

UNITED STATES DEPARTMENT OF LABOR  
MINE SAFETY AND HEALTH ADMINISTRATION

ACTIVE LIST OF PERMISSIBLE EXPLOSIVES  
AND  
SHEATHED EXPLOSIVE UNITS

The explosives in this listing were approved as permissible under the Code of Federal Regulations, Title 30, Part 15.

It is recommended that the manufacturer be contacted to determine the availability and status of any explosive listed herein.

ORIGINATING OFFICE

Mine Safety and Health Administration  
Approval and Certification Center  
765 Technology Road  
Triadelphia, West Virginia 26059

(304) 547-0400

### **Powder Actuated Tool**

A portable device which fires a booster to drive various types of fasteners into mine strata and other materials. Some examples of uses for the tool are installing ventilation controls, hanging utility cables, installing rib-roof mesh and hanging signs.

| <b>Company</b>                             | <b>Model</b>                      | <b>Approval Number</b> |
|--------------------------------------------|-----------------------------------|------------------------|
| Hilti, Inc.<br>Tel# 800-879-8000           | DXA41, DX460 and DX6              | PAD-1/00               |
| Power Fasteners Inc.<br>Tel# (914)235-6300 | P3500, PA3500, P3600 and<br>PA351 | PAD-2/00               |

TABLE 1 - GRANULAR PERMISSIBLE EXPLOSIVES

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| Brand                  | Weight of                                            | Number of                                         | Smallest                                      | Detonation Rate                                               |                                |                           |
|------------------------|------------------------------------------------------|---------------------------------------------------|-----------------------------------------------|---------------------------------------------------------------|--------------------------------|---------------------------|
|                        | 1- $\frac{3}{4}$ " x 8"<br>Cartridge,<br>Grams in 50 | 1-1 $\frac{1}{4}$ " x 8"<br>Cartridges<br>lb Case | Permissible<br>Diameter,<br>Inches<br>Average | 1- $\frac{3}{4}$ -inch Diameter<br>Feet per Second<br>Average | Cartridge<br>Meters per Second | Manufacturer <sup>1</sup> |
| Atlas 8K               | 189                                                  | 120                                               | 1                                             | 8,000                                                         | 2,440                          | ICI (formerly Atlas)      |
| Atlas 8U               | 189                                                  | 120                                               | 1                                             | 8,200                                                         | 2,500                          | "                         |
| Atlas 8W               | 189                                                  | 120                                               | 1                                             | 8,000                                                         | 2,440                          | "                         |
| Atlas 8X               | 155                                                  | 146                                               | 1                                             | 7,500                                                         | 2,290                          | "                         |
| Austin Red Diamond 4   | 187                                                  | 121                                               | 1                                             | 8,200                                                         | 2,500                          | Austin                    |
| Austin Red Diamond 6   | 170                                                  | 133                                               | 1                                             | 10,010                                                        | 3,050                          | "                         |
| Austin Red Diamond 9C  | 145                                                  | 156                                               | 1                                             | 7,190                                                         | 2,190                          | "                         |
| Austin Red Diamond 10A | 125                                                  | 181                                               | 1                                             | 6,890                                                         | 2,100                          | "                         |
| Austin Red Diamond 11  | 114                                                  | 199                                               | 1                                             | 6,730                                                         | 2,050                          | "                         |
| Austin Red Diamond 12  | 191                                                  | 119                                               | 1                                             | 11,520                                                        | 3,510                          | "                         |
| Austin Red Diamond 740 | 189                                                  | 120                                               | 1                                             | 9,840                                                         | 3,000                          | "                         |
| Austin Red Diamond 750 | 189                                                  | 120                                               | 1                                             | 9,840                                                         | 3,000                          | "                         |
| Austin Red Diamond 760 | 155                                                  | 146                                               | 1                                             | 9,510                                                         | 2,900                          | "                         |
| Austin Red Diamond 770 | 194                                                  | 117                                               | 1                                             | 10,830                                                        | 3,300                          | "                         |
| Coalite 5LR            | 167                                                  | 136                                               | 1-1/8                                         | 9,000                                                         | 2,740                          | ICI (formerly Atlas)      |
| Coalite 5MR            | 154                                                  | 147                                               | 1-1/8                                         | 7,500                                                         | 2,290                          | "                         |
| Coalite 5P             | 138                                                  | 164                                               | 1-1/8                                         | 7,000                                                         | 2,130                          | "                         |
| Coalite 5U             | 166                                                  | 137                                               | 1-1/8                                         | 8,700                                                         | 2,650                          | "                         |
| Coalite 8R             | 192                                                  | 118                                               | 1                                             | 8,040                                                         | 2,450                          | "                         |
| Coalite 8S             | 188                                                  | 121                                               | 1                                             | 7,840                                                         | 2,390                          | "                         |
| Coalite 8SP            | 189                                                  | 120                                               | 1                                             | 8,000                                                         | 2,440                          | "                         |
| Coalite 8SD            | 181                                                  | 125                                               | 1                                             | 8,000                                                         | 2,440                          | "                         |
| Collier C              | 144                                                  | 157                                               | 1                                             | 9,910                                                         | 3,020                          | Dyno Nobel <sup>2</sup>   |
| Irecoal D328           | 189                                                  | 120                                               | 1                                             | 9,840                                                         | 3,000                          | "                         |
| Irecoal D330           | 189                                                  | 120                                               | 1                                             | 9,840                                                         | 3,000                          | "                         |
| Irecoal D340           | 155                                                  | 146                                               | 1                                             | 9,510                                                         | 2,900                          | "                         |
| Irecoal D378           | 194                                                  | 117                                               | 1                                             | 10,830                                                        | 3,300                          | "                         |
| Independent A          | 142                                                  | 160                                               | 1-1/8                                         | 7,680                                                         | 2,340                          | "                         |
| Independent D          | 133                                                  | 171                                               | 1-1/8                                         | 6,300                                                         | 1,920                          | "                         |
| Independent E          | 182                                                  | 125                                               | 1-1/8                                         | 7,550                                                         | 2,300                          | "                         |
| Independent K          | 166                                                  | 137                                               | 1-1/8                                         | 9,650                                                         | 2,940                          | "                         |
| Red HA                 | 197                                                  | 115                                               | 1                                             | 8,200                                                         | 2,500                          | "                         |
| Red HL                 | 120                                                  | 189                                               | 1                                             | 6,230                                                         | 1,900                          | "                         |
| Red HF                 | 128                                                  | 177                                               | 1                                             | 6,400                                                         | 1,950                          | Dyno Nobel <sup>3</sup>   |
| Red HC                 | 161                                                  | 141                                               | 1                                             | 5,410                                                         | 1,650                          | Dyno Nobel <sup>4</sup>   |

1. For complete name and location of manufacturer, see Appendix A.

2. Formerly Ireco.

3. Formerly Ireco HP-62.

4. Formerly Ireco HP-60.

Note: The allowable variation for the rate of detonation is  $\pm 15\%$ .

| Brand              | Weight of               |                           | Number of               |            | Smallest                      |                                           | Detonation Rate |                   | Manufacturer: <sup>1</sup> |
|--------------------|-------------------------|---------------------------|-------------------------|------------|-------------------------------|-------------------------------------------|-----------------|-------------------|----------------------------|
|                    | 1- $\frac{1}{4}$ " x 8" | Cartridge, Grams in 50 lb | 1- $\frac{1}{4}$ " x 8" | Cartridges | Permissible Diameter, Average | 1- $\frac{1}{4}$ -inch Diameter cartridge | Feet per Second | Meters per Second |                            |
|                    |                         |                           | Inches                  | Case       |                               |                                           | Average         |                   |                            |
| Atlas 8L           | 226                     |                           | 100                     |            | 1-1/8                         | 16,000                                    | 4,880           |                   | ICI (formerly Atlas)       |
| Atlas 8MM          | 226                     |                           | 100                     |            | 1                             | 18,000                                    | 5,490           |                   | "                          |
| Atlas 8Y           | 184                     |                           | 123                     |            | 1                             | 10,000                                    | 3,050           |                   | "                          |
| Atlas 10 EA        | 210                     |                           | 108                     |            | 1                             | 12,660                                    | 3,860           |                   | "                          |
| Austin Red-D-Gel B | 212                     |                           | 107                     |            | 1                             | 16,010                                    | 4,880           |                   | Austin                     |
| Gel Coalite Z      | 226                     |                           | 100                     |            | 1                             | 18,440                                    | 5,620           |                   | ICI (formerly Atlas)       |
| Gel Coalite ZP     | 226                     |                           | 100                     |            | 1                             | 18,000                                    | 5,490           |                   | "                          |
| Gel Coalite ZPP    | 226                     | 100                       | 100                     |            | 1-1/8                         | 16,000                                    | 4,880           |                   | "                          |
| Gel Coalite No. 3  | 185                     |                           | 123                     |            | 1                             | 10,330                                    | 3,150           |                   | "                          |
| Irecogel A         | 220                     |                           | 103                     |            | 1                             | 16,900                                    | 5,150           |                   | Dyno Nobel <sup>2</sup>    |
| Irecogel B         | 237                     |                           | 96                      |            | 1-1/8                         | 16,400                                    | 5,000           |                   | "                          |
| Independent Gel-N  | 216                     |                           | 105                     |            | 1-1/8                         | 14,210                                    | 4,330           |                   | "                          |
| IP828              | 212                     |                           | 107                     |            | 1                             | 16,010                                    | 4,880           |                   | "                          |
| CMZ                | 212                     |                           | 107                     |            | 1                             | 16,010                                    | 4,880           |                   | "*                         |
| Red D Gel C        | 225                     |                           | 100                     |            | 1-1/4                         | 18,760                                    | 5,720           |                   | Austin                     |

1. For complete name and location of manufacturer, see Appendix A.

2. Formerly Ireco.

\* Trade name addition, same as IP828.

Note: The allowable variation for the rate of detonation is  $\pm 15\%$ .

TABLE 3 - WATER-GEL AND EMULSION PERMISSIBLE EXPLOSIVES

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| Brand       | Weight of<br>1- $\frac{3}{4}$ " x 8"<br>Cartridge,<br>Grams in 50<br>Case | Number of<br>1- $\frac{1}{4}$ " x 8"<br>Cartridges<br>lb<br>Inches | Smallest<br>Permissible<br>Diameter,<br>Average | Detonation Rate<br>1- $\frac{3}{4}$ -inch Diameter<br>Feet per Second<br>Average | Cartridge<br>Meters per Second | Manufacturer <sup>1</sup> |
|-------------|---------------------------------------------------------------------------|--------------------------------------------------------------------|-------------------------------------------------|----------------------------------------------------------------------------------|--------------------------------|---------------------------|
| Atlas 7C    | 179                                                                       | 127                                                                | 1                                               | 16,400                                                                           | 5,000                          | ICI (formerly Atlas)      |
| Atlas 7D    | 182                                                                       | 125                                                                | 1                                               | 16,540                                                                           | 5,040                          | "                         |
| Atlas 7H    | 192                                                                       | 118                                                                | 1                                               | 17,220                                                                           | 5,250                          | "                         |
| Atlas 8A    | 196                                                                       | 122                                                                | 1                                               | 16,630                                                                           | 5,070                          | "                         |
| Atlas 8C    | 184                                                                       | 123                                                                | 1                                               | 16,570                                                                           | 5,050                          | "                         |
| Atlas 8J    | 180                                                                       | 126                                                                | 1                                               | 15,850                                                                           | 4,830                          | "                         |
| Atlas 9A    | 188                                                                       | 121                                                                | 1                                               | 15,940                                                                           | 4,860                          | "                         |
| Atlas 9K    | 178                                                                       | 128                                                                | 1- $\frac{3}{4}$                                | 17,590                                                                           | 5,360                          | "                         |
| AXD 707     | 181                                                                       | 125                                                                | 1- $\frac{3}{4}$                                | 10,500                                                                           | 3,200                          | Austin                    |
| Coalmex 14E | 181                                                                       | 125                                                                | 1- $\frac{3}{4}$                                | 16,780                                                                           | 5,115                          | "                         |
| EL-904D     | 188                                                                       | 121                                                                | 1                                               | 14,110                                                                           | 4,300                          | ETI <sup>2</sup>          |
| EL-904E     | 188                                                                       | 121                                                                | 1                                               | 14,110                                                                           | 4,300                          | "                         |
| EL-923C     | 188                                                                       | 121                                                                | 1-1/8                                           | 12,140                                                                           | 3,700                          | "                         |
| EL-923D     | 175                                                                       | 130                                                                | 1                                               | 14,110                                                                           | 4,300                          | "                         |
| EL-923B     | 164                                                                       | 138                                                                | 1                                               | 12,140                                                                           | 3,700                          | "                         |
| EL-929C     | 184                                                                       | 123                                                                | 1                                               | 12,470                                                                           | 3,800                          | "                         |
| EL-929E     | 179                                                                       | 127                                                                | 1                                               | 12,470                                                                           | 3,800                          | "                         |
| EL-932A     | 161                                                                       | 141                                                                | 1                                               | 11,150                                                                           | 3,400                          | "                         |
| EL-932B     | 165                                                                       | 137                                                                | 1- $\frac{3}{4}$                                | 12,140                                                                           | 3,700                          | "                         |
| EL-932E     | 172                                                                       | 132                                                                | 1- $\frac{3}{4}$                                | 13,580                                                                           | 4,140                          | "                         |
| EL-943A     | 162                                                                       | 140                                                                | 1- $\frac{3}{4}$                                | 12,140                                                                           | 3,700                          | "                         |
| EL-943B     | 181                                                                       | 125                                                                | 1- $\frac{3}{4}$                                | 12,140                                                                           | 3,700                          | "                         |
| EL-943E     | 178                                                                       | 127                                                                | 1- $\frac{3}{4}$                                | 14,110                                                                           | 4,300                          | "                         |
| EL-944A     | 160                                                                       | 142                                                                | 1- $\frac{3}{4}$                                | 12,800                                                                           | 3,900                          | "                         |
| EL-944B     | 180                                                                       | 126                                                                | 1- $\frac{3}{4}$                                | 12,800                                                                           | 3,900                          | "                         |
| EL-944C     | 176                                                                       | 129                                                                | 1- $\frac{3}{4}$                                | 14,110                                                                           | 4,300                          | "                         |
| EL-945B     | 180                                                                       | 126                                                                | 1- $\frac{3}{4}$                                | 12,140                                                                           | 3,700                          | "                         |
| Breakrite 1 | 181                                                                       | 125                                                                | 1                                               | 11,650                                                                           | 3,550                          | "                         |
| Breakrite 2 | 183                                                                       | 124                                                                | 1                                               | 14,530                                                                           | 4,430                          | "                         |
| Breakrite 3 | 181                                                                       | 125                                                                | 1- $\frac{3}{4}$                                | 13,580                                                                           | 4,140                          | "                         |
| Monogel I   | 160                                                                       | 142                                                                | 1- $\frac{3}{4}$                                | 11,480                                                                           | 3,500                          | "                         |
| Tovex 301   | 168                                                                       | 135                                                                | 1                                               | 12,140                                                                           | 3,700                          | "                         |
| Tovex 321   | 185                                                                       | 123                                                                | 1                                               | 12,140                                                                           | 3,700                          | "                         |
| Tovex 327   | 185                                                                       | 123                                                                | 1                                               | 14,110                                                                           | 4,300                          | "                         |
| Tovex 330   | 215                                                                       | 105                                                                | 1                                               | 12,960                                                                           | 3,950                          | "                         |
| Irecoal E-1 | 344 <sup>b</sup>                                                          | 66                                                                 | 1- $\frac{3}{4}$                                | 14,760                                                                           | 4,500                          | Dyno Nobel <sup>3</sup>   |
| Irecoal E-2 | 342 <sup>b</sup>                                                          | 66                                                                 | 1- $\frac{3}{4}$                                | 14,760                                                                           | 4,500                          | "                         |
| Irecoal E-3 | 184                                                                       | 123                                                                | 1- $\frac{3}{4}$                                | 15,850                                                                           | 4,830                          | "                         |
| Irecoal E-4 | 173                                                                       | 131                                                                | 1                                               | 15,580                                                                           | 4,750                          | "                         |
| Irecoal E-5 | 354 <sup>b</sup>                                                          | 64                                                                 | 1- $\frac{3}{4}$                                | 14,760                                                                           | 4,500                          | "                         |
| Sure-X P-A  | 193                                                                       | 118                                                                | 1                                               | 12,630                                                                           | 3,850                          | "                         |
| XR862006    | 337 <sup>b</sup>                                                          | 67                                                                 | 1- $\frac{3}{4}$                                | 14,760                                                                           | 4,500                          | "                         |

DXA41 &amp; DX460

Hilti, Inc.

- For complete name and location of manufacturer, see Appendix A.
  - 16-inch long cartridge.
- Formerly DuPont
- Formerly Ireco

Note: The allowable variation for rate of detonation is  $\pm 15\%$ .

TABLE 4 - SHEATHED EXPLOSIVE UNITS

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| Brand       | Minimum Firing Temperature | Outer Cover Material | Manufacturer          |
|-------------|----------------------------|----------------------|-----------------------|
| Rock Buster | 0°F                        | Woven Polypropylene  | Austin Powder Company |
| Rock Buster | 0°F                        | Woven Polypropylene  | Austin Powder Company |

## APPENDIX A

### LIST OF PERMISSIBLE EXPLOSIVES MANUFACTURERS

ICI  
Formerly: Atlas Powder Company  
P. O. Box 271  
Tamaqua, PA 18252-0577

Austin Powder Company  
430 Powder Plant Road  
P. O. Box 317  
McArthur, OH 45651

Explosives Tech International (ETI)  
3511 Silverside Road  
Wilmington, Delaware 19810

Dyno Nobel, Incorporated  
Formerly: IRECO, Incorporated  
11th Floor Crossroads Tower  
Salt Lake City, Utah 84144

Hilti, Inc.  
1435 St. Bernadette  
Florissant, Missouri 63031