

DATABASE REVIEW

UNIQUE DATABASES AVAILABLE FROM EINS GEM: MHIDAS

MHIDAS, File 208 is produced by AEA Technology on behalf of the Health and Safety Executive in the UK. MHIDAS, (The Major Hazard Incidents Data Service), is unique but complements other Health and Safety databases available from GEM.

The MHIDAS database contains details of over seven thousand incidents which resulted in or had the potential to cause off-site impact during the transport, processing or storage of hazardous material. This definition includes incidents which incurred casualties, required evacuation of either on-site or off-site personnel or caused damage to property or the natural environment, together with incidents which could, but for mitigating circumstances, have led to the above occurring. Some types of incidents, such as those involving radioactive materials are specifically excluded from the database.

In order that as much information as possible is made available, details of incidents are not normally entered on to the database until a year after the occurrence because the database producer tries to gather as much information as possible about incidents from differing sources.

The database covers the time period 1964 to present and contains a total of approx. 11,000 references. It is updated quarterly with about 150-200 records and an Alert, (SDI) service is available.

Searchable Fields

Due to the specific nature of the database some very useful searchable fields are used and can be searched and expanded:

/AB = ABSTRACT
/CAS = CAUSE, SPECIFIC
/CG = CAUSE, GENERAL
/CNT = CONTRIBUTOR
/CT = CONTROLLED TERMS, (Keywords)
/CYI = COUNTRY OF INCIDENT

/DI = DATE OF INCIDENT
/GT = PLACE OF INCIDENT (Geographical Term)
/HA = HAZARD
/IG = IGNITION SOURCE
/IGO = IGNITION SOURCE, OTHER
/MA = MATERIAL NAME
/MC = MATERIAL CODE
/NN = NATIVE NUMBER
/ORI = ORIGIN OF INCIDENT
/ORIO = ORIGIN OF INCIDENT, OTHER
/POD = POPULATION DENSITY
/TYI = TYPE OF INCIDENT
/TYIO = TYPE OF INCIDENT, OTHER

The following fields are not searchable but are indexed and can be seen in the display formats.

AFCT = AFFECTED COMMENTED
AT = AT TIME
DM = DAMAGE COMMENTED
NI = NUMBER OF INJURED
NK = NUMBER OF KILLED
QU = QUANTITY IN TONNES

The basic index consists of the material name (MA), the controlled terms (CT) and the abstract (AB) fields.

Searching MHIDAS

As the basic index is rather limited, it is advisable to use Expand extensively. For example, to find incidents reported on a country by country basis, expand the /CYI, (Country of Incident), field. The list below shows all countries in which more than 50 incidents have been registered in the database:

E/CYI=
61 BELGIUM
111 BRAZIL
466 CANADA
145 CHINA
105 CIS
145 COLOMBIA
192 FRANCE
421 GERMANY
75 GREECE
202 INDIA
131 ITALY
214 JAPAN
134 MEXICO
135 NETHERLANDS
107 NIGERIA
51 NORWAY
98 PAKISTAN
216 RUSSIA
57 SINGAPORE
67 SOUTH AFRICA
70 SOUTH KOREA
85 SPAIN
55 THAILAND
58 TURKEY
3863 UK
4486 USA

50 VENEZUELA

To investigate the nature of reported incidents, use the /HAZARDS field. Although fire appears to be the major cause of most incidents, a considerable number of incidents can also be attributed to either corrosion or toxic materials.

66 ASPHYXIAN
128 COLD
1703 CORROSION
767 EXPLOSIVE
8704 FIRE
595 OXIDISING
6 RADIATION
2873 TOXIC

A more specific indication of reported incidents can be obtained by using the 'TYPE OF INCIDENTS' field, (see table below).

88 BLEVE
10 BUOYANT GAS CLOUD
199 CONFINED EXPLOSION
3472 CONTINUOUS RELEASE
373 DENSE GAS CLOUD
82 DENSE PHASE EXPLOSION
61 DUST EXPLOSION
2952 EXPLOSION
4039 FIRE
3 FIRE STORM
136 FIREBALL
668 GAS CLOUD
252 INSTANTANEOUS RELEASE
4 MIST EXPLOSION
5 NEUTRAL DENSITY GAS CLOUD
73 PHYSICAL EXPLOSION
321 POOL
118 POOL FIRE
2924 RELEASE
150 TANK FIRE
19 TORCH/JET FIRE
124 UNCONFINED EXPLOSION
130 VAPOUR/FLASH FIRE

The table illustrates that fire is recorded in its differing forms; fire storm, fireball, pool fire etc.

To search on the cause of incidents two fields are available: the CAUSE GENERAL, (/CG) and the CAUSE SPECIFIC, (/CAS). The list below shows SPECIFIC CAUSES appearing more than 100 times in the database.

107 CONFINED EXPLOSION

171 CORROSION
117 EXCAVATING EQUIPMENT
157 EXTERNAL EXPLOSION
586 EXTERNAL FIRE
379 GENERAL MAINTENANCE
528 GENERAL OPERATIONAL
156 HEAVY OBJECT
158 HIGH WINDS
121 HOSE FAILURE
149 LEAKING COUPLING OR FLANGE
406 LEAKING/PASSING VALVE
130 LIGHTNING
144 OTHER METALLURGICAL FAILURE
476 OTHER VEHICLE
114 OVERFILLING
252 PROCEDURES
903 RAIL ACCIDENT NOT INVOLVING OTHER VEHICLE
780 ROAD ACCIDENT NOT INVOLVING OTHER VEHICLE
236 RUNAWAY REACTION
575 SABOTAGE/VANDALISM
498 SHIP/LAND COLLISION (INCLUDING BARGES)
376 SHIP/SHIP COLLISION (INCLUDING BARGES)
111 TEMPERATURE EXTREMES
138 THROUGH OVERHEATING
227 THROUGH OVERPRESSURE

By understanding and using all these fields users should be able to find specific incidents.

It is also possible to use the LIMIT command. LIMIT works on all searchable fields, but do remember that it is not possible to Limit by year. Use the DATE OF INCIDENT field (/DI) instead. Searching this field on a range of years can be done using the command:

```
->s (1996? or 1997? or 1998? or 1999? or 2000?)/di
```

Individual years in the Date of Incident field can be searched as well. Use the Expand command as shown below. The expand results on this field give very specific dates and are therefore not useful for a general search, but excellent if you know the date of an incident:

```
>e 2000/di
```

Select using OR	
Items	
<input type="checkbox"/>	1 19991228
<input type="checkbox"/>	2 19991230
<input type="checkbox"/>	0 2000
<input type="checkbox"/>	1 20000000
<input type="checkbox"/>	1 20000100
<input type="checkbox"/>	2 20000101
<input type="checkbox"/>	1 20000102
<input type="checkbox"/>	1 20000104
<input type="checkbox"/>	1 20000106
<input type="checkbox"/>	3 20000107
<input type="checkbox"/>	3 20000108
<input type="checkbox"/>	4 20000110
<input type="checkbox"/>	2 20000112
<input type="checkbox"/>	1 20000114
<input type="checkbox"/>	1 20000116

More

Using ZOOM on MHIDAS

Zoom is available on /cas, /cnt, /ct and /gt fields and permits text analysis of data retrieved.

For example, by using the COUNTRY OF INCIDENT, (/CI) field to find recorded incidents in the Netherlands, a result of 135 is obtained. Zooming on GEOGRAPHICAL TERM, (Place of Incident), field, (/GT), within this set, specific places can be found:

```
37 ROTTERDAM
15 PERNIS
 9 AMSTERDAM
 6 TERNEUZEN
 5 UITHUIZEN
 3 FLUSHING
 3 ROZENBURG
 3 ZAASTAD
 2 BEEK
 2 BOTLEK
 2 EUROPOORT
 2 FARSUM
 2 GEERTRUIDENBERG
 2 GELEEN
 2 IJMUIDEN
 2 MUIDEN
 2 TERSCHELLING
 2 URK
```

Not surprisingly, Rotterdam and Pernis which house oil refineries and Geelen, (Note misspelling – it should be Geleen), where DSM has a large chemical plant, appear.

Example reference from MHIDAS.

The database records contain only factual information and usually only a very short abstract.

No further information about the sources used to produce the record is made available because the database producer tries to gather as much information as possible about incidents from many differing sources.

```
Native Number : 12318
Contributor : AEA
Date of Incident : 20030714
Place of Incident : NR VELDHOVEN
Country of Accident : NETHERLANDS
Material Name : LPG
Material Code : 1075
Origin : TRANSPORT ROAD TANKER
```

```
Origin, Other : ROAD TANKER
Cause, General : IMPACT FAILURE,EXTERNAL EVENTS
Cause, Specific : OTHER VEHICLE EXTERNAL FIRE
Hazard : FIRE
Number Killed : 1
Affected : 1.0e-03
Number of Ref : 1
Multiple Entry : NO
Abstract : CAB OF ROADTANKER CARRYING LPG CAUGHT FIRE, AFTER ACCIDENT INVOLVING THREE CARS. OFFICES WITHIN 500m OF THE ACCIDENT WERE EVACUATED AS A PRECAUTION, DUE TO THE RISK OF EXPLOSION. OTHER VEHICLES WERE ABANDONED BY THE ROAD.
```

Mhidas is a unique database. We asked the database producer if other databases of this type exist. They mentioned Chemdata which concentrates specifically on accidents in the chemical industry. Its coverage is therefore more restricted.

Other databases covering hazardous materials concentrate mainly on chemical, toxicological and environmental, (waste etc.) aspects of materials. These databases do not list incidents.

AEA, the database producer told us that they use mainly publicly available sources.

For specific questions about the source of MHIDAS information AEA will be happy to provide details. For further information about MHIDAS, check out the website:

<http://www.hse.gov.uk/infoserv/mhidas.htm>.

Specific questions can be sent to:

mhidas@aeat.co.uk.