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PROPERTY MATTERS™

Insuring Recycling Centres – Money to Burn?

by Leo Ronken, Gen Re, Cologne

Newspaper stories about fires at recycling centres are so commonplace these days that it takes a really big one to catch the eye: "Tyre fire at Yorkshire recycling plant seen from space."[1] In Germany around 1,400 losses took place in the 10-year period 2005 to 2014;[2] in the UK the recycling industry accounted for 4,321 fires from 2001 to 2013.[3] It's a similar picture around the world, from Canada to Australia.

Covering the recycling industry currently represents a huge challenge for insurers and reinsurers as both the frequency and the severity of fire losses make it difficult to insure such risks on a profitable level. Read on to discover more about the specific risks involved, as well as prevention measures and key red flags for underwriters.

An industry growing in importance

Partly due to heightened environmental awareness and partly to a shortage of raw materials, such as rare metals, waste is a growing industry and playing an increasingly important role in the global economy. Overall, the recycling industry supplies 40% of the world's raw material needs, with an annual turnover estimated to be in excess of USD 200 billion.[4]

Employing around 1.6 million people, the industry has traditionally been dominated by municipal enterprises but the trend is now toward privately owned recycling companies with a few large owners dominating the sector. In the UK and Ireland, for example, more than half of the 4,500 recycling sites are owned by just five firms. Nevertheless, most individual recycling sites remain quite small, representing insurance values of just a few million euros.

Content

About This Newsletter

Created for our clients, our Property Matters publication provides an in-depth look at timely and important topics affecting commercial and personal lines of property insurance.

Many different processes, disposal techniques and technologies are involved in waste recycling. The common denominator, however, is that waste constitutes a high fire load and is often easy to ignite. When additional risk factors – such as poor housekeeping standards, low levels of worker training and other inadequate loss prevention measures – are factored in, the regularity with which recycling centre losses are occurring becomes less surprising.

The waste sector encompasses a wide variety of materials and processes

- Materials – wood, textiles, plastics, paper, electronics, municipal/household waste, refuse-derived fuel and biomass, and nearly every day new sorts of materials are added to be recycled.
- Processes – sorting, dismantling, transforming, recovering, shredding, heat treating, composting, electricity generation, heat generation.

Typical processing steps include

- Collection
- Reception (e.g. sites)
- Storage
- Dismantling
- Treating
- Sorting
- Recovery of materials

An unholy trinity of hazards

Depending on the material(s) being recovered and variability, common hazards can be physical, human or economic.

Physical hazards

Most recycling facilities represent a severe hazard almost by definition. First is the highly combustible loading of the waste to be recycled, as well as the recycled products themselves. Organic materials – paper, cardboard, textiles or plastics – are highly flammable and easy to ignite.

The potential for stored waste to self-combust presents an additional hazard, with piles of (even pre-sorted) materials lending themselves to ignition due, for example, to contamination of the waste with oil, lacquer or paints.

Then consider the machinery typically used at recycling facilities, including crushers, shredders, conveyors and furnaces. Such equipment is often operated using high pressure and during high temperatures, and routine maintenance is all too often neglected. Furthermore, with the number of materials declared recyclable continually growing, a real drive is necessary to find new and more efficient ways to process waste, consequently leading to the use of prototype machinery and the automation of processes.

Location also plays a role. Often, recycling takes place in buildings or areas that originally hosted a different manufacturing activity and are fundamentally unsuitable for their new role, with insufficient firefighting installations.

A typical recycling facility is characterized by a main processing building where most of the machinery is concentrated, and open storage areas that can often span several thousand square metres with mounds of waste reaching five metres in height or more. This can make fighting fires extremely challenging, particularly where the fire occurs inside a huge pile, as shown by some ferocious recent fires at scrap metal recyclers.

Human hazard

As mentioned, a lack of regular equipment and machinery maintenance is a known problem as is insufficient investment in appropriate and adequate risk protection measures. Too often, the inherent exposures of the particular recycling process are not accepted, or not even recognized, by the facility operators.

Sadly, arson is also a common cause of fires at recycling facilities. Yet, due to an absence of adequate access restrictions and security measures, many sites are left exposed; for instance, sites are often unguarded outside core working hours.

Economic hazards

The damages caused by fires in recycling facilities are rarely restricted to the loss of materials, buildings and machinery.

Following a fire, smoke and vaporized toxic material tends to spread into the surrounding area, leading to environmental impairment. Decontamination

costs can be high, especially as the extinguishing water used to fight a fire is often toxic and needs to be retained, cleaned and then disposed.

If no back-up facilities or other means of processing further waste deliveries are in place, penalties or significant additional expenses might be incurred in order to fulfill outstanding contracts and/or to coordinate the logistics of moving large amounts of waste to an alternative location.

Licences for recycling activity can be withdrawn by authorities after an incident and the reissuing of necessary permissions can be a time-consuming process often subject to additional (and expensive) preventive measures being put in place beforehand.

Finally, the volatility of market prices for raw and recycled materials also has a role in the regularity with which fires at recycling facilities are occurring. When prices drop, excess piling and storage can ensue, increasing fire risk and in rare cases even moral risk where fradulent arson is used to cope with the situation.

Exposures to watch

An analysis of media reports on losses at recycling centres reveals some recurring causes:

- Arson/fraudulent arson due to open storage and unrestricted areas
- Incidents due to electrical faults, heating faults, plant and equipment failures
- Use of new technologies, prototype machinery and heavily automated processes not fully tested
- Uncontrolled smoking and use of open flames, including welding and cutting
- Poor maintenance, particularly of electrical installations
- Explosions arising from undetected hazardous waste, such as aerosols or dust
- Self-combustion in stockpiles of organic materials due to chemical/biological processes

Underwriting recycling risks

In the past, plant operators looked to classic fire policies to protect their assets. Today, straightforward property cover is no longer deemed adequate to deal with the aftermath of a fire that leads to a shutdown.

A commercial policy that is not adapted to the characteristics of a recycling facility is almost certain to produce some unpleasant surprises during the loss adjustment process. To start with, additional exposures or losses may arise out of the inclusion of further insurance extensions, such as machinery breakdown or third-party liability.

After a serious fire at a recycling centre, far-reaching economic consequences are sure to ensue. As mentioned earlier, these costs can include contract penalties, loss of licence and the requirement for new temporary premises to allow the operator to stay in business.

Profit margins in the recycling industry depend on the price commanded by waste and recycled materials. As prices tend to fluctuate, the value of burned stock or the gross profit margin could be much higher than was originally anticipated when the insurance policy was issued.

Enhancements – such as firefighting expenses, debris removal, decontamination costs, penalties, public authority clauses, Additional Increased Costs Of Working (AICOW) and additional expenses – can all inflate a potential claim even further.

For these reasons, we recommend taking a closer look when underwriting insurance policies for recycling facilities, understanding the full scope of cover and not getting surprised in the case of a loss.

In some countries, the recycling industry has been in existence for more than 40 years, so plenty of historical data is available. In other countries, the industry is still evolving, but we think that loss experiences are quite comparable in the sector from market to market.

Underwriters calculating an appropriate insurance premium can adjust the general rating to the specifics of the insured's site, taking into account the exposures and risk management measures in place (see check list on page 5). This can include the use of unproven technology or machinery and the treatment of hazardous waste or radioactive material as an offset against fixed fire installations.

In conclusion

Characterised by high frequency and high severity fire losses, the recycling industry is undoubtedly a challenging area for insurers and reinsurers. It's considered such a risky commercial activity that some have even put a question mark over its insurability – or at least suggested minimum requirements for fire protection and prevention measures to insure a particular recycling risk.

As a result, some insurers have taken the decision to stop writing this type of business. However, at Gen Re we believe that most recycling plants can be insured – provided that underwriting is adjusted accordingly.

Over the years we have built up extensive know-how in the recycling industry and with our clients we have developed some specific reinsurance solutions for this area. These solutions require that certain security and fire prevention standards must be respected and that the insurance premium calculation has to be adjusted to the particular exposures of a given risk.

If you would like to get more information or have a specific question, please reach out to one of our Gen Re account executives.

Further Reading

- Reducing Fire Risk at Waste Management Sites, WISH Waste Industry Safety and Health Forum http://www.360environmental.co.uk/documents/Revised%20WISH%20Mar%202017.pdf.
- Herald Sun, February 28, 2017– Factory fire at SKM Recycling plant in Coolaroo, Australia http://www.heraldsun.com.au/news/victoria/factory-fire-at-skm-recycling-plant-in-coolaroo/news-story/9426d70b0a2ea9defc232ded4d3c4452.
- ABC, February 23, 2017 – Chullora waste recycling centre fire plume visible from Sydney CBD http://www.abc.net.au/news/2017-02-23/heavy-smoke-from-blaze-recycling-factory-chullora-sydney/8295844.

Endnotes

1 https://www.theguardian.com/uk-news/2014/jan/17/tyre-fire-yorkshire-recycling-plant-space-satellite-video-pictures.
2 Risk statistics of the German Insurance Association (GDV) and own calculations.
3 http://www.recyclingwasteworld.co.uk/in-depth-article/fire-prevention-plans-make-you-safer-and-more-efficient/152261/ – Fire Prevention Plans make you safer and more efficient, 13 March 2017, http://www.cfoa.org.uk/17512 - WISH Guidance Reducing Fire Risk at Waste Management Sites.
4 Bureau of International Recycling, http://www.bir.org/industry/.

About the Author

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Recycling centre fire prevention – Sample checklist:

- ✓ Storage of waste in sections not larger than 2,000 square metres
- ✓ 20 to 40 metres (depending on combustibility) of free space between sections or nearby buildings, separated by two-hour fire break walls that are 1 metre higher than the stored material
- ✓ Installation of water cannons on the roofs of buildings
- ✓ Thermographic control of storage areas and installation of gas detection devices
- ✓ Regular turning of stored waste in order to prevent smoldering or self-combustion
- ✓ Accessibility of storage areas from at least two sides to help fire brigades fight the fire even under bad wind conditions
- ✓ Ready supply of sufficent water and special extinguishing material, such as foam
- ✓ Installation of sprinklers and spray water systems
- ✓ Regular training of employees
- ✓ Regular maintenance and repair of electrical systems and cables
- ✓ Twenty-four hour monitoring of storage areas and use of intruder alarms
- ✓ Collection of extinguishing water in basins to prevent soil and water contamination
- ✓ Regular inspections and site visits by local fire fighters to improve knowledge of the site and special hazards
- ✓ Prohibition of smoking on the premises and restricted use of welding and other such activities
- ✓ Emergency/business continuity plan in place, including provisions to inform the public
- ✓ All electrical systems shut down and conveyors cleared of waste one hour before the site is closed at the end of each working day

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