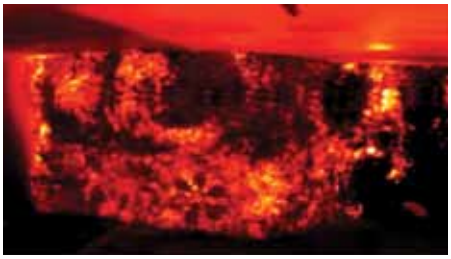
Thermal imaging cameras help to prevent fires.

FLIR A-Series incorporated in PYROsmart® system detects fires at a very early stage.

Thermal imaging cameras are being used for a wide variety of applications. Thanks to their ability to measure temperatures in a non-contact mode, they can also easily be used for fire prevention. Any industry which has some type of storage area where goods or material is kept is susceptible to self combustion of material. Typical examples of this are storage of splint wood, batteries, waste recycling materials and coal. All these applications have in common that there is a fundamental need to detect hot spots and prevent that they turn into a fire.

Orglmeister INFRAROT SYSTEME

The heart of the PYROsmart system is a FLIR A615. PYROsmart can avoid fires in your facility.



Hot spots in a waste bunker can lead to sponteneous self combustion and fires.

PYROsmart fire prevention system

ORGLMEISTER Infrarot - Systeme is an innovative company in Germany that is producing and marketing the PYROsmart system. PYROsmart is a camera system that can be used for fire prevention. The systems will detect hot areas that can lead to a fire in a very early stage.

"The PYROsmart sytem contains a thermal imaging camera and a daylight camera.", explains Mr. Orglmeister, General Manager of the company. "The heart of the system is a FLIR A615 thermal imaging camera."

"The system can scan a large area. All the separate thermal images that are taken are stitched together and a panorama image is created. Our patented abiroVision system brings all single thermal images together and creates a large thermal image that is continuously updated. By combining all the 640 x 480 pixels images created by the FLIR A615 we can create a large thermal image that has up to 9600 x 9600 pixels. The PYROsmart system can be pressurised so that it can also be used in extremely hot and dusty environments."

PYROsmart can be easily installed at any location. The system has an IP network connection and an alarm output. Apart from that the only thing needed is a 24 V connection. The entire system is also extremely easy to control thanks to a touch screen interface.

Detecting fires

"Thanks to its ability to measure temperatures, the FLIR A615 is an ideal instrument to integrate in our PYROsmart system.", continues Mr. Orglmeister. "It can easily detect hot spots which are a first indication that a fire might break out. The user can easily set various types of rules in the PYROsmart system. If one of these rules is violated, automatically an alarm will go off."

Depending on in which industry the PYROsmart system is being used these rules can be different. The easiest rule is that if the system detects a temperature that is above a certain value set by the user, an alarm will go off. In other cases, for example in a waste incineration plant, rules can be set that if no new waste is being added, the system is monitoring for a temperature increase.

"But, this rule is useless in a waste recycling plant. In a waste recycling plant waste is being added

and turned continuously by wheel loaders. The exhaust pipes of these wheel loaders can not be considered as a hot spot, nor can them appearing in the image be considered as a temperature increase.

PYROsmart can distinguise the hot exhaust of a wheel loader from an originating fire thanks to intelligent algorithms.

Creating a "closed loop" system

"Detecting a hot spot that can lead to a fire is one thing. Preventing that it becomes a fire is another.", says Mr. Orglmeister. "It is not always so easy that you can send someone out with a hose to cool down the problem area. Therefore many users and also insurance companies came with the question to create a system that can not only detect hot spot buts one that can cool them down immediately as well."

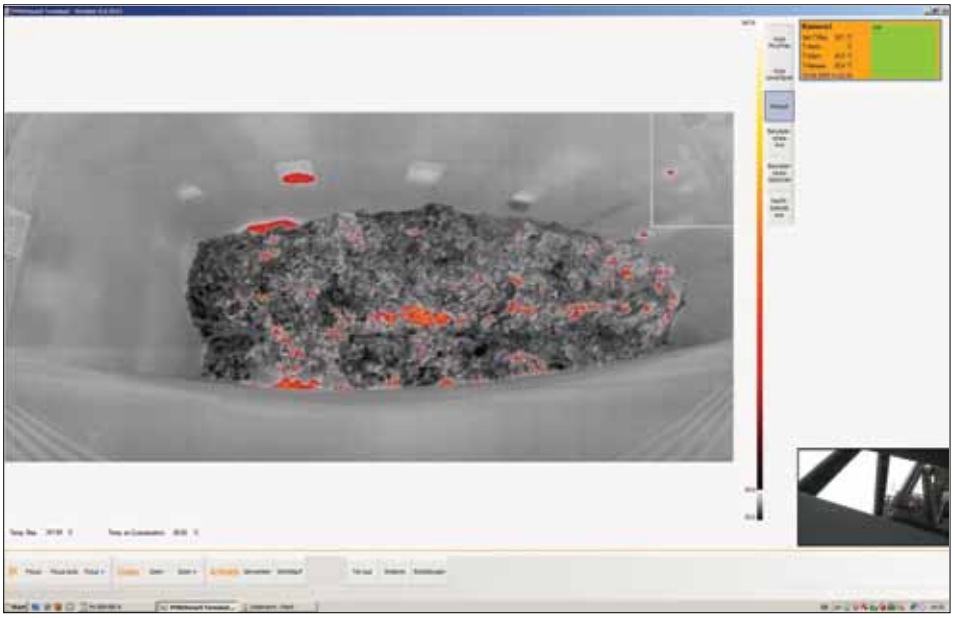
"In order to do this we have connected the PYROsmart with a fire monitor. The PYROsmart system is taking "xyz co-ordinates". These coordinates can be sent to a fire monitor. This means that the following steps can be identified:

- One of the rules set in the PYROsmart system is violated and an alarm is generated
- The PYROsmart system takes the "xyz co-ordinates" of the hot spot and sends them to the fire monitor
- The fire monitor turns into the direction of the hot spot and starts to put water on it so that it is cooled down and the danger for a fire is eliminated.

Also the spray of cold water is traced automatically by the PYROsmart system to the exact location where the hotspot is. This procedure is patented by ORGLMEISTER Infrarot - Systeme.

The fire monitor in action in a waste bunker.

"The fire monitor can also be handed manually with a joystick. This is necessary so that the system can be overruled by firemen. In case a fire should break out firemen can not only use the fire monitor to help them extinguish the fire. Thermal imaging cameras like the FLIR A615 can also see through smoke. This means that the PYROsmart system will help firemen to see where the fire is and where they are spraying the water, through the smoke."



The PYROsmart system clearly shows the areas that are susceptible to spontaneous self combustion. The fire monitor will cool these areas down.

A wide range of applications

"The PYROsmart can be used for a wide variety of applications. We have installed various systems in waste bunkers and in waste incineration plants. It is also in use at various locations where cokes is produced. During the production process of cokes, coal is heated. It needs to be cooled down again afterwards in order to prevent that the entire coal pile is burning up. This is done with water. It is however possible that certain parts of the coal are not being cooled down enough. This means that the coal is still burning and a loss of the final product. By having the PYROsmart system look at the cokes, hot areas that have not been cooled down can be identified immediately. In combination with a fire monitor, the parts that are too hot can be cooled immediately."

"The PYROsmart is also seeing to it that no more water is sprayed than absolutely necessary and only on places where it is necessary. This contrary to what happens normally: put a man with a water hose next to the cokes to cool them down."

Cokes production: hot areas that have not been cooled down can be identified immediately with the PYROsmart system. In combination with a fire monitor, the parts that are too hot can be cooled immediately.

"Some cokes plants succeeded to bring the amount of water in their cokes back from 8% to 2%. This means that thanks to the PYROsmart system they are able to deliver more of a better quality product. Taken into account the extra income that is generated from this, the investment in a PYROsmart system is extremely small."

Advantages of the PYROsmart system

"The destruction you create and the amount of water that is being used is minimal. Water is sprayed where it needs to be sprayed and nowhere else. This contrary to sprinkler systems. When sprinkler systems are used in a warehouse they can damage the entire stock. A PYROsmart system just sprays water where the fire is breaking out. "

"By installing a PYROsmart system, and taking full advantage of the thermal imaging capabilities of the FLIR A615, fires can be avoided. The cost of a fire are often underestimated. There is not only the loss of material but, even worse, in some cases there is loss of live. Value is impossible to calculate. A PYROsmart system is a small investment to avoid all this.", concludes Mr. Orglmeister.

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