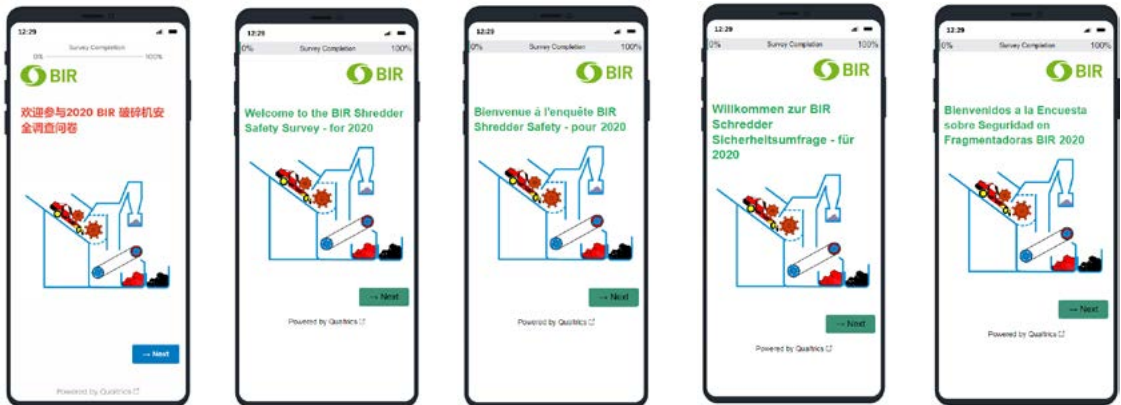


REPORT ON THE  
**BIR SHREDDER  
SAFETY SURVEY**  
FOR **2020/21**



Bureau of  
International  
Recycling



The Survey was provided in 5 languages: Chinese, English, French, German and Spanish

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# CONTENTS

<b>EXECUTIVE SUMMARY</b>	<b>1</b>
<b>INTRODUCTION</b>	<b>2</b>
<b>THE QUESTIONNAIRE AND ITS DISTRIBUTION</b>	<b>4</b>
<b>ANALYSIS OF RESPONSES</b>	<b>6</b>
• Day and Month of incident, visibility and weather conditions	8
• Incidents (%) Day of month	8
• Incidents (%) month	9
• Visibility conditions at the incident	10
• Weather conditions at the incident	10
• Area of the shredder where the incidents took place	12
• Incidents during production or maintenance	13
• Who was injured: permanent employees, temporary employees or contractors?	15
• Years of experience of injured person	16
• Nature of injury or illness	18
• Part of the body injured	20
• What caused the injury	22
• Task being carried out	24
• Activity being carried out	26
• Result of incident: hospitalisation, fatality or lost time	28
• Other relevant information	30
• Worker numbers on site: permanent employees, temporary employees and contractors	32
<b>CONCLUSIONS</b>	<b>33</b>
<b>RECOMMENDATIONS</b>	<b>36</b>
• Regarding shredder operations	36
• Regarding the BIR Survey	37
<b>BIR SHREDDER SAFETY SURVEY FOR 2022</b>	<b>38</b>
<b>BIR WORLD SHREDDER LIST</b>	<b>39</b>

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# EXECUTIVE SUMMARY

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Having identified safety survey reporting to be to the general benefit of all shredder owners and operators, the BIR Shredder Committee decided to initiate an **annual Shredder Safety Survey for all large shredders around the world** (of >1000 HP), of which there are more than 1,160 in over 50 countries. To date, only a limited number of countries require reporting of industrial safety incidents, with those being neither specific to shredders nor international in coverage.

The report enables owners and operators of car shredders to report and **manage safety incidents** in order to help protect the health and safety of all persons on their premises. Also, the Report is intended to enable shredder **owners and operators to benchmark their own safety performance** against other shredder operations around the world. It is complementary to the different areas of **Environmental, Social and Governance** (ESG) reporting.

This work was started in 2020 by collecting data for the previous year through the BIR Shredder Safety Survey 2019. Subsequently, the 'Report on the BIR Shredder Safety Survey for 2019' was published. During this time business disruption was caused by COVID-19. Governments restricted both travel and face-to-face meetings in 2020 and 2021. The BIR Shredder Committee continued its work virtually, as necessity dictated. First identified in December 2019, the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) started spreading around the world. The World Health Organisation (WHO) declared a pandemic on 11th March 2020. At the time of writing, the pandemic had numbered more than 500 million cases and over 6 million confirmed deaths. Across this time period the Shredder Safety Survey 2020 was launched in 2021. However, the response rate was below that of the initial survey, so the decision of the BIR Shredder Committee was to relaunch the survey late in 2021. Responses received included incidents for 2021 and exceeded the number of responses from the 2019 Survey. The BIR Shredder Committee allowed that the responses for 2020 and 2021 be analysed together in this report.

This second report provides feedback to those companies that responded, and together with the published 'Report on the BIR Shredder Safety Survey for 2019' **may be used to give safety briefings** to temporary and permanent employees as well as to contractors working on shredder sites.

**All shredder owners and operators are invited to participate in the BIR Shredder Safety Survey for 2022** which was launched by the Shredder Committee at the BIR Barcelona Convention in May 2022.

# INTRODUCTION

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Founded in 1948, the **Bureau of International Recycling (BIR) is the only global recycling industry federation** with a membership comprising companies and national recycling associations, from some 70 countries. BIR is organised into four Commodity Divisions and four Commodity Committees. The BIR Shredder Committee is allied to the BIR Ferrous Division.

The BIR Shredder Committee decided to initiate an annual shredder safety survey for all large shredders around the world, having identified this and the subsequent analysis of responses to be of general benefit to shredder owners and operators. The BIR would like to recognise the contributions of Christopher Bedell and Terry McWhorter in formulating the early questionnaire from 2018. The BIR Shredder Committee thanks Ross Bartley from the BIR Secretariat for managing the survey software, analysing responses and drafting this report. An important aspect of his task was **keeping company-specific data confidential in conformity with general data protection regulations** - including where some countries have only one shredder operating, **no country-by-country comparison is made**.

The BIR Shredder Committee thanks both Dr David Waggoner from the ISRI Secretariat and Rikarnto Bountis from the EuRIC Secretariat for encouraging participation of their member companies in the Shredder Safety Surveys and in contributing to editing this report.

As the survey will be carried out annually, **trends over the years may be observed**. Furthermore, **benchmarking of individual shredder safety incidents** against other shredders can be carried out by companies through comparing specific data from their internal reports (or the .pdf files generated by this survey) with the general analyses in this report.



**Alton Scott Newell III**  
*Newell Recycling Equipment (USA)*  
BIR Shredder Committee Chairman

The image displays two mobile phone screens side-by-side, representing different stages of a survey. Both screens show the time 12:29, signal strength, and battery icons at the top. A progress bar at the top of each screen indicates '0%' completion on the left and '100%' on the right, with the text 'Survey Completion' in the center. The BIR logo is prominently displayed below the progress bar.

The left screen is titled 'Please enter your company details:'. It contains three input fields: 'Company name', 'Town or city', and a dropdown menu for 'In which country is the shredder?'. Below these fields are two green buttons: '← Back' and '→ Next'. At the bottom, it says 'Powered by Qualtrics' with a small icon.

The right screen is titled 'Who is making this report?'. It contains three input fields: 'Given name', 'Family name', and 'email address'. Below these fields are two green buttons: '← Back' and '→ Next'. At the bottom, it says 'Powered by Qualtrics' with a small icon.

The survey questions relating to company name, town/city, country and the report author are used to identify and verify the data collected, particularly as companies may own a number of shredders in different countries. **These identifiers are kept confidential.**

# THE QUESTIONNAIRE AND ITS DISTRIBUTION

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The BIR Shredder Safety Survey 2020/2021 has **three blocks of questions: (a) to identify the shredder** and the person making the report; **(b) to capture safety incident data**; and **(c) to help with comparative analysis** using ratios and rates. Block (a) questions to identify the shredder and the person making the report are necessary to complete the .pdf reports for companies themselves and are also used by this report's author to identify and verify the data collected, particularly as companies may own a number of shredders in different countries. These **company and personnel identifiers are kept strictly confidential** in accordance with general data protection regulations and BIR rules. The 2019 identifier questions on GPS coordinates and Trade Association membership were not used for the 2020/2021 survey. Block (b) questions capturing safety incident data provide the **basic data which are aggregated, not attributable to individual companies, countries or regions**, to inform this report. Block (c) questions to help with comparative analysis use ratios and rates, for example, based on personnel numbers. These questions are fewer than in the BIR Shredder Safety Survey 2019.

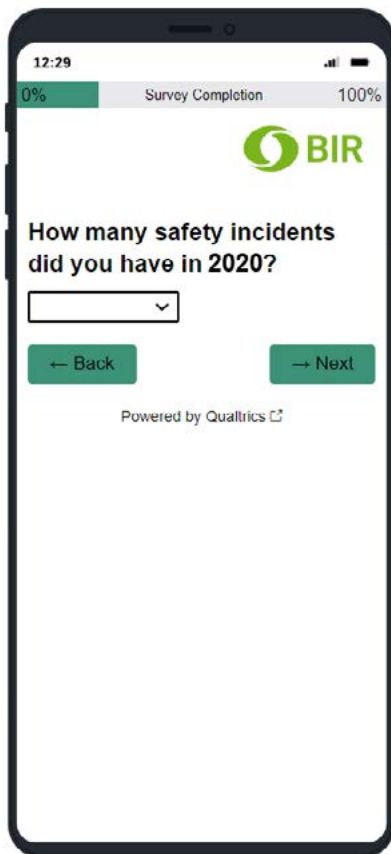
The BIR Shredder Safety Survey uses the Qualtrics internet-based system to provide a means for shredder owners and operators to record each incident and to save each record they make in the .pdf file format for their company records. **Owners and operators of more than one shredder are asked to make a separate record of each incident for each shredder.** Details of each safety incident should be entered separately, with one record for each injured person.

The BIR Shredder Committee decided that **all shredder owners and operators were to be invited to participate in this survey** and benchmarking.

**Links to the BIR Shredder Safety Survey have been made widely available through the recycling trade press and on the BIR's dedicated web-page:** <https://www.bir.org/ShredderSafetySurvey2020#>.

This second worldwide survey had a response rate above the 2019 survey; however, the survey had to be relaunched in 2021 and captured both 2020 and 2021 data.

Several national recycling associations that have Shredder Committees assisted with the survey distribution. In that respect, both Dr David Wagger of the US Institute of Scrap Recycling Industries was particularly helpful, as was Rikarnto Bountis of the European Federation EuRIC AISBL. The survey of 2020 data was kept open through 2021 and into early 2022 to collect the previous year's data.





# ANALYSIS OF RESPONSES

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The second Shredder Safety Survey was launched in mid-2021 during the online BIR Shredder Committee meeting in June. During this time business disruption was caused by COVID-19. Governments restricted both travel and face-to-face meetings in 2020 and 2021. The BIR Shredder Committee continued its work virtually, as necessity dictated.

First identified in December 2019, the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) started spreading around the world. The World Health Organisation (WHO) declared a pandemic on 11th March 2020. At the time of writing, the pandemic had numbered more than 500 million cases and over 6 million confirmed deaths. Across this time period the second Shredder Safety Survey 2020 was launched in 2021. However, the response rate was below that of the initial survey, so the decision of the BIR Shredder Committee was to relaunch the Survey late in 2021. Responses received included incidents for 2021 and exceeded the number of responses from the 2019 Survey. The BIR Shredder Committee allowed that the responses for 2020 and 2021 be analysed together in this report.

As for the 2019 BIR Shredder Safety Survey, there were some fatalities reported in the BIR Shredder Safety Survey 2020/2021; however, on further examination, these were found to be data entry errors. No fatalities were confirmed from analysing responses to the 2020/2021 survey, albeit the BIR Shredder Committee had heard of some fatalities in the sector by word of mouth. No further details were forthcoming.

As fatal incidents at work are relatively rare events, so fatal incidents and their frequency can vary greatly from one year to the next.

3% of incidents resulted in hospitalisation only. 26% of incidents resulted in lost time only. 15% of incidents were a combination of the two indicators: hospitalisation and lost time. 56% of incidents resulted in no lost time, no fatality and no hospitalisation.

Whilst companies are encouraged to respond to the BIR Shredder Safety Survey, reporting is nevertheless voluntary.

12:29

0% Survey Completion 100%

**BIR**

**Please enter details of each safety incident separately, with one report for each injured person**

What month in 2020 was the incident?

What day's date in that Month was the incident?

**← Back** **→ Next**

Powered by Quattrics

12:29

0% Survey Completion 100%

**BIR**

**What were visibility conditions at the incident?**

Night-time - darkness

Night time - artificial light

Day-time - light

Day time - dark

**What were weather conditions of the incident?**

Hot Rainy

Sunny Snowy

Windy Cold

**← Back** **→ Next**

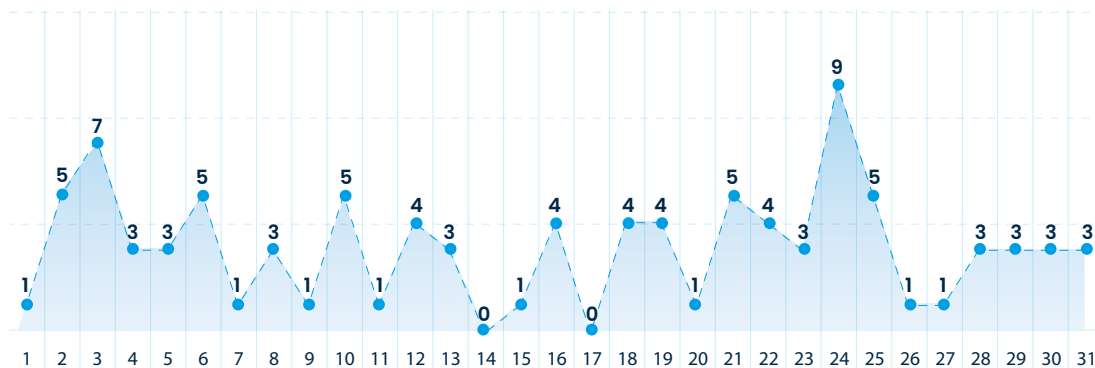
## Day and month of incident, visibility and weather conditions

For each shredder, the month and day of an incident will identify one incident from another; besides, such data may **show when incidents are most likely to occur**.

The BIR Shredder Committee had decided to replace the question on ‘time of day’ with questions on visibility and weather conditions. For any given month and day in a worldwide survey, the seasons, outside temperatures, precipitation (rain, hail, snow) and amount of daylight will differ from country to country and across countries with multiple time zones. So, the responses regarding visibility and weather conditions are more comparable.

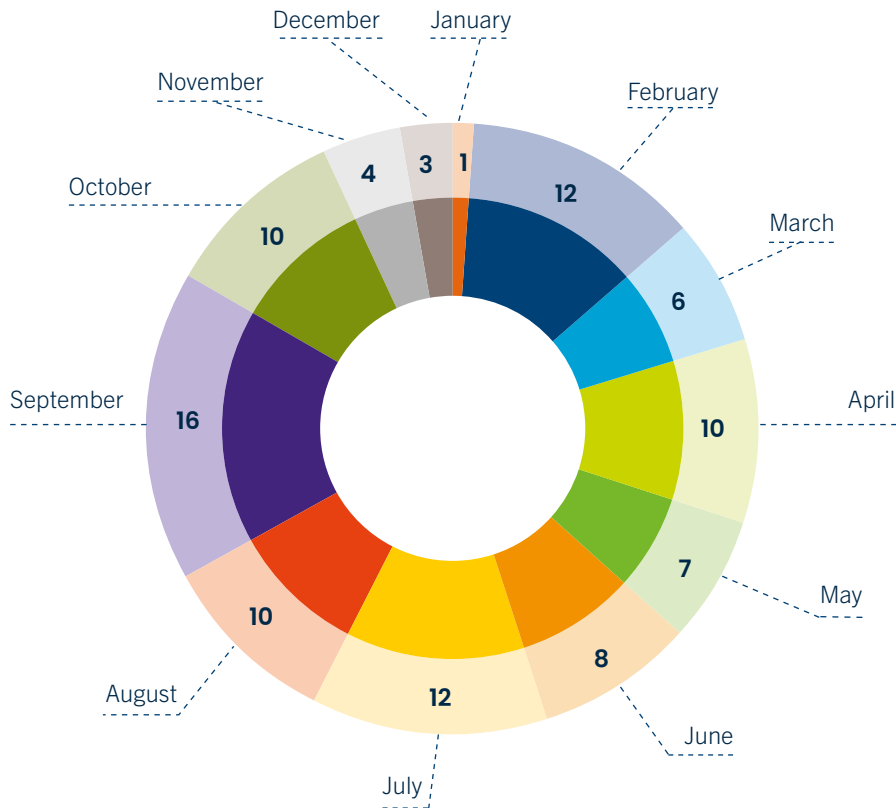
Furthermore, working practices differ from country to country regarding the working week, the number of shifts and respective working hours, as well as weekend working. Some industries, suppliers and customers shut down for holidays and for maintenance during particular months.

### Incidents (%) day of month



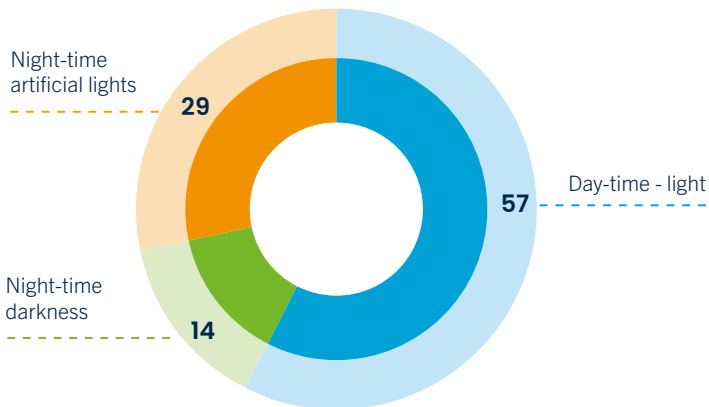
The day of an incident will identify one incident from another. Recognising that working practices differ from country to country regarding the working week, the number of shifts and respective working hours, as well as weekend working, **no pattern regarding the frequency of incidents related to the day’s date of the month can be found**.

Incidents (%) Month



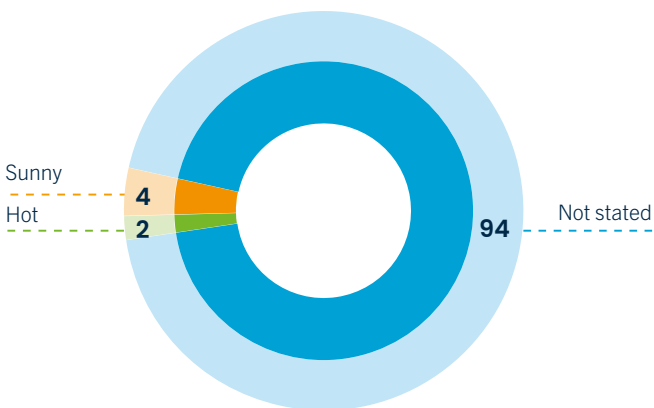
There were **fewer incidents in the months of November, December and January**, which may relate to holiday periods, and mirrors the pattern from the 2019 Survey Report. The peaks in February and September in 2020/2021 were also seen in 2019.

### Visibility conditions at the incident (%)



The 2019 Survey question on 'time of incident' was removed and replaced by 'visibility' and 'weather'. The **majority of incidents occurred in daylight**. Of those incidents occurring at night-time, most were in areas lit by artificial light, with a minority, though not insignificant number of incidents occurring in dark areas.


### Weather conditions at the incident (%)



The 2019 Survey question on 'time of incident' was removed and replaced by 'visibility' and 'weather'. Too few responses were received regarding weather conditions to discern any pattern.

12:29 📶 🔋

0% Survey Completion 100%



**In which area of the shredder was the incident?**


- Material Pile - Unloading Area
- Pre-shredder
- Infeed
- Conveyor
- Feed roll
- Hammer mill rotor
- Mill hydraulics
- Motor Control - Hydraulics Room
- Ferrous separation
- Non-ferrous separation

12:29 📶 🔋

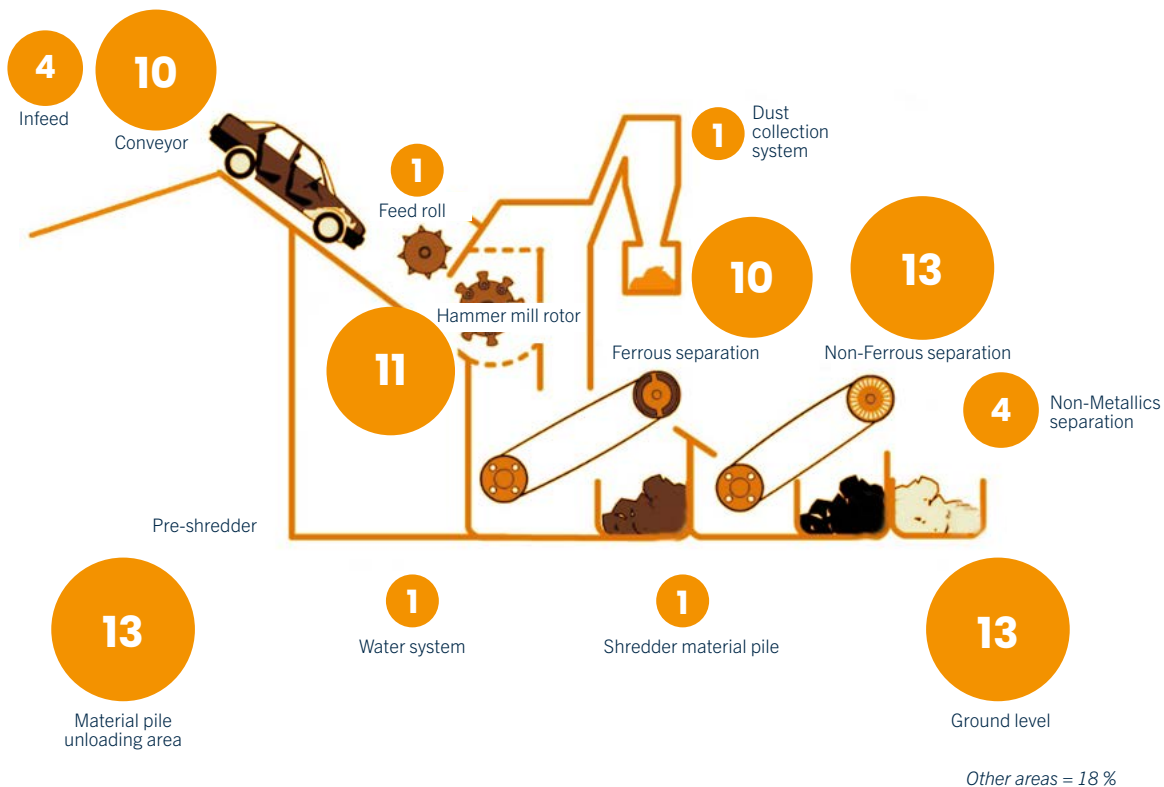
- Non metallics separation
- Shredded material pile
- Dust collection system
- Water system
- Ground Level
- Other (please specify in later description)

**Did the incident occur during production or maintenance?**

- Production
- Maintenance

Powered by Qualtrics 

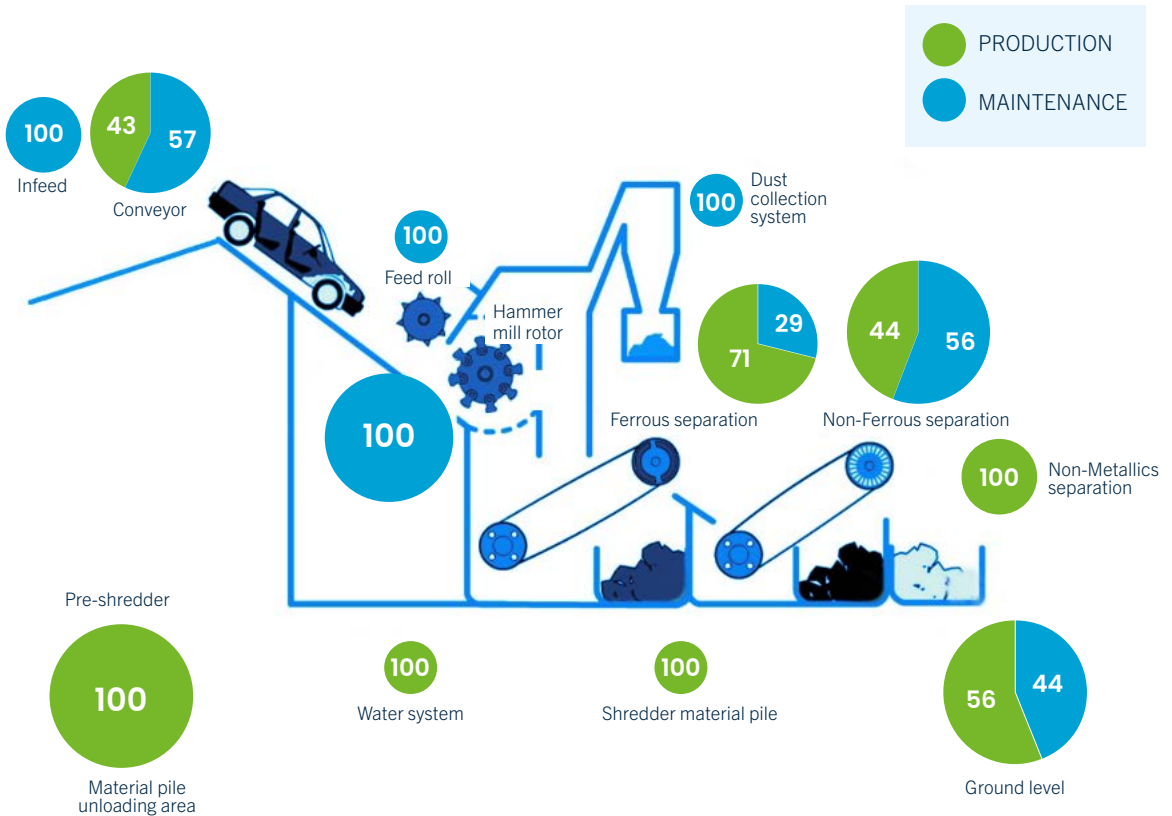
## Area of the shredder where the incidents took place (%)



**Most incidents took place where either machinery or materials were moving.** Most incidents took place at: the material pile - unloading area; the conveyor; the hammer mill rotor; ferrous separation; non-ferrous separation; and ground level.

## Incidents during production or maintenance (%)

When overlaying production (green) and maintenance (blue) incidents on the 'Area of the Shredder' where they took place, the following picture shows **incidents during production occur mostly at the unloading and output areas**, and **incidents during maintenance occur mostly at the conveyor and hammer mill**.





12:29

0% Survey Completion 100%

**BIR**

**Who was Injured in the Incident?**

Employee

Temp

Contractor

**How many years of experience did the injured person have?**

Less than one year

1 to 3 years

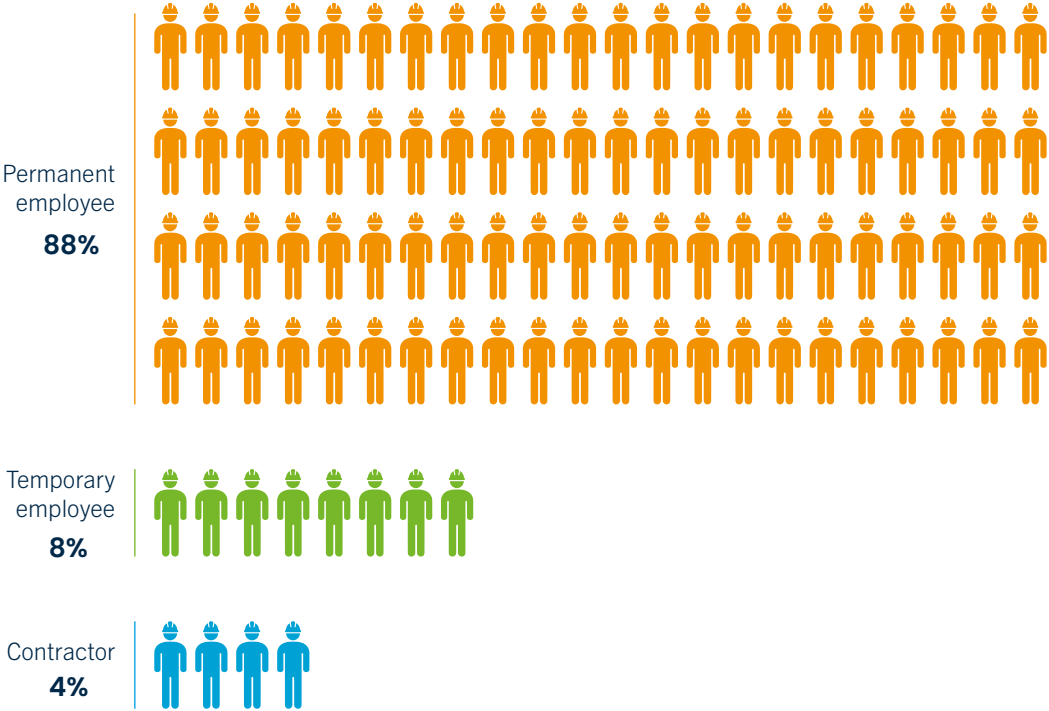
4 to 9 years

10 or more years

← Back → Next

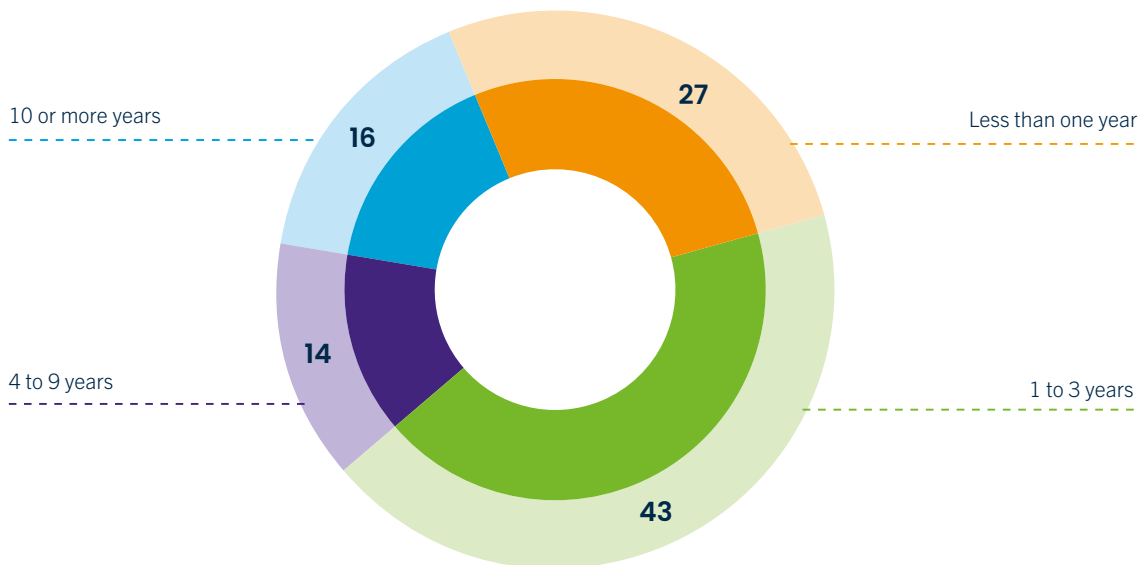
Powered by Qualtrics

# Who was injured (%): permanent employees, temporary employees or contractors?



It was **most common for full-time employees to be injured**, with fewer temporary employees injured and fewer still contractors being injured. The 2020/2021 Survey results were almost the same as for the 2019 Survey.

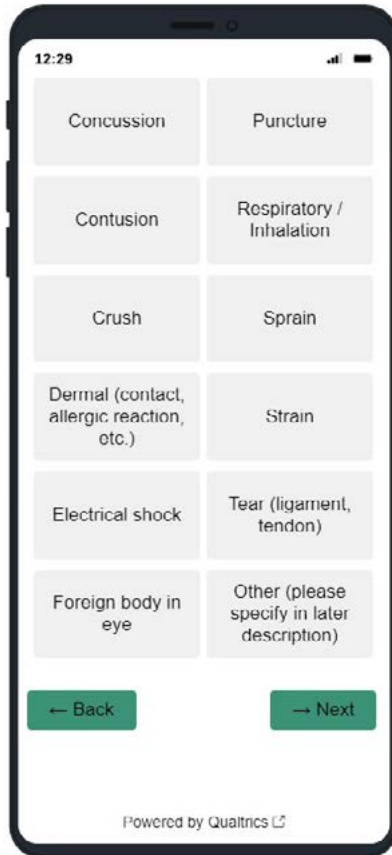
## Years of experience of injured person (%)



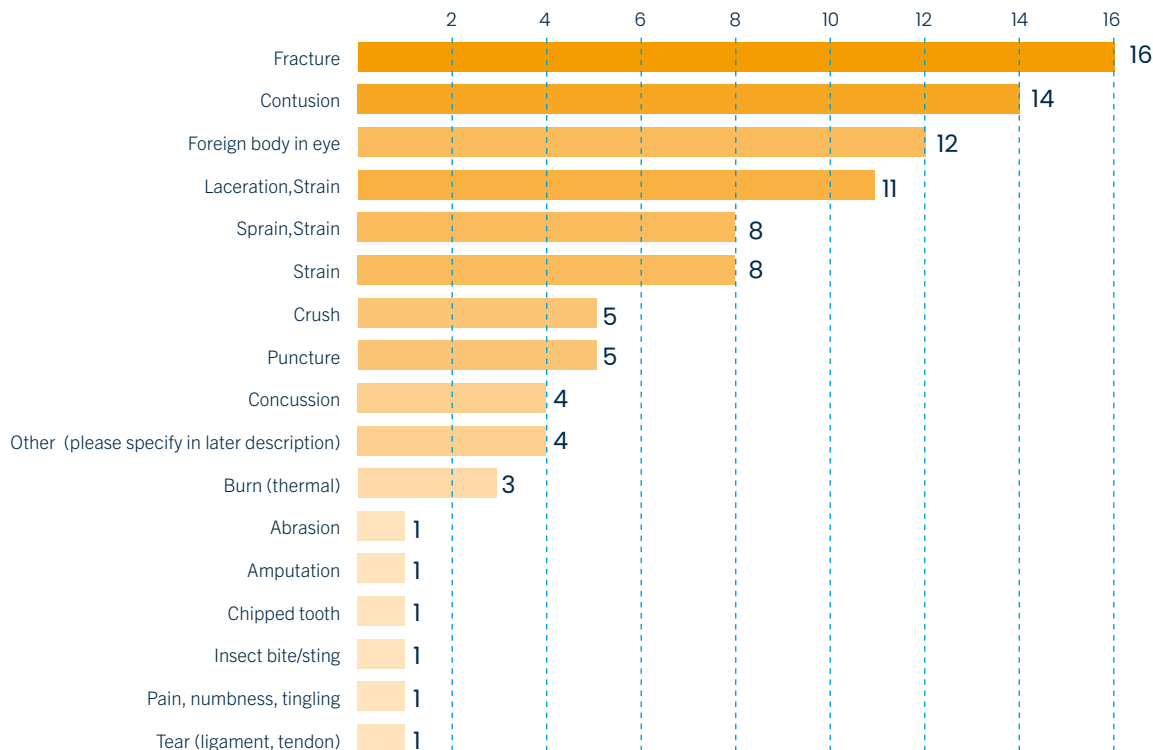
**70% of incidents** happened to employees with **less than one year's experience** and to those with **1-3 years' experience**.

**30% of incidents** happened to employees with **4-9 years' experience** and those with **over 10 years' experience**.

The 2020/2021 Survey results are almost the same as for 2019.



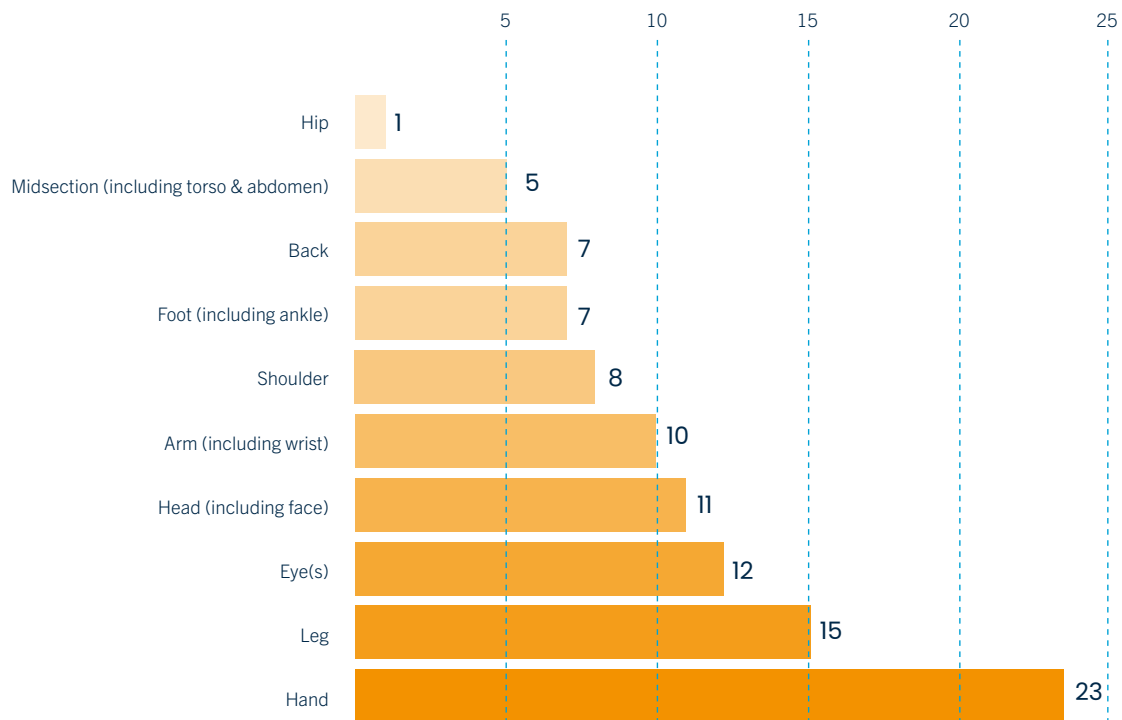
## Nature of injury or illness (%)



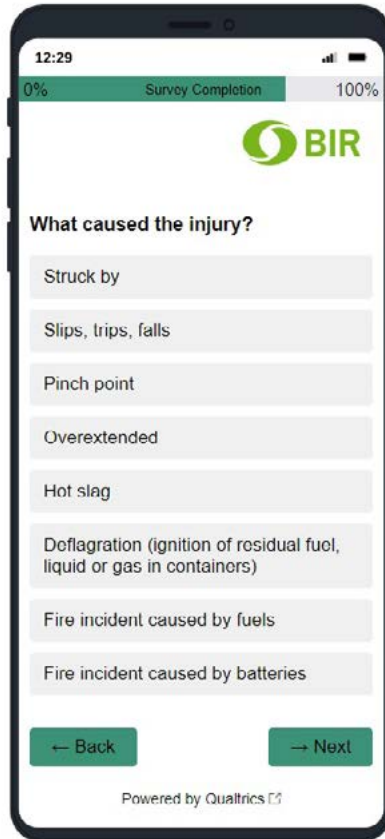
The **most common injuries were Fractures** (16% of reported injuries), **Contusions** (14%), **Foreign bodies in the eyes** (12%) and **Lacerations and strains** (11%), with 'sprains and sprains' accounting for a further combined 16% of reported injuries. The first survey of 2019 had the same headline injuries of fractures, contusions and foreign bodies in the eye, each accounting for 13% of reported injuries.

The image shows a mobile application interface for a survey. At the top, the time is 12:29. Below the time is a progress bar labeled "Survey Completion" with "0%" on the left and "100%" on the right. The BIR logo is displayed in the upper right. The main question is "What part of the body was injured?". Below the question are ten buttons arranged in a 5x2 grid, each representing a body part: "Head (including face)", "Hand", "Eye(s)", "Back", "Shoulder", "Hip", "Midsection (including torso & abdomen)", "Leg", "Arm (including wrist)", and "Foot (including ankle)". At the bottom of the screen are two green buttons: "← Back" on the left and "→ Next" on the right.

## Part of the body injured (%)

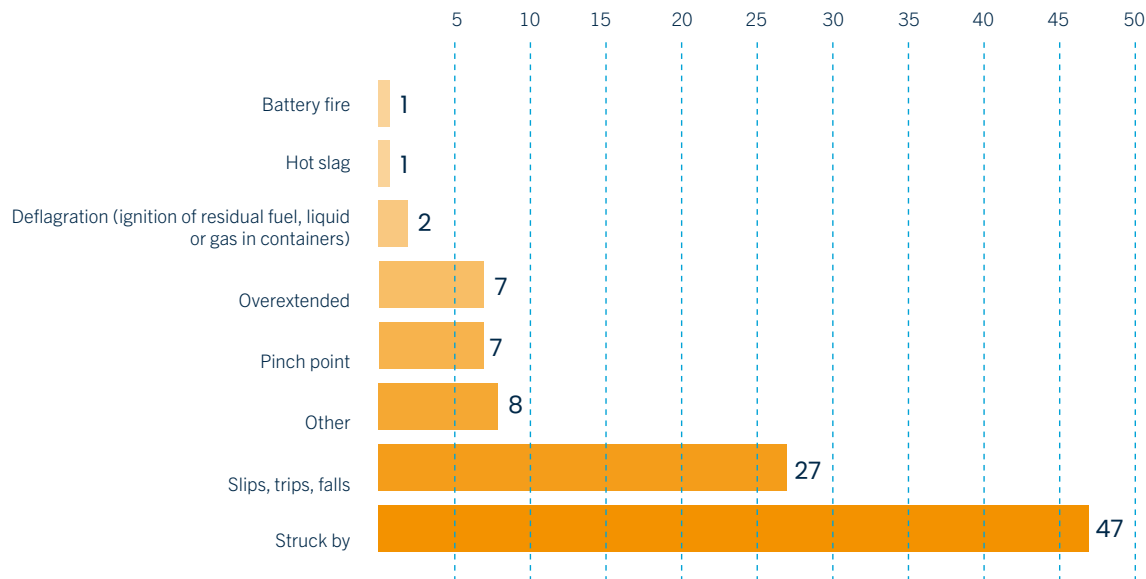


Of the reported injuries most were to: Hands (23%), Legs (15%), Eyes (12%), Head (11%) and Arms (10%). Hand injuries stand out as the most common injuries, as was found in the 2019 Survey.





## What caused the injury (%)



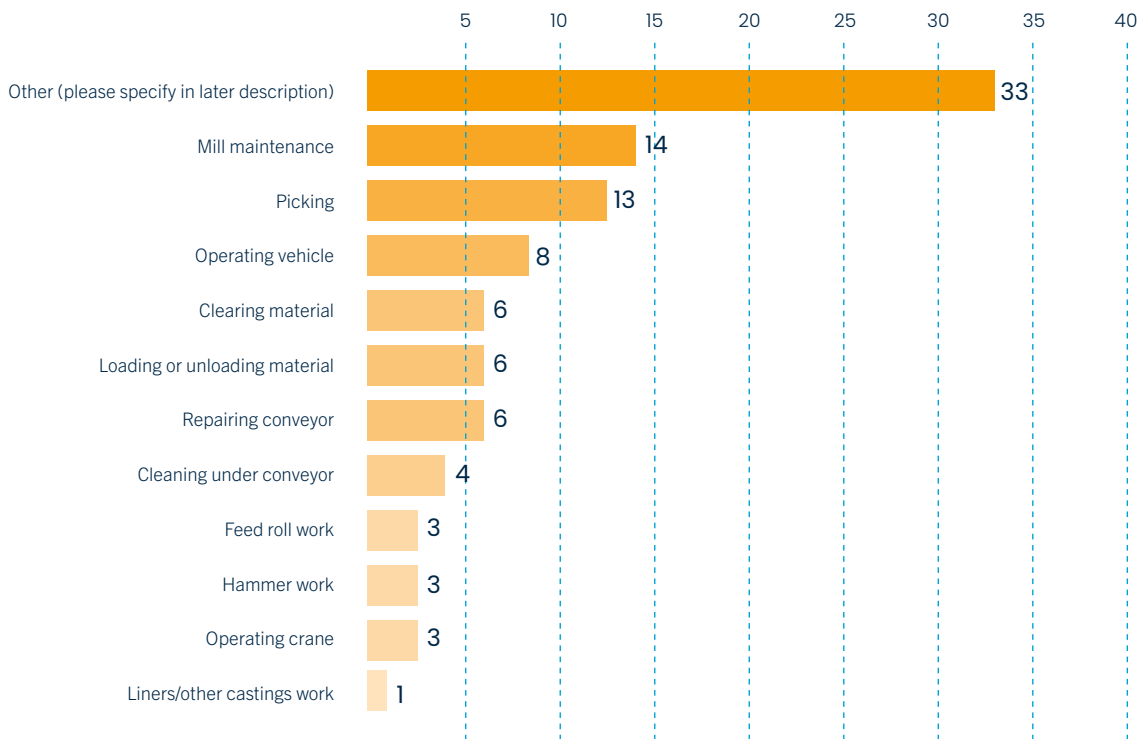
For the 2020/2021 Survey two more causes were added, those being: ‘Deflagration (ignition of residual fuel, liquid or gas in containers)’, and ‘Fire incident caused by a battery’.

**More than half of injuries were caused by being struck by an object** (e.g., ejected materials and equipment) **and by slips, trips and falls**. The causes ‘Overextended’ and ‘Pinch point’ were similar to reports from 2019. Of those responses received, few injuries were by ‘Hot slag’, ‘Deflagration (ignition of residual fuel, liquid or gas in containers)’ or by ‘Fire incident caused by a battery’. For purposes of the graphic representation, these have been rounded up but with a warning not to extrapolate from very low frequency incidents.

The category ‘other’ has been included to account for insect stings, dehydration, cuts etc.



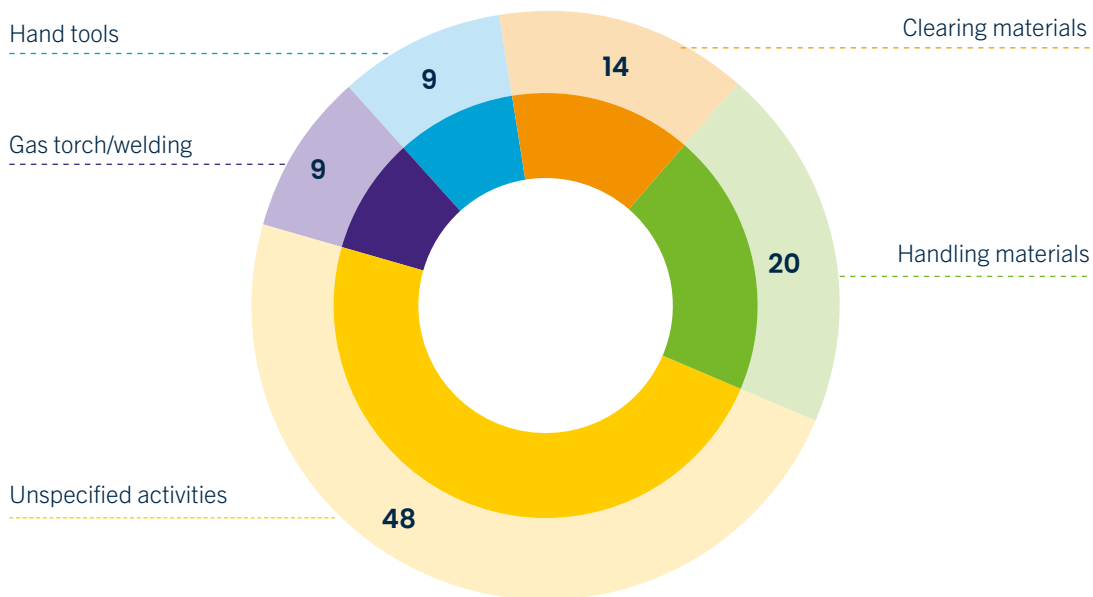
## Task being carried out (%)



Of the tasks identified by the Survey, those tasks being carried out when safety-related incidents occurred follow the same pattern as for 2019. Those **riskier tasks were: Mill maintenance (14%), Picking (12.5%) and Operating vehicles (8%)**, followed by Repairing conveyor, Un/Loading material and clearing material (5.5% each). Other tasks not identified in the survey accounted for one-third of incidents and injuries.



## Activity being carried out (%)



Of the activities identified by the Survey, those **activities being performed when incidents occurred** were more commonly: **Clearing materials and handling materials**. Incidents with gas torch/welding had slightly increased. Incidents with hand tools were very slightly lower. Nearly half of the activities being performed when incidents occurred were not specified.

12:29

**Did this incident result in:**

Hospitalisation of the casualty? ^

Yes

No

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A fatality? ^

Yes

No

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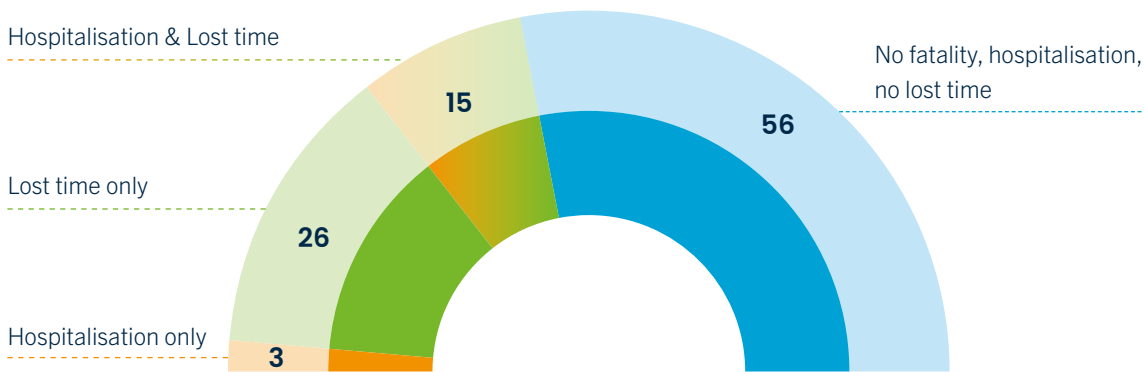
Lost time ^

Yes

No

← Back      → Next

## Result of accident: hospitalisation, fatality or lost time (%)



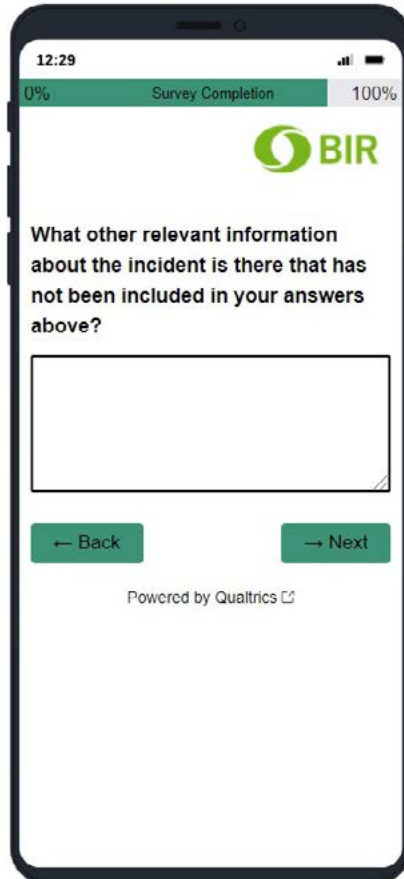
This question gathered information on the severity of each incident.

As with the 2019 BIR Shredder Safety Survey, there were some fatalities reported in the BIR Shredder Safety Survey 2020/2021. However, on further examination, these were found to be data entry errors. No fatalities were substantiated on further examination of the other information regarding those incidents where the fatality response boxes were ticked, albeit the BIR Shredder Committee had heard of some fatalities in the sector by word of mouth. No further details were forthcoming.

As fatal incidents at work are relatively rare events, so fatal incidents and their frequency can vary greatly from one year to the next.

**3% of incidents resulted in hospitalisation only. 26% of incidents resulted in lost time only.** 15% of incidents were a combination of the two indicators: hospitalisation and lost time. 56% of incidents resulted in no lost time, no fatality and no hospitalisation.

The likelihood is that **over half of incidents (the aforementioned 56%) were dealt with on site.** Having first aid kits and trained first aiders on site is recommended.





### Other relevant information

Companies have used the “free text” question to record other relevant information about the incident that was not included elsewhere.

This question is useful for companies to add other pertinent information into their .pdf report.

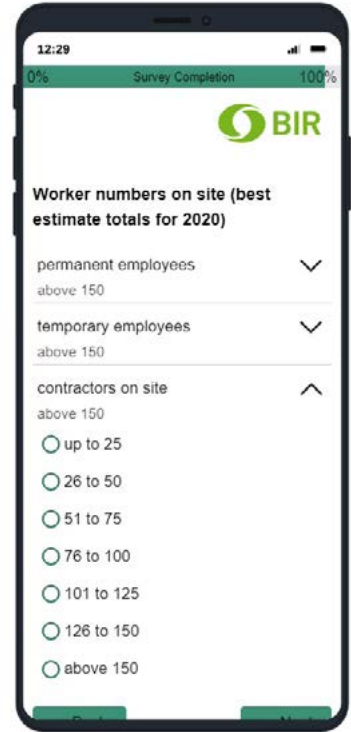
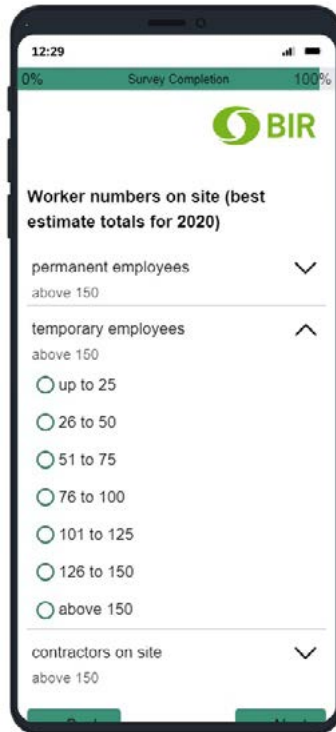
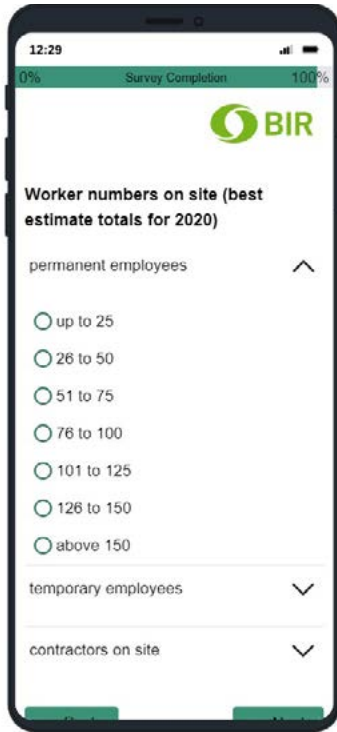
**Slips and trips on staircases and ladders were common**, as was slipping on mud and snow. Several explanations of falling off/falling from equipment were reported. It was noted that **safety harnesses could have prevented injuries when working at height**.

An incident occurred when an employee was hit by a crane grapple, showing the need for crane operators to be aware of the presence of persons in the area as much as persons working near cranes to be aware of their movements.

The need was emphasised for **eye protection in windy conditions** when dust and debris on-site was being blown around. The wearing of **dust masks may be considered as well**. Dust may be more of an issue in dry conditions than in wet conditions. **Water sprays may be used in dry conditions to keep dust down**.

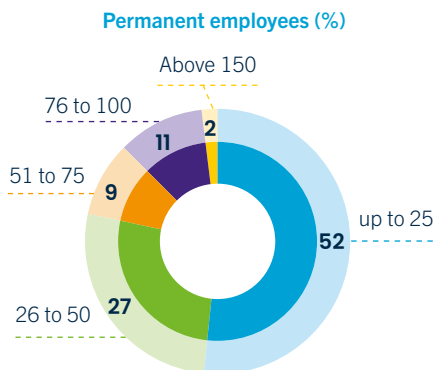
There were **several incidents associated with welding, emphasising the need for personal protective equipment, eyesight and breathing protection**. Several incidents of heat injuries from welding were explained.

The addition of the question on deflagrations elicited some responses on injuries resulting from such events. It has been remarked within the Shredder Committee that **deflagrations are not uncommon and that shredders are designed to withstand such events**. That personnel are close enough to deflagrations to be injured is something to be examined further.

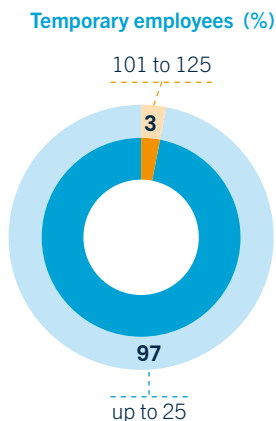


## Worker numbers on site: permanent employees, temporary employees and contractors

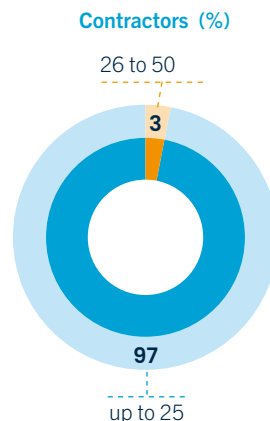
Respondents gave the following best estimates for permanent workers on site for 2020/2021:



The numbers of permanent employees on site were mostly not more than 25.



The numbers of temporary employees on site were mostly not more than 25.



The numbers of contractors on site were mostly not more than 25.

Questions on 'actual operating hours', 'make of shredder' and 'shredder horsepower' used in the 2019 Survey were removed from the 2020/2021 Survey.

# CONCLUSIONS

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The **BIR Shredder Safety Survey 2020/2021** is the **second safety survey** designed specifically for shredders worldwide.

There were **fewer incidents in the months of November, December and January**, which mirrors the pattern from the 2019 Survey Report. The peaks in February and September in 2020/2021 were also seen in 2019.

The **majority of incidents occurred in daylight**. Of those incidents occurring at night-time, most were in areas lit by artificial light, with a minority, though not insignificant number of incidents occurring in dark areas.

Too few responses were received regarding weather conditions to discern any pattern.

**Most incidents took place where either machinery or materials were moving**. When overlaying production and maintenance incidents on the 'Area of the Shredder' where they took place, it shows **incidents during production occur mostly at the unloading and output areas, and incidents during maintenance occur mostly at the conveyor and hammer mill**.

It was most common for full-time employees to be injured, with fewer temporary employees injured and fewer still contractors being injured, the 2020/2021 Survey results being almost the same as for the 2019 Survey.

**70% of incidents happened to employees with less than one year's experience** and to those with 1-3 years' experience. 30% of incidents happened to employees with 4-9 years' experience and those with over 10 years' experience, the 2020/2021 Survey results being almost the same as for 2019.

**The most common injuries were: Fractures** (16% of reported injuries), **Contusions** (14%), **Foreign bodies in the eyes** (12%) **and Lacerations and strains** (11%), with 'strains and sprains' accounting for a further combined 16% of reported injuries. The first survey of 2019 had the same headline injuries of fractures, contusions and foreign bodies in the eye, each accounting for 13% of reported injuries.

Of the reported injuries most were to: Hands (23%), Legs (15%), Eyes (12%), Head (11%) and Arms (10%). Hand injuries stand out as the most common injuries, as was found in the 2019 Survey.

For the 2020/2021 Survey two more causes were added, those being: 'Deflagration (ignition of residual fuel, liquid or gas in containers)'; and 'Fire incident caused by a battery'.

## CONCLUSIONS

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**More than half of injuries were caused by being struck by an object** (e.g., ejected materials and equipment) **and by slips, trips and falls**. The causes 'Overextended' and 'Pinch point' were similar to reports from 2019. Of those responses received, few injuries were by 'Hot slag', 'Deflagration (ignition of residual fuel, liquid or gas in containers) or by 'Fire incident caused by a battery'. For purposes of the graphic representation, these have been rounded up to 1% but with a warning not to extrapolate from very low frequency incidents.

The category 'other' has been included to account for insect stings, dehydration, cuts etc.

Of the tasks identified by the Survey, those tasks being performed when incidents occurred follow the same pattern as for 2019. Those **riskier tasks were: Mill maintenance; Operating vehicles; Repairing conveyors; and Picking**. Other tasks not identified in the survey accounted for one-third of incidents and illnesses.

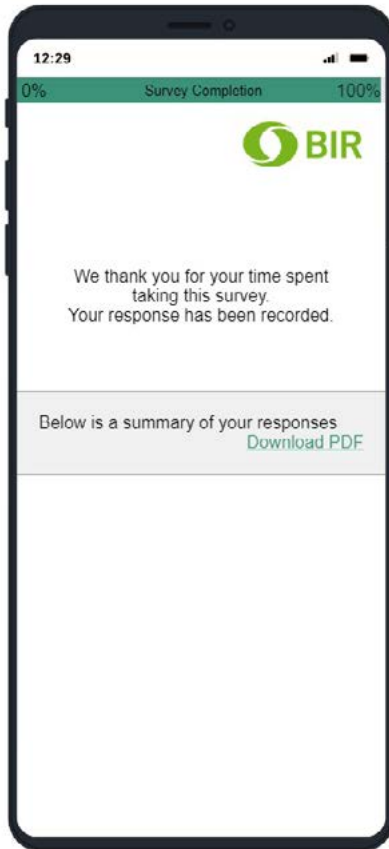
Of the activities identified by the Survey, those **activities being performed when incidents occurred** were more commonly: **Clearing materials and handling materials**. Incidents with gas torch/welding had slightly increased. Incidents with hand tools were very slightly lower. Other activities, nearly half of the activities being performed when incidents occurred, were not specified.

As with the 2019 BIR Shredder Safety Survey, there were some fatalities reported in the BIR Shredder Safety Survey 2020/2021. However, on further examination, these were found to be data entry errors. No fatalities were substantiated on further examination of the other information regarding those incidents where the fatality response boxes were ticked, albeit the BIR Shredder Committee had heard of some fatalities in the sector by word of mouth. No further details were forthcoming.

As fatal incidents at work are relatively rare events, so fatal incidents and their frequency can vary greatly from one year to the next.

3% of incidents resulted in hospitalisation only. 26% of incidents resulted in lost time only. 15% of incidents were a combination of the two indicators: hospitalisation and lost time. 56% of incidents resulted in no lost time, no fatality and no hospitalisation.

The likelihood is that over half of incidents (the aforementioned 56%) were dealt with on site. **Having first aid kits and trained first aiders on site is recommended.**



# RECOMMENDATIONS

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## Regarding shredder operations

**All shredder-owning and -operating companies** around the world are **invited to introduce this report** and its analyses into their **safety briefings for both full-time and temporary employees, as well as contractors on site.**

The most common cause of injury was being struck by objects, which may be mitigated by using mechanical equipment so as to distance workers from material and by ensuring that, when personnel have to work with machinery and material, the equipment and scrap are not in motion.

The next most common cause was “slips, trips and falls”, with the additional relevant information question highlighting the need to be careful on stairways and walkways.

The need for eye protection stands out from this analysis; **incidents do occur when eye protection is provided but not worn.** Also, there is a **continuous need to take care around heavy and sharp objects.** Incidents where material penetrated Personal Protective Equipment (e.g., sharp items/wire penetrating gloves) show the **need for quality PPE.** When incidents occurred, injuries were more serious when PPE, though available, was not used. The analysis reinforces the need to offer protection in particular for the head (hard-hat), eyes (safety glasses), hands (gloves) and feet (safety boots). Leg protection may also be considered. The additional survey question on deflagrations (ignition of residual liquid fuel or gas in containers) and fire incidents and the cause (e.g., flames, fuels, batteries) has brought forward information on such incidents. The prevalence of lithium-ion batteries in all manner of appliances has, by word of mouth, increased fires at shredders. Some have experienced significant consequential losses.

It is recommended that **shredder owners/operators plan for preventing, detecting and responding to such fires.** Making plans beforehand with the local fire service is recommended so professional fire-fighters are aware of the materials on site and may optimise their fire-fighting procedures. The **availability of sufficient water** at the necessary pressure for fire-fighting should be ensured. Regarding responding to fires, and as appropriate **under the supervision of the local fire department** if on site, using material handling equipment such as cranes and front-end loaders to reduce the material piles around fires may reduce losses. For preventing fires in infeed stockpiles, some owners/operators advise to **‘shred to the ground’ all infeed stockpiles every day.** The **availability of trained first-aiders and of complete, well-maintained first aid kits on site** has been highlighted.

### Regarding the BIR Survey

Year on year, the BIR Shredder Committee will endeavour to improve the survey and its analyses, and to increase the number of shredder owners/operators that participate.

To increase participation in the survey and thus the response rate, the following actions are recommended: distribute the survey invitation and link through national associations; distribute the survey invitation and link through industry journals; and consider sponsorship for the survey and incentives for continued participation.

The additional survey question on visibility (e.g., daytime/night-time) and weather (e.g., rain, hail, snow) has not yet shed more light on incidents.

It has been proposed to add “Visitors / Suppliers / Customers” to the question of “Who was injured in the incident?” The author suggests reinstating the questions related to annual operating hours as necessary for statistical analysis for 2023. Prior to the 2023 Survey the Secretariat will propose the integration of the two questions “What task was the injured person doing?” and “What specific activity was the injured person carrying out?”

Noting the overlay of incident data from production and maintenance on the area of the shredder and the additional value of such analysis, it is recommended to further develop this approach.

The BIR Secretariat will still need to investigate ways to authenticate future respondents (e.g., using LinkedIn or Google).



# BIR SHREDDER SAFETY SURVEY FOR 2022

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All shredder owners and operators around the world are invited to introduce this report and its analyses into their safety briefings for both full-time and temporary employees, as well as contractors on site.

**This report should assist companies in their safety management**, together with the “**BIR Tools for Occupational Health and Safety Management**” [QR code on left below]. **Other tools for companies** complementary to the areas of environmental, social and governance (ESG) reporting are: “**BIR Tools for Quality Management**” [QR code in the centre below]; and “**BIR Tools for Environmentally Sound Management**” [QR code on right below]



**BIR Tools for Occupational Health and Safety Management**



**BIR Tools for Quality Management**



**BIR Tools for Environmentally Sound Management**

All shredder owners/operators around the world are invited to supply the email address of their safety manager to Alev Somer ([asomer@bir.org](mailto:asomer@bir.org)) so contact may be established with them specifically for the purposes of the annual Shredder Safety Survey

**The dedicated webpage for the 2022 Survey launched in May 2022 can be found via:**

[www.bir.org/ShredderSafetySurvey2022#](http://www.bir.org/ShredderSafetySurvey2022#)

**As well as English, the 2022 Survey is available in Chinese, French, German and Spanish.**



**Chinese**



**English**



**French**



**German**



**Spanish**

# BIR WORLD LIST OF SHREDDERS

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## Number of Shredders by State in USA

Alabama	7	Indiana	10	Nebraska	3	South Carolina	5
Alaska	0	Iowa	11	Nevada	1	South Dakota	0
Arizona	5	Kansas	5	New Hampshire	3	Tennessee	14
Arkansas	4	Kentucky	9	New Jersey	7	Texas	30
California	9	Louisiana	6	New Mexico	1	Utah	3
Colorado	5	Maine	2	New York	13	Vermont	0
Connecticut	4	Maryland	6	North Carolina	12	Virginia	7
Delaware	0	Massachusetts	2	North Dakota	0	Washington	3
Florida	14	Michigan	15	Ohio	14	West Virginia	2
Georgia	13	Minnesota	8	Oklahoma	7	Wisconsin	10
Hawaii	1	Mississippi	5	Oregon	5	Wyoming	0
Idaho	1	Missouri	8	Pennsylvania	15		
Illinois	15	Montana	0	Rhode Island	2		

With an additional 12 shredders across states, sub-total = 334

### Number of Shredders in Europe

Austria	6	Finland	7	Lithuania	1	Slovenia	0
Belgium	15	France	45	Luxembourg	0	Spain	21
Bulgaria	5	Germany	36	Malta	1	Sweden	9
Croatia	0	Greece	4	Netherlands	8	Iceland	0
Cyprus	0	Hungary	3	Poland	13	Liechtenstein	0
Czech Republic	2	Ireland	3	Portugal	5	Norway	9
Denmark	5	Italy	44	Romania	5	Switzerland	3
Estonia	1	Latvia	1	Slovakia	4		

Sub-total = 256

### Number of Shredders in Rest of World

Antigua	1	Ecuador	1	Mexico	16	South Korea	3
Australia	12	Guatemala	1	New Zealand	4	South Africa	5
Argentina	3	Honduras	1	Nigeria	1	Taiwan	8
Brazil	16	Israel	1	Peru	1	UK	29
Canada	27	Japan	110	Qatar	1	Venezuela	1
China	327	Kuwait	1	Saudi Arabia	6		
Colombia	1	Malaysia	1	Serbia	1		

Sub-total = 579

USA	EU & EFTA	Rest of World
334	256	579

**Total for BIR World Shredder List 1169**

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