



UNIVERSITY OF  
NEWCASTLE  
AUSTRALIA



## Services

### Wear Testing

Wear is one of the main factors in the replacement of bulk materials handling equipment. Any materials handling equipment which involves the motion of bulk solids relative to surfaces will experience wear problems. Wear in bulk handling equipment may result from impact or abrasion or, as is often the case, a combination of both.

Several areas where abrasive wear is experienced include storage bins and silos, particularly in hoppers operating under mass flow conditions, feeders, transfer chutes, belt conveyors, vibratory conveyors and screw conveyors.

TUNRA Bulk Solids offers several custom tests to assess the wear resistance of materials used in bulk materials handling equipment. These unique tests have been developed to replicate abrasive, erosive and impact wear mechanisms representative of those experienced in practical applications. We also offer standardised wear testing including the ASTM G65 dry sand rubber wheel test, the AS 1683.21 abrasion resistance test and the ASTM G75 Miller Number and SAR Number test.



### Optional Geometry Optimisation

- Realistic and Controlled Wear Assessment
- Lower Capex
- Lower Opex
- Improved Maintenance

**TUNRA Bulk Solids conducts tests to meet other International Standards on request**







## What wear testing services are available?

- ▶ Impact wear testing
- ▶ Abrasive wear testing
- ▶ Slurry wear testing
- ▶ ASTM G65 Dry Sand Rubber Wheel testing
- ▶ AS 1683.21 Abrasion testing
- ▶ Scanning Electron Microscopy (SEM) Failure Analysis
- ▶ ASTM G75 Miller Number and SAR Number testing



## Abrasion Test

This test uses an annulus of bulk material which is rotated such that the wall liners (up to 4) are subjected to abrasive wear. Tests are typically run over a period of 40 hours with the wall liners monitored every 8 hours. This test is most useful for chutes, hoppers, skirts and all sliding applications.



## Impact Test

This test uses an internal bucket wheel to continuously recycle a bulk material through a standpipe onto an inclined wall liner (up to 2). The angle of impact can be varied between 15° and 75°, depending on the application. Tests are typically run over a period of 8 hours with the wall liners being monitored every hour. This test is most useful for chutes, impact zones and conveyor belts.



### Why TUNRA Bulk Solids?

#### Experience and Expertise

We have provided expert solutions to industry for over 45 years and are the leading organisation for materials handling research and consulting in Australia and internationally

#### Research and Development

We have a proven track record in research and development through the close association with The University of Newcastle

#### Quality Service

We have highly qualified, well-trained and specialist staff that are committed to delivering excellence

#### First Class Facilities

Our laboratory is a state of the art facility located within the Newcastle Institute of Energy and Resources (NIER) at The University of Newcastle

#### Industry Standards

We are accredited to ISO 9001, ISO 45001 and ISO 14001

#### Independent

We are independent and not for profit

### Further information

- To access our Case Studies visit **[www.bulksolids.com.au](http://www.bulksolids.com.au)**
- To discuss your industry and business needs phone **02 4033 9055**