**CASE HISTORY**

**ETHYLENE FURNACE**

<table>
<thead>
<tr>
<th>LOCATION</th>
<th>Midwest USA</th>
</tr>
</thead>
<tbody>
<tr>
<td>UNIT</td>
<td>Lummus SRT ethylene furnace</td>
</tr>
<tr>
<td>CHALLENGE</td>
<td>Upgrade radiant section and burner blocks to improve performance and efficiency</td>
</tr>
<tr>
<td>RESULTS</td>
<td>Energy savings estimated at $300K/year</td>
</tr>
</tbody>
</table>

**PROBLEM**
A Midwest Petrochemical plant needed to solve major problems with radiant wall burner blocks and burner installations in an older Lummus SRT ethylene furnace. Upgrading the burner tiles would require removal and replacement of 70% to 80% of the brick on the radiant walls. Unscheduled repairs were occurring because sections of the brick radiant walls were failing due to anchor failures.

**OPPORTUNITY**
Upgrade refractory lining to the current industry best practice design and materials. Improve operating efficiency by sealing tube and hanger penetrations. Resolve maintenance problems by replacing brick radiant wall sections where possible with ceramic fiber module lining.

**ACTIONS**
Thorpe replaced the refractory lining in the radiant section with an engineered, integrated system. Insulating firebrick was used for the lower 7 feet of the radiant walls, Thorpe Z-BLOK™II for the upper radiant walls. Z-BLOK™ FIBERLITE® Peephole Blocks were integrated into the lining system. Burner blocks were replaced with Thorpe composite DURALITE® Tiles. The radiant arch was replaced with an engineered Thorpe Z-BLOK™II Lining. HOTSEAL™ Penetration Seals were installed on the tube hangers, radiant tube penetrations and convection tube penetrations.

**RESULTS**
Equipment has been in operation since December, 2007. Customer reported an initial cost savings based on reduction in energy consumed of over $300K/year. Unplanned maintenance due to refractory failures has been eliminated.

---

**THORPE**

3 KEYS TO RELIABILITY
1. Proper Material Selection
2. Engineered Lining Design
3. Experienced Installation Crews

---

www.ThorpePME.com
USA OPERATIONS

Manufacturing Locations

**Corrosion Resistant Equipment**

- **Arkansas Plant**
  - 228 West Industrial Park Rd.
  - Harrison, AR 72601
  - Phone: (870) 391-4792

- **Louisiana Plant**
  - 3605 Delta Dr.
  - St. Gabriel, LA 70776
  - Phone: (225) 642-8060

- **Texas Plant**
  - 95 Southbelt Industrial Dr.
  - Houston, TX 77047
  - Phone: (713) 433-7200

**High Temperature Products**

- **Houston-Kirbyville Plant**
  - 6833 Kirbyville St.
  - Houston, TX 77033
  - Phone: (713) 644-1247

- **Houston-Ranger Plant**
  - 4718 Ranger St.
  - Houston, TX 77028
  - Phone: (713) 671-2458

Field Service Offices

**Alabama**

- **Birmingham Office**
  - 1273 24th Avenue
  - Hueytown, AL 35023
  - Phone: (205) 426-4000

**Arkansas**

- **Harrison Office**
  - 228 West Industrial Park Road
  - Harrison, AR 72601
  - Phone: (870) 391-4792

**Iowa**

- **Camanche Office**
  - Camanche, IA 52730
  - Phone: (563) 508-2622

**Kentucky**

- **Madisonville Office**
  - Madisonville, KY 42431
  - Phone: (270) 635-5421

**Louisiana**

- **St. Gabriel Office**
  - 3605 Delta Drive
  - St. Gabriel, LA 70776
  - Phone: (225) 642-8060

**Oklahoma**

- **Broken Arrow Office**
  - 7838 S. Elm Place
  - Broken Arrow, OK 74011
  - Phone: (918) 455-8928

**Texas**

- **Beaumont Office**
  - 6001 Highland Avenue
  - Beaumont, TX 77705
  - Phone: (409) 838-9121

- **Corpus Christi Office**
  - 4602 Southview Drive
  - Corpus Christi, TX 78408
  - Phone: (361) 506-2001

- **Dallas Office – Industrial Flooring Services, Inc.**
  - 2736 Market Street
  - Garland, TX 75041
  - Phone: (214) 349-7891

- **Houston-Kirbyville Plant**
  - 6833 Kirbyville St.
  - Houston, TX 77033
  - Phone: (713) 644-1247

- **Houston-Ranger Office**
  - 4718 Ranger St.
  - Houston, TX 77028
  - Phone: (713) 671-2458

- **Houston-Southbelt Office**
  - 95 Southbelt Industrial Drive
  - Houston, TX 77047
  - Phone: (713) 433-7200

CANADA OPERATIONS

**Clayburn Services Ltd.**

**Alberta**

- **Edmonton Office**
  - (Headquarters)
  - 10610-118th Avenue
  - Edmonton, AB
  - TSV 1C6
  - Phone: (780) 468-4100

- **Calgary Office**
  - #108 4740 – 6th Street NE
  - Calgary, AB
  - T2E 8C8
  - Phone: (403) 276-4421

- **Fort McMurray Office**
  - 306-8335 Gordon Avenue
  - Fort McMurray, AB
  - T9H 0B7
  - Phone: (780) 468-4100

**British Columbia**

- **Abbotsford Office**
  - 31543 King Road
  - Abbotsford, BC
  - V2T 5Z2
  - Phone: 1 (800) 859-4885

- **Vancouver Island Office**
  - 1099 Popham Road
  - Parksville, BC
  - V9P 2T3
  - Phone: (250) 248-5353

- **Prince George Office**
  - 8603 North Kelly Road
  - Prince George, BC
  - V2K 2W7
  - Phone: (250) 962-2322

INTERNATIONAL

**Thorpe International Services, Inc.**

- 6833 Kirbyville Street
- Houston, TX 77033
- Phone: (713) 644-1247

- International@ThorpePME.com