produced within three days of the scene visit, setting out the most probable cause and a proposed strategy for further investigation. Our reporting is flexible and can be tailored to your needs, depending on the scale and urgency of the investigation.

When needed, a court-compliant report can be prepared for the support of legal action, which may require more extensive investigation.

Our diverse range of skills and expertise spans across all aspects of material failures. We can identify why a material failed, how an incident occurred and determine root cause such as human error, a design or manufacturing flaw, poor material specifications or process implementation.

Usually, the investigation process will include a site inspection, a review of relevant design, maintenance and operation logs, witness interviews and a detailed examination of the failed components. Putting all of this information together will help to establish the sequence of events that led to the failure, thereby allowing the cause to be determined.

What we do

PRE-FAILURE RISK MANAGEMENT

Guidance on design, installation, and regulations to ensure safety, compliance, and risk reduction.

ROOT CAUSE ANALYSIS

Scientific investigation into all aspects of an incident to determine what happened, why and in what sequence.

EXPERT WITNESS SERVICES

Independent and impartial technical advice, including quantum & delay services to assist Counsel during all aspects of litigation.

POST-FAILURE ADVICE

Consultancy advice to reduce, mitigate and prevent risks associated with similar events happening in the future.

MAJOR & COMPLEX LOSS

Global resources and multidisciplinary teams, armed with the knowledge, equipment and facilities to manage and investigate major and complex incidents.

We Investigate...

COMPOSITES

The failure of a composite material can often result in serious incidents, such as the rupture of a pressure vessel or injury caused by the collapse of a bicycle fork. Failure is investigated through material characterisation, mechanical properties measurement and forensic analysis. During investigation, it is important to understand why that material was chosen for use, how the different component parts have been combined to maximise the resultant properties of the material, and how those components are likely to behave in the chosen application.

CONCRETE & AGGREGATES

Concretes, screeds and aggregates are the backbone of the building industry. Without these materials many structures simply could not be built. Yet the failure of these can have catastrophic consequences. Taking samples or cores from buildings can help to identify what is happening and why degradation is occurring. Often concretes are reinforced with metallic components and Hawkins can investigate the failure or contamination of these too.

ELECTRONIC MATERIALS

Electronic components require a suite of different types of materials (e.g. polymers, metals, ceramics) in order to function. Problems with any of these can lead to failure of the component, which in itself can lead to fires, power surges or other related damages. It is vital to consider the component holistically and to ascertain not just which materials are damaged but how the component works as a whole.

FIBRES & TEXTILES

Fibres and textiles can be used in a surprising array of critical equipment, from ropes and straps, to Kevlar gloves and PPE. Failure of these items can lead to serious injury and loss of life, in addition to extensive damage to valuable assets. For example, we have investigated rope failures which have led to incidents ranging from the damage of cargo to the inadvertent launching of a ship. In-depth investigation of the items can identify the cause and prevent similar incidents from occurring in the future.

GLASS & CERAMICS

Glass and ceramics are two very different materials but they have a wide range of uses and can both be utilised in domestic settings, in architectural uses and in large (or small) scale manufacturing applications. At Hawkins we have investigated numerous personal injury claims involving glass, from bottles cracking and exploding, to injury caused by fractured windows. In the last twenty years architectural glass has become increasingly popular. Whilst such glass can be visually striking, it can be very costly if it breaks, particularly because the logistical challenges of replacement can far outweigh the cost of the glass itself. Our engineers have a wealth of experience in how ceramic materials (from functional ware such as mugs, to refractory ceramics to insulators for electrical uses) are designed and processed and why they have failed, whether it be from inappropriate use, incorrect installation, manufacturing defects or misuse.

METALLURGY

Losses involving metallurgical failures occur in a wide range of industrial and domestic environments and can lead to high value claims or even loss of life. Incidents might involve structural collapses or mechanical failures that result from corrosion, fracture, wear or deformation (bending/buckling) of metallic parts. Such catastrophic failures sometimes result from problems in the manufacture of parts or from the inappropriate selection of a particular material (which is itself well made) for the job in hand. We can investigate such failures by carrying out detailed inspections of the components and considering the environment and the application, in order to differentiate between issues such as defective machinery, operating errors, poor maintenance and other external causes.

PACKAGING

We have investigated numerous cases involving packaging failures and have liaised with manufacturers and distributors to identify issues swiftly so that problems can be addressed and further loss of stock or subsequent damage can be minimised. Damage to food packaging from poor materials selection can result in loss of integrity, soiling of the contents and possible cross contamination of other items. For example, corrosion of metal bottle tops on drinks, poor sealing of polymer edging and even personal injury from poorly made glass bottles.

PAINT & COATINGS

Coatings of objects can range from electroplating of metals to physical paint being applied. The most important reason to coat a material is invariably to protect it from degradation; corrosion in the case of metals and rot in the case of natural materials. Coatings can and do fail to provide the necessary protection. Sometimes this is related to poor installation techniques or curing environments, but sometimes it is related to manufacturing processes. In-depth analyses of the issues including examination of the coating on a nano scale can provide the answers necessary to evaluate the problem.

PIPE & PLUMBING FITTINGS

Plumbing fittings and pipes are designed to carry various liquids and gasses. They provide a crucial conduit through which many of our daily activities are achieved, in both domestic and industrial settings. If a pipework fails to provide this service, the resultant damage or downtime can be costly. In these cases, ascertaining the location and cause of the issue is critical. System analysis and materials examination are vital tools and using a suit of different analytical techniques the cause of the problem can be identified, be it from installation, manufacture or exposure to environmental perils.

PLASTICS/POLYMERS

Polymers are used in all aspects of modern-day life: from pipework to paint coatings, textile fibres to automotive components and adhesives to hot water bottles. Whilst plastics are extremely versatile, they are not without their limitations, and our materials engineers and scientists have an in-depth knowledge of how plastics 'work'. We have experience in how plastics are designed and processed, and how environmental and installation conditions can affect how well these materials are able to do their job.

WATER

Water chemistry is crucial when considering the compatibility of components with it. This could be ocean going structures or simply components in domestic plumbing systems. We can take samples of water and analyse them, including for bacteria.

WOOD

Timber can be used for decorative or structural purposes; the way a piece of wood might react to environmental conditions varies hugely depending on type and cut. Hawkins has examined many claims relating to the degradation of wood, including cladding, timber structures and floor coverings. These issues can be particularly problematic if there is a systemic issue with the wood, for example the cladding of an entirely new building development or where decorative wooden cladding is used in a publicly accessible area. Renovations are costly and can also affect a brand's image.

Hawkins' Expertise

With a recognised and growing global presence, we have over 150 experts providing worldwide coverage from offices in Europe, MEA, and Asia, as well as key locations across the UK & Ireland. Our expertise covers a vast number of specialist areas including:

ACOUSTICS & AUDIOLOGY
Our experts assess and advise on acoustic design in the planning stages, and provide mitigation strategies post-construction in the event of a noise dispute.

ARCHITECTURE
We investigate building defects to determine whether design or workmanship is the root cause. With experience in many sectors and across all RIBA stages from inception to occupation, we can provide advice tailored to your project.

THE BUILT ENVIRONMENT
Our civil, structural, geotechnical and fire engineers provide expert investigation of defects and failures in the built environment, including water ingress, structural collapses, storm damage and personal injuries, especially on construction sites.

CHEMISTRY & CHEMICAL ENGINEERING
Hawkins' team of highly qualified and experienced chemists and chemical engineers provide expert opinion on problems associated with chemical processes in a wide variety of industries, including: post incident investigation, goods handling, environmental concerns, hazardous substances and personal injury.

CONTAMINATION
Our team of highly qualified and experienced chemists can investigate a wide range of contamination and spillage incidents.

DIGITAL FORENSICS
Hawkins experts collect, authenticate and preserve original evidence. We discover the source of a digital event or attack, how it occurred, and what information may have been lost or compromised.

ELECTRICAL
We investigate incidents including failures and injury involving most types of electrical equipment, from micro-electronics and domestic electrical appliances through to high voltage generation and distribution.

ESCAPE OF WATER, GAS, OIL AND OTHER FLUIDS
We can provide system failure analyses for incidents involving all fluids and gases in industrial and domestic settings with onsite and laboratory investigations.

FIRE & EXPLOSIONS
As a leader in forensic fire investigation, Hawkins has the necessary knowledge and experience to investigate the full scale of losses globally, and advise on recovery, liability and risk management.

FIRE ENGINEERING
Hawkins has the necessary competencies to advise on fire engineering matters including compliance with fire safety legislation and guidance, investigation of fire spread and building fire safety design, construction and management.

FRAUD
We compare physical evidence with witness accounts to establish if the evidence is commensurate with a suggested sequence of events or actions. This applies to both small and major losses.

HYDROLOGY
Our expert hydrologists and engineers have years of experience identifying the cause(s) of complex flooding incidents.

MARINE INCIDENTS
We assist on a wide range of incidents including agricultural cargoes, liquefaction, fires, explosions and chemical contamination.

MATERIALS
From medical implants to satellites, our experts are on hand to establish the cause of failure of manufactured items.

MECHANICAL
Losses often involve the failure of multi-component mechanical systems. We have the knowledge and experience to identify the cause, no matter how complex.

PERSONAL INJURY
We provide independent and expert assistance with all types of personal injury, including specialised and complex areas like slips, trips and falls, and noise-induced hearing loss.

PLANT PATHOLOGY
At Hawkins, plant pathology encompasses agricultural, horticultural, forestry, marine and contamination claims. Our experts are experienced in investigating the causes of plant diseases, crop failures and spoilage of fresh produce and agricultural cargoes.

POWER & ENERGY
We investigate all aspects of failures in traditional thermal power, oil and gas, and renewable energy sources.As well as incidents such as electric shock, gas leaks, power failure, over-voltage, equipment failure and poor design and maintenance.

PROCESSES
Our engineers help identify the cause of a problem and advise on liability and future prevention.

PRODUCT LIABILITY
We are experts in the field of product liability and often deal directly with UK Trading Standards offices or similar statutory bodies.

QUANTITY SURVEYING
We provide cost consultancy, dispute resolution, and quantum & delay expert witness services through our two specialist subsidiaries. Services include insurance reinstatement valuations, pricing proposed works assessing the quantum of claims, and the impact of delays.

RAILWAYS
We have investigated incidents including wderailments, unintended runaways and accidents at level crossings.

ROAD TRAFFIC COLLISIONS
Our investigators identify all contributory factors and analyse issues such as vehicle speed, visibility, human factors, CCTV, road positioning, weather, vehicular faults and damage assessments.

VEHICLE, PLANT & MACHINERY
We investigate fires and failures involving all types of vehicles and plant. We routinely review designs and maintenance practices to provide recommendations to our clients.

QUANTITY SURVEYING SERVICES

We provide market leading Quantum & Delay expert witness services through our specialist subsidiaries A Lamb Associates (ALA) and Morham and Brotchie Partnership (M+BP).

ALA

Our team is comprised of highly qualified industry leading experts. ALA has considerable experience across all major building and engineering sectors, with particular expertise in cross country pipelines, energy and major infrastructure projects.
Blue chip multinationals, Tier 1 contractors and specialists all turn to ALA for reliable authoritative and accurate expert opinion.

M + BP

M+BP are an established Chartered Professional Quantity Surveying practice, whose clients include individuals, corporate bodies, insurance companies, and trusts. M+BP provide QS services for all sectors with specialism in listed historic building projects and one-off complex builds. M+BP prepare bespoke cost plans to suit clients, funders, and insurance bodies, to provide the best service and most accuracy.

Our team of specialist experts provide Expert Quantum and Expert Forensic Delay Analysis and have a wide range of experience, including:

- One-off complex projects for high-net-worth individuals
- Residential builds (new/altered/extended)
- Visitor centres and museums
- Whisky distilleries
- Hospitality, including restaurants, theatres and cinemas
- Commercial fit out
- Education, government, and local authority

SERVICES

Our team of expert in-house Quantity Surveyors provide a range of services including:

INSURANCE REINSTATEMENT VALUATIONS

Our experienced team provides reinstatement valuations, with expertise in historic or listed properties. These often feature unusual or difficult to price items, such as masonry vaults, elaborate fireplaces, and traditional building methods. Using generic rates to calculate these valuations is seldom best practice, which is why M+BP advocate providing detailed costings when undertaking these exercises

PRICING PROPOSED WORKS

Our experts provide support pricing proposed works. This includes pricing proposed remediation options so that an informed decision can be made on the most cost-effective solution.

ASSESSING THE QUANTUM OF CLAIMS

We investigate and assess the reasonableness of claims received. Our experienced team will review all costs to determine if costs have been reasonably and properly incurred. We assess whether a reasonable procurement process has been followed, whether rates represent market value and whether work pricing reflects the scope. We are able to make adjustments for betterment, inflation or other relevant matters.

THE IMPACT OF DELAYS

The duration of a project can have a significant impact on the amounts claimed. Our experienced team of Forensic Planners can assess the cause of any delays to progress, determining whether all costs claimed are properly due.

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