TEG
TECHNICAL ENGINEERING GROUP
RISK

HAZARDOUS AREAS

Capability Statement

Expert safety engineering partners

TEG Risk offers a range of expert-led training services designed to support your business to become more effective at managing risks.

Our training is bespoke and delivered based on our client's requirements.

— **HAMISH BAKER**
Principal Safety Engineer and Director

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Company Overview

TEG Risk is a world-class organisation specialising in hazardous areas risk management

A safe and compliant workplace is crucial to the success of your operations and the wellbeing of your most valuable asset – your employees. But ineffective risk management leading to accidents can not only incur massive fines but in the field of hazardous areas where fire and explosion is the risk – it presents an existential risk to your organisation.

Our team of safety engineering consultants provide completely independent risk engineering service for hazardous areas. They also provide best practice advice and engineering design solutions to ensure your workplace is safe and compliant with all relevant regulations.

At **TEG Risk**, we have the qualifications and years of experience in risk management of hazardous areas, particularly in the chemical and food and beverage industries. We have a highly trained team of hazardous area safety engineers from mechanical, electrical and safety engineering backgrounds.

TEG Risk is at the forefront of safety engineering for the manufacturing sector

Our advice and solutions come from years of experience in the field and an up-to-date, extensive understanding of the regulations and risks involved in hazardous areas management

Our Clients

Making workplaces safer
ensuring optimum workplace safety and wellbeing

TEG Risk is proud to be involved in making workplaces safer for companies of many sizes across several different industries.

Our clients include a number of leading Australian, New Zealand and international manufacturing and processing companies.

CLIENTS INCLUDE

Fonterra™

Synlait

MAURI™ Baking better together

SUNTORY Sustained by Nature and Water

TIP TOP Bakery

Fletcher Building

SILVER FERN FARMS
ANZCO FOODS
KERRY INGREDIENTS
SEALED AIR
AMCOR
OJI PAPER
DFE PHARMA
MSD ANIMAL HEALTH
LAMINEX
FULTON HOGAN

Regulatory Compliance

Our clients can expect professional service in terms of quality trusted advice and practical solutions

Unlike some general workplace safety regulations that are general/performance based e.g. "minimise risks so far as is reasonably practicable" – the regulatory framework for hazardous areas and in particular the electrical aspects are very prescriptive. Detailed knowledge of these and certified competency is key to navigate this and meet the competency requirements.

The Electricity Safety Regulations 2010 provides the definition of 'hazardous area' and explicitly refer to AS/NZS 3000 (Electrical Wiring Rules) and AS/NZS 60079 standards for hazardous area compliance.

Once the presence of flammable gases, vapours, or combustible dust within explosive concentrations has been identified a hazardous area classification (Zoning study) as per AS/NZS 60079.10.1 (for gas) or AS/NZS 60079.10.2 (for dust) is required. This will then set the requirements for any Electrical Equipment in Hazardous Areas (EEHA) which will have to be designed and installed as per AS/NZS 60079.14. All of this will then need to be documented in a dossier and go through a formal regulatory approval by a hazardous area inspector.

But it doesn't stop there as an inspection and maintenance programme for the EEHA will be required as per AS/NZS 60079.17 to ensure the EEHA remains in a safe condition. AS/NZ 4761 prescribes the specific competency requirements that practitioners need to meet to be able to complete works to the above standards.

While EEHA is regulated in a highly prescriptive manner – non-electrical ignition sources (e.g. mechanical, static, friction) are not. Instead – there is simply a requirement to minimise risks so far as is reasonably practicable. In this instance risk assessment processes and a multitude of different standards need to be followed to demonstrate this legal duty has been met. Engineering experience in this essential to navigate these pathways.

For combustible dusts (e.g. flour, sugar, starch etc), AS/NZS 4745 – Code of Practice for Handling combustible dusts provides some collated information but it needs to be applied to risk assessment processes and issues relating to combustible dusts especially – non-electrical ignition sources or protection measures are often overlooked.

For flammable gases and vapours sound and systematic risk assessment processes e.g. HAZOP studies are required.

To make sure you adhere to these standards we recommend seeking expert advice. **TEG Risk** can help in this space. Engaging with expert advice will keep your team safe and ensure you meet legal requirements.

TEG Risk can assist with expert advice to ensure you meet legal requirements

Expertise And Services

Knowledge and expertise
gained through assessing more than 10,000 assets in the field

Managing the fire and explosion risks associated with hazardous areas is complex, however our team can help mitigate risks by:

- Carrying out Pre-classification reviews to provide indicative zoning and opportunities to reduce the number or extent of zones and identify compliance or risk management issues.
- Comprehensive formal Hazardous Area Classifications
- Facilitate/conduct risk assessments to determine all control measures that are required to minimise risk of fire and explosion.
- Review and or specify/design Electrical Equipment in Hazardous Areas.
- Project Manage the implementation of measures to reduce the risk of fire and explosion in hazardous areas.
- Awareness training to staff to ensure risks remain minimised due to good operational behaviours and practices.

Engaging with qualified hazardous area consultants sooner rather than later can help save hundreds of thousands of dollars and prevent some of the biggest dangers in workplaces.

To minimise the risk of these explosive substances, a comprehensive risk management approach is essential. While this begins with good engineering design and specification, once on the factory floor the onus of combustible dust safety falls to good onsite practices, such as housekeeping and maintenance.

TEG Risk Hazardous Area capabilities include:

01

A pre-classification review of your site before a formal hazardous area classification to identify how to reduce the number of and extent of zones and the compliance costs that may come out of a formal classification.

02

A hazardous area classification completed by our certified engineers to AS/NZS 60079.10.

03

A combustible dust risk assessment aligned to AS/NZS 4745.

04

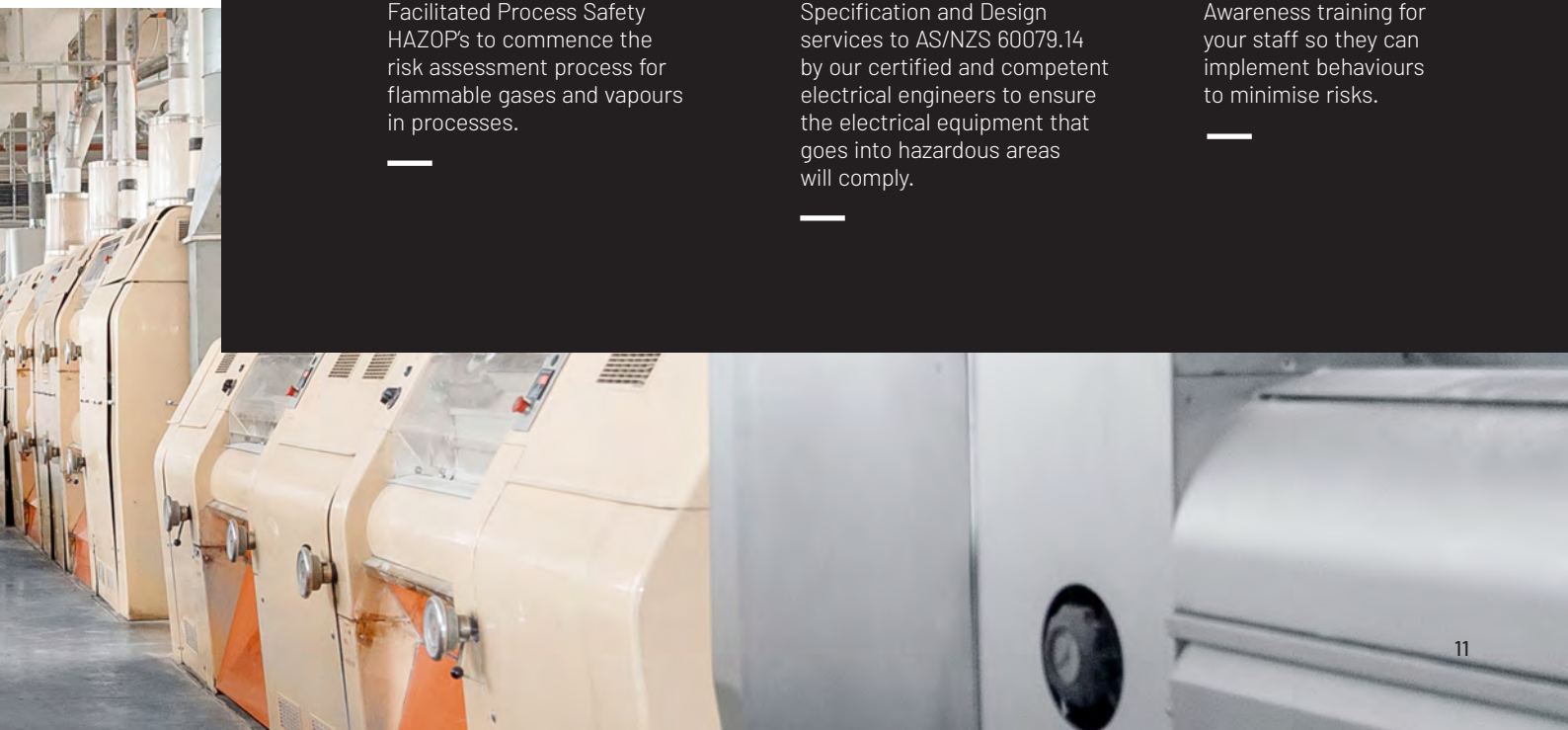
Facilitated Process Safety HAZOP's to commence the risk assessment process for flammable gases and vapours in processes.

05

Specification and Design services to AS/NZS 60079.14 by our certified and competent electrical engineers to ensure the electrical equipment that goes into hazardous areas will comply.

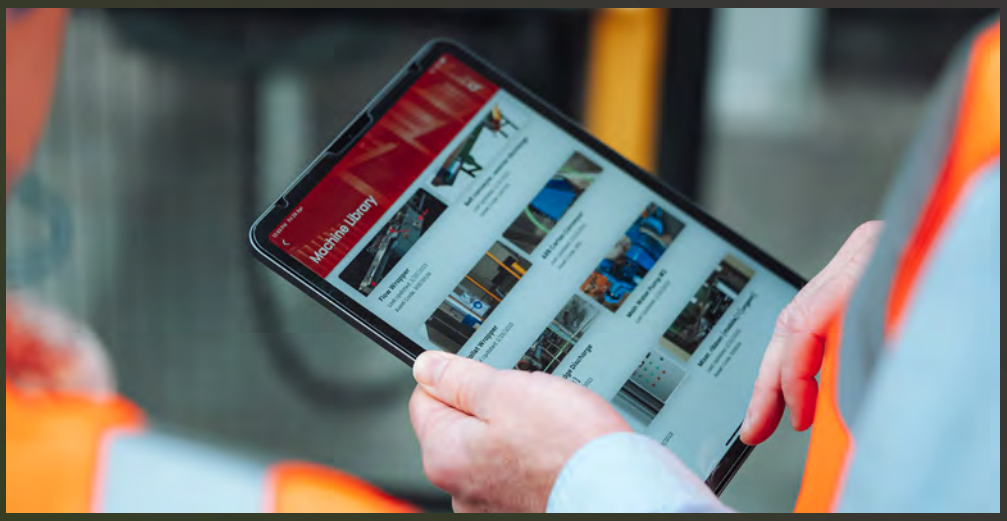
06

Awareness training for your staff so they can implement behaviours to minimise risks.



HAZARDOUS AREAS
& RISK ASSESSMENTS

Project Showcase



Our certified team have the knowledge, skills and experience to ensure that our client's needs are met and considered at each stage of the assessment process.

Read about more Projects at tegrisk.com

01

MANUFACTURING

Ammonia Refrigeration Plant

A client was completing a large upgrade of their ammonia refrigeration system.

The client engaged **TEG Risk** to independently verify the hazardous area classification provided by the primary contractor to ensure it met the requirements of AS/NZS60079.10.1.

TEG Risk completed a desk top review of the design and supplied documentation and provided a report on the conformance of the proposed system. On-site verification of the as-built plant and buildings was also carried out to ensure that the requirements of the Annex.

02

BEVERAGE MANUFACTURING

Sewage Thermal Drying System

Hazardous area classification and risk assessment of a proposed thermal drying system for sewage sludge.

The client required hazardous area classification and a risk assessment of the proposed equipment to ensure proposed design meets compliance requirements and risks are addressed as far as practicable in the design stage.

TEG Risk provided hazardousarea classification drawings and a comprehensive list ofrecommendations to reduce the risk of fire or explosion.

The deliverables included:

- Explosive information of the material being used
- Formal classified zones (including drawings) for the designers to specify and design electrical equipment in classified zones too
- Identification of all relevant hazards/ignition sources including non-electrical)
- Estimation of consequences of a fire or explosion
- Estimation of likelihood of fire or explosion from ignition sources and levels of risk
- Evaluation of risk and identification of recommendations to reduce the risk of flash fires and/or explosions.

03

FOOD MANUFACTURING

Flour Silo Dust Collection Plant

Explosive dusts – Risk Assessment aligned to AS/NZS 4745

A client was upgrading the dust collection system used on their flour silos.

The client engaged **TEG Risk** to conduct a risk assessment on the flour system in order to assess the risks associated with combustible dusts.

The risk assessment followed AS/NZS4745-2012 and **TEG Risk** provided detailed recommendations on changes required to minimise risk of explosion.

This included means to mitigate the effects of explosion with explosion isolation to prevent travel to other powder handling part of the plant and venting to safely direct explosions away from the occupied areas of the manufacturing area.flash fires and/or explosions.

BEVERAGE MANUFACTURING

Powder Tipping and Mixing Plant

04

Hazardous Area Classification to AS/NZS 60079.10.

A client wanted to ensure that new equipment was fit for purpose and was classified correctly.

The client engaged **TEG Risk** to complete hazardous area classification of new and existing equipment on their powder tipping and mixing plant.

TEG Risk provided hazardous area classification documentation to AS/NZS60079.10.2 and recommendations to manage the risk of dust explosion.

FOOD MANUFACTURING

Hazardous Areas Training

05

A client engaged **TEG Risk** to provided combustible dust awareness training to staff at their manufacturing facilities.

Targeted at engineers, supervisors and production managers, the training objective was to increase awareness of the risks associated with combustible dusts, the legal requirements and risk reduction.

The training was delivered in a half day face to face format and provided an efficient way to improve site knowledge around combustible dust hazards on site.

WHY USE TEG RISK?

Our Team

When it comes to safety engineering, **TEG Risk** is a cut above the rest.

Our team is skilled in all aspects of workplace health & safety, as it relates to machine safety and reliability, and combustible substances (AS/NZS Unit standards for explosive substances). Each one of our consultants holds the internationally-recognised TUV qualification along with extensive but specialist experience as it relates to plant and equipment.

We've seen it all before and we know exactly what works. As experts in planning, prioritisation and project management, we'll suggest solutions that make the best use of your resources and budget.

We tailor our processes and reporting to suit you. We spend time on the factory floor, talking to your operators and understanding your processes to deliver the exact solutions your company needs. We work efficiently and without disruption so that your workplace becomes compliant and safe as quickly as possible.

TEG Risk provides practical, pragmatic solutions for hazardous area compliance.

OUR TEAM

NEW ZEALAND

Hamish Baker

PRINCIPAL SAFETY ENGINEER
AND DIRECTOR

Hamish Baker spent many years working in the UK as the Environment, Safety and Health Manager for an international chemical and food additives company. He was responsible for the safety management of the Major Accident Hazard site and its (COMAH/SEVESO) regulatory requirements. This included process safety and occupational health and safety aspects related to the storage, processing and handling of a vast array of different hazardous substances to international best practice standards.

Combined with his process engineering training background he is ideally placed to understand your operations and how they might be affected by hazardous substances or explosive atmospheres.

Hamish has completed formal Hazardous Area Classification training in the UK through BASEEFA and has also obtained Unit Standard Certification to the Australian standards concerning hazardous area classification.

Qualifications:

- Bachelor of Technology (Hons)
- NEBOSH Diploma (Occupational Healthand Safety)
- TÜV SÜD Certified Functional Safety Professional – ID TA13010202 (United Kingdom course)
- Certification in Hazardous Area Classification (Australian Unit Standards)

TEG Risk has a team of highly trained risk assessment specialists

OUR TEAM

NEW ZEALAND

Keshawa (KC) Senaratne

SENIOR SAFETY ENGINEER

KC is a specialized senior safety engineer with over 15 years of expertise spanning hazardous areas, machinery safety, and electrical engineering.

Throughout his career, he has successfully led design, compliance, and technical initiatives in hazardous environments involving combustible dust, gases, and vapours.

His industry experience covers a wide range of sectors, including dairy, flour/grain, sugar, coal, ammonia, LPG, and ethanol.

Prior to joining TEG Risk, KC was the Electrical Engineering Lead at GEA Avapac, a global leader in Powder Packing Machinery, where he provided critical hazardous area expertise to ensure compliance with AS/NZS and IECEx standards, as well as international regulations such as ATEX, DIN, NFPA/UL, CSA, and CCC.

KC excels in delivering comprehensive hazardous area and safety solutions, meeting the most demanding industry standards and requirements.

Qualifications:

- BEng (Hons) (Electrical) Canterbury
- Certified Functional Safety Application Expert (CFSAE), SGS-TÜV Saar, ID: 00155
- Hazardous Area Classification and Design – Australian Unit Standards, Certificate No. 5497790-3769348
- MEngNZ, MNZSSE

NEW ZEALAND

Jason Carter

SENIOR SAFETY ENGINEER

Jason in a highly experienced electrical and automation engineer with a background in process improvements, machine design, and project management for a wide range of processes within hazardous areas.

Jason has a background in combustible powders (dairy, sugar etc) and explosive gasses (including Ammonia refrigeration) within Pharmaceutical, Petrochemical, Dairy, FMCG and Packaging.

Jason has previous experience working with GSK, Pfizer, Shell, Fonterra, GEA and CTEK covering electrical engineering and Automation system design and including documentation for compliance to GaMP, IECEx, ATEX and AS/NZS 60079 requirements.

Qualifications:

- BEng (Hons) – Engineering (Electrical) with Business, MEngNZ, MNZSSE
- CMSE® - Certified Machinery Safety Expert (TÜV Nord), Certificate No. 14144987-9334564
- Hazardous area classification and Design – Australian Unit Standards, Certificate No. 14144987-9334564
- MEngNZ, MNZSSE

AUSTRALIA

Frank Fontyne

SENIOR SAFETY ENGINEER

Frank Fontyne spent many years working for international companies and large Australian companies; mostly in food manufacturing. He had roles such as Control Systems Engineer, Project Engineer/Manager, Engineering Manager and Maintenance Manager.

From early in his career Frank was exposed to explosion protection techniques, such as explosion venting (NFPA68), classifications (AS/NZS60079.10) and compliant electrical design (AS/NZS60079.14).

He has done a significant number of Hazardous Area Classifications and dust explosion Risk Assessments (AS/NZS4745). These included materials such as sugar/icing sugar, various flours, various dairy powders, cocoa, coffee, fishmeal, starches, sewage dust, ethanol, ammonia and oil based flavours.

Frank has managed projects that installed a large range of equipment, including bulk handling and distribution of sugars and flours, fine grinders, cooking extruders, ovens, coolers, flavour systems, blending plant, packaging (VFFS, robotic vision pick and place, palletisers), dehumidification, solar arrays, power factor correction, instrumentation, steam, gas, etc. As a result of this experience Frank is well placed to understand your plant and provide relevant Classifications and/or dust explosion Risk Assessments.

Qualifications:

- Bachelor Engineering - Electrical (honours), QUT Brisbane
- Hazardous Area Classification & Design (dust and gas), Australian certificate 7804415-5626806
- Master of Engineering (part) "Striving for Best Practice in Manufacturing", RMIT Melbourne
- Various development courses, such as Project Management, Leadership Development, Maintenance Management, Financial Management, Safety training

AUSTRALIA

Ian Breeze

SENIOR PROJECT MANAGER AND SAFETY ENGINEER

Ian has recently joined the TEG team as a Senior Project Manager/Safety Engineer, based in Brisbane.

With over 17 years' experience in the food manufacturing industry, in leading project engineering roles across Australia and New Zealand, Ian is well versed in managing large scale projects.

He is especially experienced overseeing major capital plans encompassing all aspects from cash flow forecasts to OHS requirements. It is this comprehensive understanding of a project that Ian brings to his role.

Qualifications:

- Bachelor of Engineering (Mechanical Engineering), Honours First Class, RMIT
- CMSE® - Certified Machine Safety Expert (TÜV Nord)
- Graduate Certificate in Project Management, RMIT

TEG RISK
TECHNICAL ENGINEERING GROU

NEW ZEALAND

Hamish Baker
Managing Director
+64 21 910 939
Hamish.Baker@tegrisk.co.nz

AUSTRALIA

Julian Weedon
Regional Manager - Australia
+61 404 593 029
Julian.Weedon@tegrisk.com.au

www.tegrisk.com