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Wear Testing Standards Database

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SUMMARY

This report describes a database of wear testing standards that has been developed as part of DTI funded project CPM 2.6.

Installation and operating instructions are given for the database, and its use is illustrated.

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1 BACKGROUND

A survey of wear testing standards was carried out within DTI funded project CAM8. It was found that there were over 400 standards in existence.

It should be noted that there is much duplication. Many of the standards are specification standards that describe the application of a smaller number of test methods to different materials or applications.

There are also standards that are tested several times as they are numbered as different documents by the standards bodies of different countries.

As part of DTI supported project CAM2.6 this survey of wear testing standards has been developed into a computerised database.

It should be emphasised that this database only gives information about the availability of standards, and does not include the standards themselves. These remain the copyright of the relevant standards organisations and if you require a particular standard, you will have to purchase it from the relevant standards organisation. A list of contact details for these organisations is given in the Annex.

The database is intended for use by those in industry or academia who have the need to carry out wear testing and are interested in determining the availability of standards for their applications or materials.

The remainder of this document gives installation instructions for the database, operating instructions, and gives examples of the use.

2 INSTALLATION INSTRUCTIONS

Users with Access 2000

The database is located in the Wear Testing Database Directory on the CD. It can be left on the CD or copied to a user specified directory. Double click on the database to load and run.

Users without Access 2000

A runtime version of Access 2000 is supplied. The set-up programme in the directory Runtime Version should be run. This will install the program and allow access of the program through NPL Databases on the start menu.

3 OPERATING INSTRUCTIONS

Click on the Start Menu to run the program. The main database window will appear, Figure 1.

The upper section is concerned with standards, and the lower section with a selection of papers (which is not comprehensive) that illustrates the use of different wear testing methods.

Selection of Wear Testing Standards

To search the database for wear testing standards, click on the Wear Testing Standard button. This will take you into the main standards form where you can either examine the data-records one by one, search the records using specific field criteria, or you can use the standard form search methods common to access databases (see Annex).

When you have found the Standard(s) that you require, then you can print it directly using the print record button, , or if there are more than one record then through the <File> <Print> command, or you can use the row of buttons at the base of the form to give you a listing of the subset of standards which you selected, these can be indexed by either application, area, test type, material type, or wear mechanism. These listings can also be printed.

Friction Testing Standards

In a similar way, if you are simply interested in measuring friction, then click on the friction testing standard button.

The friction standards form is shown.

Again you can perform a form search to define the friction measurement standards that you are interested in. When these have been located, an alphabetical listing can be printed of the selection by clicking on the button at the base of the form.

Indices

If a full index of the standards in the database is required, this can be obtained by clicking on one of the five index buttons on the main form. These give an alphabetical listing of the whole database with respect to five different categories. These are:-

- Index categorised by material
- Index categorised by application
- Index categorised by wear type
- Index of friction measurement standards
- Index categorised by wear test method.

Supporting literature

In a similar way to the standards, the supporting papers can be searched and indexed by clicking on the relevant buttons on the main form.

Examples of Use

The use of the database is illustrated by

- 1 A search for all ASTM standards that are concerned with abrasion measurement.
 - The database is loaded, and the main standards form is presented.

- Open the “Wear Testing Standard” form by clicking on the appropriate button.
- To filter the standards so that only the ASTM standards are shown click on the ‘filter by form’ icon located on the top toolbar .

- On clicking the filter by form button, a blank filter design form appears.
- “ASTM” is entered as the search criteria in the code for other fields. This can be changed by clicking on the arrow to the right of the field box and scrolling down the list of alternative entries.
- Once the “Author Code” has been selected click on the ‘apply filter’ icon , this is located to the right of the ‘filter by form’ icon.
- A subset of filtered standards is presented. These can be examined one at a time (Figure 2), or by selecting the correct index button an alphabetically sorted list of standards can be examined or printed out (Figure 3).
- Alternatively by clicking on the ‘search by field’ button, , and entering ASTM in the box that appears. You can then move through each matching record one at a time and print as appropriate.

2. A search for all wear testing papers from 1990.

- The database is loaded, and the main standards form is presented.
- Open the “Wear Testing Papers” form by clicking on the appropriate button in the lower half of the screen.
- To search for papers written in 1990 move the cursor to the date field by clicking on it.
- On clicking the filter by form button, a blank filter design form appears.
- Scroll through the dates and enter “1990” as the search criteria.
- Once the “Date” has been selected click on the ‘apply filter’ icon , this is located to the right of the ‘filter by form’ icon.
- A subset of filtered standards is presented. These can be examined one at a time and then printed out.
- Alternatively by clicking on the ‘search by field’ button, , and entering 1990 in the box that appears. You can then move through each matching record one at a time and print as appropriate, as with the previous example.

ACKNOWLEDGEMENTS

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FIGURES



Figure 1 Location of form filter icon

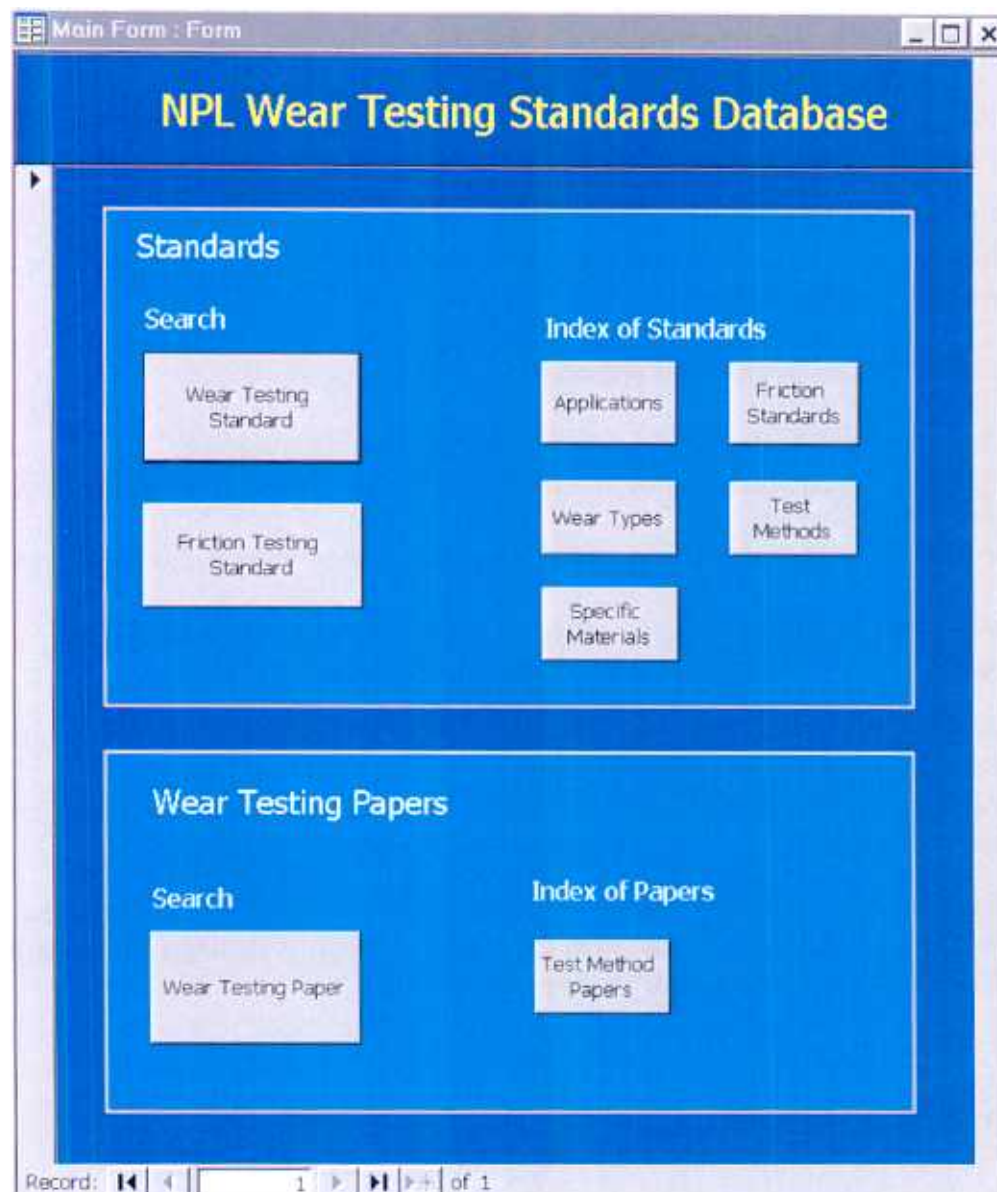


Figure 2 Main database window

Figure 3 Standards form window after operation of filter.

Standards Index by Application

Application(s)	Code for Standard	Country
aerospace materials, sand abrasion of transparent plastics	ASTM F 735-94	USA
air blast erosion of organic coatings	ASTM D 658-91	USA
alumina, friction and wear	ASTM STP 1167	USA
alumina, sliding wear	ASTM STP 1167	USA
alumina, sliding wear	ASTM STP 1167	USA
automotive tyres	ASTM F 1046-87, G	USA
automotive tyres	ASTM F 377-86	USA
automotive tyres	ASTM F 424-86	USA
automotive tyres	ASTM F 554-78	USA
automotive tyres, traction in cornering	ASTM F 376-79	USA
automotive tyres, traction in cornering	ASTM F 534-86	USA
automotive tyres, tyre tread wear data analysis	ASTM F 1016-86, P	USA
automotive tyres, wet traction	ASTM F 403-86	USA
automotive tyres, wet traction	ASTM F 408-86	USA
automotive water pumps	ASTM D 2966 (Discontinued 1983)	USA

Figure 4 Start of listing categorised by application of filtered standards.

ANNEX 1: FORM FILTERING; (from microsoft access 2000 online help)

FILTER RECORDS BY ENTERING VALUES IN A BLANK VIEW OF YOUR FORM OR DATASHEET

1. Open Form.
 2. Click Filter By Form  on the toolbar to switch to the Filter By Form window.
 3. Click the field in which you want to specify the criteria that records must meet to be included in the filtered set of records.
 4. Enter your criteria by selecting the value you're searching for from the list in the field (if the list includes field values), or by typing the value into the field.
 - To find records in which a check box, toggle button, or option button is or is not selected, click the check box or button until it's the way you want. To return it to a neutral position so that it won't be used as criteria for filtering records, continue clicking the check box or button until it's grayed.
 - To find records in which a particular field is empty or not empty, type Is Null or Is Not Null into the field.
 - To find records using a criteria expression, type the expression into the appropriate field or enter one using the Expression Builder. For examples of expressions, see tables below.
- If you specify values in more than one field, the filter returns records only if they contain the same values you specified in each of those fields.
5. To specify alternative values that records can have to be included in the filter's results, click the Or tab for the form, and enter more criteria. The filter returns records if they have all the values specified on the Look For tab or all the values specified on the first Or tab or all the values specified on the second Or tab, and so on.
 6. Click Apply Filter  on the toolbar.

Notes

- When you save a table or form, Microsoft Access saves the filters you created. You can reapply the filters when you need them; the next time you open the table or form.
- If you created a filter on a subdatasheet or subform, this filter is also available when you open the table or form for the subdatasheet or subform independently.
- When you save a query, Microsoft Access saves the filters you created, but it does not add the filter criteria to the query design grid. You can reapply the filters after you run the query, the next time you open it.

Table A1 Using text values as criteria

Field	Expression	Description
ShipCity	"London"	Displays orders shipped to London.
ShipCity	"London" Or "Hedge End"	Uses the Or operator to display orders shipped to London or Hedge End.
ShippedDate	Between #1/5/95# And #1/10/95#	Uses the Between...And operator to display orders shipped no earlier than 5-Jan-95 and no later than 10-Jan-95.
ShippedDate	#2/2/95#	Displays orders shipped on 2-Feb-95.
ShipCountry	In("Canada", "UK")	Uses the In operator to display orders shipped to Canada or the UK.
ShipCountry	Not "USA"	Uses the Not operator to display orders shipped to countries other than the USA.
ShipName	Like "S*"	Orders shipped to customers whose name starts with the letter S.
CompanyName	>="N"	Displays orders shipped to companies whose name starts with the letters N through Z.
OrderID	Right([OrderID], 2)="99"	Uses the Right function to display orders with OrderID values ending in 99.
CompanyName	Len([CompanyName]) >Val(30)	Uses the Len and Val functions to display orders for companies whose name is more than 30 characters long.

Table A2 Using part of a fields value as criteria

Field	Expression	Displays
ShipName	Like "S*"	Orders shipped to customers whose names start with the letter S.
ShipName	Like "*Imports"	Orders shipped to customers whose names end with the word "Imports".
ShipName	Like "[A-D]*"	Orders shipped to customers whose names start with A through D.
ShipName	Like "*ar*"	Orders shipped to customers whose names include the letter sequence "ar".
ShipName	Like "Maison Dewe?"	Orders shipped to the customer with "Maison" as the first part of its name and a 5-letter second name in which the first 4 letters are "Dewe" and the last letter is unknown.

ANNEX 2: List of Contact Details for Standards Organisations

Association française de normalisation
(AFNOR)
Tour Europe
F-92049 Paris la Défense
Cedex
France
Tel: +33 1 42 91 55 55
Fax: +33 1 42 91 56 56
email: international@email.afnor.fr
www: <http://www.afnor.fr>

American National Standards Institute (ANSI)
11 West 42nd Street
13th floor
New York
NY 10036
USA
Tel: +1 212 642 49 00
Fax: +1 212 398 00 23
email: info@ansi.org
www: <http://www.ansi.org>

American Society for Testing and Materials
(ASTM)
100 Barr Harbor Drive
PO Box C700
West Conshohocken
PA 19428-2959
USA
Tel: 610 832 9500
Fax: 610 832 9555
email: service@astm.org
web: www.astm.org

British Standards Institution (BSI)
389 Chiswick High Road
London W4 4AL
United Kingdom
Tel: +44 181 996 90 00
Fax: +44 181 996 74 00
email: info@bsi.org.uk
www: <http://www.bsi.org.uk>

Deutsches Institut für Normung (DIN)
Burggrafenstrasse 6
D-10787 Berlin
Germany
Tel: +49 30 26 01-0
Fax: +49 30 26 01 12 31
email: postmaster@din.de
www: <http://www.din.de>

Japanese Industrial Standards Committee
(JISC)
c/o Standards Department
Ministry of International Trade and Industry
1-3-1 Kasumigaseki
Chiyoda-ku
Tokyo 100
Japan
Tel: +81 3 35 01 20 96
Fax: +81 3 35 80 86 37
www: <http://www.aist.go.jp/jisc/htm/jisc00.htm>

