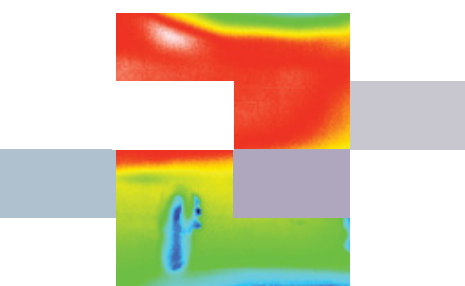


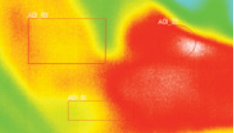
Thermal Imaging for Industrial Applications



■ Raytek® ThermoView™ Pi20 High Performance Thermal Imager with protective enclosure/air purge and DataTemp® DTPi Software

- Prevention of major fires caused by undetected burning garbage in the incinerator entry
- Improved boiler efficiency in combustion process through detection of wet garbage
- Eliminated damage to conveyor belts caused by undetected hot clumps of fly ash
- Labor savings with fixed, automated thermal imaging
- Paperless recording and data storage





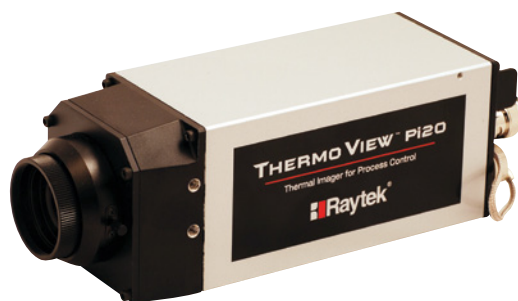
In many countries, including the U.S., disposal of garbage is becoming a major concern. There is less room for landfill, so another option in this case is to burn the refuse in an incinerator. There are two methods for burning garbage. The first is to use a long rotary kiln and insert the garbage into the kiln, where gas flames can burn the waste. This is often used for chemical and medical waste that requires a very high temperature to insure complete combustion. This application utilizes a linescanner to detect failures in the refractory lining of the kiln.

For normal household and industrial waste, the best method is to actually burn the waste material in a boiler and use the heat generated to create steam for other heating needs. There are some small villages in Europe that use this heat from the boiler to heat entire villages. First, the garbage is brought into a storage area. Often the garbage is stored in large bunkers and because of internal heat or hot objects in the garbage, the refuse pile can actually catch on fire. Entire warehouses have burned as a result of fires that resulted from these hotspots. A Raytek® ThermoView™ Pi20 thermal imager can be used to detect this overheating, so water can then be used to cool the garbage and prevent fires.

Before the garbage is fed into the boiler, it is often shredded into smaller pieces. Shredding helps generate a hotter fire and insures more complete combustion. During this process, the garbage can get overheated from the friction of the shredder or even sparks discharged during the shredding. A Pi20 thermal imager aimed at the entrance of the shredder can be used to indicate overheating and prevent a fire from occurring.

The garbage or biomass is then preheated before entering the boiler. This is done to increase burning efficiency and to dry the wet material. The average temperature is around 300°C (575°F). If it gets too hot, a fire is possible and if it's not hot enough, the burning will be very inefficient. A Pi20 thermal imager can measure the entire bed and provide an alarm for both overheating to prevent fires, as well as under heating to promote complete drying.

The garbage has now been burned and the remaining material is fly ash. The ash is released from the burner and tube areas of the boiler, as well as from the bag house. In any of these locations, there can be large lumps of ash that are hot and can burn the conveyor. The average temperature of the ash is around 75°C (165°F) and hotspots will be detected at 200°C (395°F) and hotter. The Raytek ThermoView Pi20 thermal imager can detect these hotspots and provide an alarm for the operator to eliminate the hot ash.



The Worldwide Leader in Noncontact Temperature Measurement

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