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- Bullet Resistant Vests - Budget is the Bottom Line
- PPE and Obesity - An Under-Researched Area?
- PVC's Critical Role in Hospitals • Commonwealth Malaria Tracker
- PPE and Working-from-Home - Employers 'Still Responsible'

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In this issue

03 Bullet Resistant Vests

- The third in a series of articles by **Deon du Plessis**, MD of Bullet Proofing Technology, in which he discusses balancing performance, function, comfort and cost in selecting BRVs.

09 Obesity and PPE

- The real cost of obesity is unaffordable for most South Africans, writes **Tony Singleton** of Turnberry Risk Management Solutions.

- Obesity and PPE: An under-researched area?

13 Vinyls

- In a world questioning plastic pollution, the PVC industry stresses its durability and recyclability and its critical - and not easily replaceable - role in hospitals and the healthcare environment.

15 Disease Prevention

- Malaria tracker launched to help affected Commonwealth countries tackle the disease.

17 Working From Home

- Between work and home has become a 21st Century safety paradox, writes author **Steve Casner**.

- Employee health and safety remains the employer's responsibility in a work-from-home environment, writes KBC Risk Solutions' **Louise Woodburn**.

19 Local Manufacturing

- Championing local manufacturing in workplace safety solutions: A statement by BBF Safety Group.

19 Sustainability

- Recycling pilot project for single-use face-masks.

21 Food Industry

- Addressing safety, changes in workplace, and digital are key to recovery for Europe foodservice industry, says U.S. research body NPD Group.

21 Counterfeits

- Criminals are exploiting a health crisis, writes **Godfrey Budeli** of Adams & Adams.

22 Respiratory Protection

- What is radon gas? Is it dangerous? An explanation by the United States Environmental Protection Agency.

- How does radon gas affect humans? A blog post.

24 Innovations - The Fraunhofer-Gesellschaft

- A contact lens for the ear.

- Safe human-robot collaboration.

- Magnetic pulse welding: Optimised joining technology is opening the door to the safe use of hydrogen in the aviation industry.

- Fighting the pandemic: Disinfection robot.

29 Buyers' Guide

- What's on offer.

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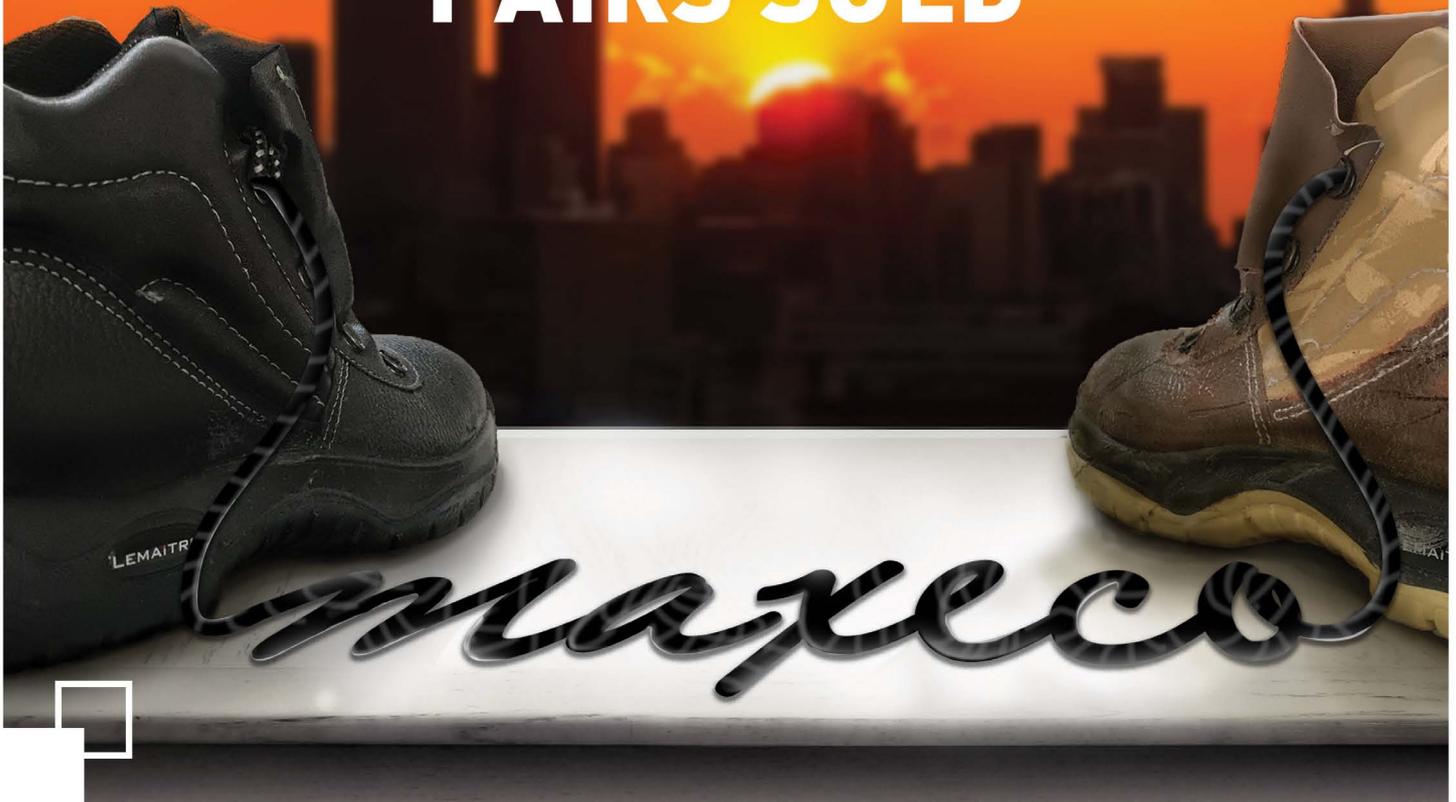




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The NRCS and safety footwear: Praise where praise is due

In the last issue of *S&V Protect* (Vol. 15 No. 2, 2nd Quarter 2021), we published criticism by the Southern African Footwear & Leather Industries Association (SAFLIA) and several safety footwear suppliers of the performance of the National Regulator for Compulsory Standards (NRCS) for its tardy approval rate for new models of safety footwear.

The industry says the NRCS has markedly improved its performance.

The NRCS, along with its sister organisation, the SA Bureau of Standards (SABS), falls under the Department of Trade, Industry and Competition (DTIC), and, presumably with prompting from the Leather & Footwear sector of the DTIC's Industrial Competitiveness & Growth Division: Textile, Clothing, Leather & Footwear, it met with SAFLIA and a delegation from the safety footwear industry on 23 July.

"**Edward Mamadise**, the CEO of the NRCS, sat in on the meeting, and took a lot of criticism," said SAFLIA executive director **Jirka Vymětal**. "We really appreciate the positive and constructive approach he and his team took. It is very refreshing to see that some government departments show a willingness to improve things and not only give lip service, but actually make things happen. Minister **Ebrahim Patel** should be proud of that department."

South Africa's 2 biggest safety footwear manufacturers also commented:

"We have experienced a marked improvement in the levels of correspondence with the NRCS as well as an intention to get our applications through and this we really appreciate. So thanks to all for hearing our concerns and getting the ball rolling. We are still waiting for feedback from the NRCS in terms of specific questions asked at the last Teams meeting and trust they will be forthcoming soonest." - **Jon Robb**, MD, Neptun Boot.

"I will add to my comments made on the last meeting acknowledging the vast improvement in communication and execution from the NRCS. We have even got to a level of discussion and suggestions have been made of how to improve the whole process, making it faster and less painful. I would certainly support the notion of giving them some recognition for a concerted effort from their side and look forward to continual improvement." - **Eugene du Toit**, technical manager, BBF Safety Group.



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This is the third in a series of articles on bullet resistant vests by Deon du Plessis, MD of Bullet Proofing Technology (Pty) Ltd, in which he outlines the soft and hard materials which go into BRVs. His business manufactures a wide range of body armour plates and vehicle armour, and supplies a number of other bullet resistant vest manufacturers.

Balancing performance, function, comfort and cost

As with everything, budget is the bottom line

Bullet Resistant Jacket is the generic term for a garment worn over the upper torso to protect it against bullets. Depending on each unique requirement, there are different types of jackets more or less suited to that specific need. The main factors influencing the correct choice are price, weight, comfort, protected area and specific requirements such as pockets, compatibility with other equipment and whether it can be visible.

Bullet Resistant Jackets (BRJ), Bullet Resistant Vests (BRV), Bulletproof Jackets (BPJ) and Bulletproof Vests (BPV) are seen and used by many as the same thing and are generic terms used for a garment that covers portions of the upper body against bullets. There are, however, many variables regarding the level of protection, area of coverage, comfort, protection level and price available, and in this article we will endeavour to provide clarification on most of these aspects. As the most commonly used term, we will refer to Bullet Resistant Vest (BRV) as the general term.

There are many different reasons for wearing a BRV. Many people in the security industry wear one all day as a working garment, while others wear one only occasionally for a specific reason. Some need it for personal protection and can afford to pay a lot for a lighter weight, while large security companies need to buy thousands at affordable prices. Some need to wear inconspicuous undercover jackets, while others might need very visible jackets with a lot of pockets and signage. For most requirements there are specific types of jacket available from which a user or procurement department can choose, and I will now expand on the most generally available types.

1. General purpose security BRV.

This generally consists of an outer, with or without additional pockets and signage, into which soft and flexible armour panels are inserted to provide protection against handgun threats. Most of these types of BRVs also have additional pockets into which hard armour plates can be inserted to increase the protection level to provide protection against rifle bullets. This is the type of BRV worn by the SAPS, SANDF, Correctional Services and most security companies. They are quite expensive as they provide dual-protection levels which can be upgraded from handgun level to rifle level when required, and the outer materials are quite durable, as these jackets are generally worn for extended periods and often full-time by security personnel and the SAPS. Buyers can expect to pay in excess of R5 000 for a BRV of this type with handgun level soft armour panels, and in excess of R1 500 per hard armour plate added to the jacket. This is the price to pay for possibly saving the life of a professional person who risks his or her life in the line of duty.

As with all BRVs, the price and weight of these jackets is heavily influenced by the amount of coverage and the protection level. Most of the BRVs used by the SAPS and serious security companies have large soft armour panels that wrap around most of the upper body, including the sides. Some products on the market are made to look similar to these jackets, but only have much smaller soft armour panels inside, which are much cheaper, but provide less protection. As the main cost of a BRV is the soft armour panels (Kevlar and other bullet resistant materials are very expensive), the cost of the jacket can be lowered considerably by using smaller armour panels, a trick well-used by some jacket manufacturers and suppliers. This is the most commonly used BRV as it provides a reasonable amount of protection, flexibility of application and comfort.

The weight of a typical size L jacket with Level II soft armour panels is 3,5kg, with the soft armour panels covering an area of 0,35m². By adding 2 x Level III++ hard armour plates of 1kg each, the total jacket is still quite light at 5,5kg, but by adding lower-cost but heavier Level III++ plates of 2,8kg each, the total weight of the jacket increases to nearly 9kg, which is quite heavy for a garment which has to be worn all day. Most users therefore wear the jackets with soft armour all day, with or without "Ultralight" hard armour plates, and others, who have lower budgets, use heavier plates and only insert these plates when a Level III threat scenario is possible.



1. Plate Carrier

A Plate Carrier is the most basic form of Bullet Resistant Jacket or Vest, and mostly consists of only a front and back carrier pocket for hard armour plates. It provides a measure of bullet resistance protection to the upper body, but the protected area is generally quite small at 0,15 – 0,2m² per jacket. This is particularly relevant if they contain soft armour panels which are very small in comparison to full-wrap soft armour panels of 0,35m² per jacket. For the case of rifle protection, the protected area is however quite similar, as the plates in plate carriers are mostly similar in size to those used on other more advanced jackets.

Plate carriers are, however, also the lowest cost type of BRV and are ideally suited for users who have a very limited budget to spend on their protection or just want something to show that they at least trying to provide some protection to the wearers. This is particularly so if there is no soft armour in the pockets, and all the protection is only provided by hard armour plates known as “Stand Alone” plates, designed to provide the required protection on its own. This means that these jackets are quite affordable but are less flexible in their application in that they either provide no protection without the plates, or Level III rifle level protection at 3 – 10kg per jacket with the plates inserted. The lower weight “Ultralight S/A” plates being very light, but more expensive. It is very important to note that plate carriers without any Level II or IIIA soft armour installed, require the use of “Stand Alone” plates, and plates from ICW (In Conjunction With) vests cannot be used in these vests.

Just by-the-way: The sport or fitness discipline “Cross-Fit” sometimes uses plate carriers with ordinary mild-steel plates inside as weight to test the wearer’s strength/fitness. Please don’t confuse these plates with bullet resistant plates.

Most military BRVs are in fact not necessarily bullet resistant. As military threats are mostly either fragments and/or rifles, military BRVs mostly have soft armour panels with limited bullet resistance, but optimized protection against grenade and mortar fragments. Soldiers are often out on long physical patrols which means they cannot wear hard armour plates for extended periods. If they then need protection, it might be in a hurry, in which case they can merely don their plate carriers with S/A plates over their existing equipment and get instant protection against rifle fire.



1. Combat Jackets

Combat Jackets are more related to Military or Special Force operations and are very specialized. They generally have increased protection areas through the addition of fixed or removable panels to protect the neck, shoulders, groin and arms of the wearer. It does make the jackets less comfortable and heavier, but the personnel wearing them are generally professional soldiers or special forces, and they are trained to work with the jackets in this configuration and the heavier weight. The protection levels are generally also higher with Level IIIA for the soft armour and level IV for the hard armour plates, which also again make them heavier and more expensive.



1. Under Cover Vest

Under cover vests are worn when the wearer does not want the vest or jacket to be visible, eg. politicians, businessmen, chauffeurs, bodyguards and shopkeepers. As it is very difficult to hide a hard armour plate’s shape, these are mostly only handgun level with semi-wrap soft armour panels. To not be too visible, it is very important that these vests need to fit correctly and most are custom-made for the wearer.





1. Women's BRV

South Africa is one of the world leaders in providing BRVs specifically designed and shaped for women. The SAPS spent nearly 3 x years testing this and has been issuing these to female SAPS members for more than 10 x years already. Females generally have shorter torsos, requiring shorter jackets, and they find the pre-shaped front ballistic soft armour panels more comfortable, especially in the XS, S and M sizes. Because of their shorter torsos and narrower shoulders, the front hard armour plates in female-specific jackets are more curved and smaller at typically 210 x 260mm. The back hard armour plates are of the standard 250 x 300mm size and normal multi-curve (MC) or single curve (SC) shape. Other than these differences, most female jackets are based on the "General Purpose Vest" design as in #1 above.



1. Designer-wear or special bullet resistant Jackets

Sometimes it is necessary or required to wear BRVs disguised as other types or normal-wear jackets such as windbreakers, suits jackets and biker-jackets. There are some manufacturers specializing in this, but they are generally custom-made, very expensive and with a possible weak line in front where the jacket closes if there is not a reasonable amount of armour panel overlap. In general, these jackets cannot accommodate rifle level hard armour plates.



1. Farmer's Jacket

This is a recent development in South Africa and is spawned by the real threat of farm attacks and generally used on farm patrols. This seems to be a very price competitive category and many products sold as this are very basic jackets with only heavier steel-based hard armour plates or quite small Level II or IIIA handgun Level panels in them. It seems that everybody is looking very widely to source the cheapest products, which in most cases also means the smallest protection areas, heaviest and/or lower protection levels. The more comfortable and flexible special materials used in BRVs are very expensive and lighter special materials also cost more, so by looking for the cheapest vests, clients mostly also get the older technologies, heavier armour and/or smallest protection areas.

There are, however, also some manufacturers offering special high-quality bullet resistant "Farmer's Jackets", but they do not fall in the category of cheapest jackets.





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There is no upside to being overweight. Aside from being a health risk to the individual, it's a problem for their employers in several ways, including supplying effective PPE. The more workers who are fat, and the fatter they are, the more they impact on most categories of PPE.

In this feature, we carry an article by Tony Singleton, CEO of insurer Turnberry Risk Management Solutions, who says what we all know - that extra weight is a health risk -

and then explains the financial risks that go with it.

As a follow-up, an online scan of the effects of obesity on PPE indicates that it doesn't rate that many mentions, even though, globally, workers are getting so much fatter that, as one article put it, "the normal weight worker is fast becoming a minority" - and South Africans are following that trend.

The real cost of obesity for South Africans



Tony Singleton...
There's no quick fix to obesity.

By Tony Singleton, CEO at Turnberry Risk Management Solutions

Johannesburg, Gauteng, SA (10 August 2021) - Obesity is a global public health challenge, and a significant issue in South Africa. According to the website *Diabetic South Africans* (<http://sweetlife.org.za/south-african-obesity-statistics/>), half of all South Africans are considered to be either overweight or obese, and this leads to an increased risk of heart disease, Type 2 diabetes, certain cancers and premature death. The high cost of obesity is not only felt by the healthcare sector and by medical schemes, but it also puts strain directly on the budgets of every individual as well as on the South African economy as a whole.

The burden of comorbidities

One of the biggest challenges around obesity is that it can lead directly to other non-communicable diseases, including heart disease, diabetes, chronic kidney disease, musculoskeletal disorders, and specific types of cancer. All these conditions require ongoing, potentially lifelong care and treatment, and are costly for both the public and private healthcare sectors.

These conditions can also lead to further complications, for example, diabetes can cause blindness and circulatory problems that can, in turn, cause other issues. Heart disease often requires expensive and risky open-heart surgery, and cancer needs ongoing treatment and often also requires surgery. While medical aid will cover the cost of treatment for these conditions, there is still the potential for shortfalls, for which the patient will be liable to pay.

Added costs on top

Aside from the cost of care - including medication and health complications - obesity increases the risk of surgery, especially if the patient's Body Mass Index (BMI) is greater than 35. For this reason, surgeons in private hospitals are permitted by the Council for Medical Schemes to charge a modifier for these patients.

This amounts to an additional 50% of the fee for surgeons, and a 50% increase in anaesthetic time units for anaesthesiologists. While again, this is covered by medical aids up to their specified rate, the patient will still be liable for any shortfalls over and above what their scheme will pay.

Bariatric surgery is not a quick fix option

Reality television shows have normalised bariatric surgery (or 'stomach stapling') as a quick and easy solution to the challenge of obesity. However, this paints a very glamorous picture of a surgery that is, in fact, an absolute last resort. Bariatric surgery requires permanent lifelong changes to diet and exercise routine as well as constant monitoring of underlying diseases and risk factors.

There are also very specific clinical entry criteria that need to be met before a surgeon will even consider the procedure for a patient. In addition to this, there are very few medical schemes in South Africa that will cover the costs for bariatric surgery, and then only on a few of the very top plans and only under extremely specific conditions. This means that, in most cases, should a patient opt for this route as a method of weight loss, the cost will fall to them. Even if the medical scheme pays, they may only cover a portion of the costs

Gap cover can help... most of the time

When it comes to the shortfalls on the majority of treatments and procedures that result from secondary conditions exacerbated by obesity, gap cover can provide some relief. For example, the shortfalls in cancer treatments, surgical procedures and hospital stays will be covered most of the time. However, this is a different story when it comes to bariatrics. Even if the medical scheme will cover it, there are no gap cover providers that will cover the patient for any associated shortfalls. This could leave patients under significant financial strain.

Health and wellbeing are everyone's responsibility

There is no quick fix solution to the challenge of obesity in South Africa. While the government introduced a sugar tax in 2016, which has reduced the obesity rate, it is still a massive problem. In 2019, up to 70% of women and one third of all men in the country were overweight or obese. In addition, 20% of girls younger than 9 years are considered overweight.

The pandemic has made everyone more sedentary and has also had negative effects on many people's diet, which is further adding to the burden of obesity. This costs the country and the healthcare sector a great deal of money. It is everyone's responsibility to look after their health, and this includes maintaining a healthy weight and diet. Luckily, there are now many options available outside of the traditional gym setting, such as online fitness classes, educational offerings, and nutritional guides. Surgery is not a quick fix, but a last resort, and no matter what treatment is taken, lifelong adjustments to diet and exercise must be included. - +27 (0)11 677 9891, tonys@turnberry.co.za, www.turnberry.co.za

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Obesity and PPE: An under-researched area?

Obesity - to use an unavoidable pun - is a growing problem, and it's not going away anytime soon.

And just as PPE has had to be adapted to fit taller people with every new generation, and to fit both genders as more women work in situations where PPE is required, so it has had to be adapted to fit fatter people.

In the abstract from a 2007 article entitled 'Work, Obesity, and Occupational Safety and Health' in the US National Library of Medicine / National Institutes of Health (<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1805035/>), **Paul A. Schulte** et al wrote: "Although anthropometric characteristics have been shown to vary among occupations and should be considered in designing personal protective equipment, little information exists on the impact of obesity on personal protective equipment effectiveness or availability.

"Human physiological variables, including body weight, can affect respiratory performance during respirator tests and use. Body weight has also been a variable in research on fall protection, impact restraints, and the effectiveness of protective clothing. Because obesity has been shown to be a risk factor for soldiers training in hot and humid environments, it may also be assumed that this result pertains to workers, especially workers in protective equipment."

Obesity impacts many types of PPE - respirators, hard hats, gloves, goggles and, of course, work wear - but it is perhaps most critical in PPE for working at height.

In the abstract from a 2003 article entitled 'Sizing and fit of fall-protection harnesses' in the U.S. National Library of Medicine / National Centre for Biotechnology Information (<https://pubmed.ncbi.nlm.nih.gov/12933082/>), **Hongwei Hsiao** et al wrote: "Full-body fall-protection harnesses have been a critical work-practice control technology for reducing the number of fall-related injuries and fatalities among construction workers;

yet, very little is known about the fit of these harnesses to the population that wears them.

"This study evaluated the fit and sizing efficacy of a harness system. 72 male and 26 female construction workers participated in the study. Their body size-and-shape information was measured while they were suspended (with a harness) and standing (with and without a harness), using a 3-D full-body laser scanner and traditional anthropometric callipers. Fisher's discriminant analysis results did not point to the need for a change in the current sizing selection scheme by body height and weight for end users. However, an integrated redesign of harness components is needed because 40% of subjects did not pass fit-performance criteria in either the standing or suspended condition.

"A multivariate accommodation analysis has identified 15 representative body models for the 'standard-size' harness design. These models can serve as a useful population to test harness design until a larger survey of the nation's construction workers can be done. Finally, further developments in 3-D shape quantification methods are recommended to improve the harness design process; the point-to-point anthropometric information currently used seems to be insufficient for harness design."

"The normal weight worker is fast becoming a minority," wrote *Safety & Health Magazine* of the U.S. workforce in 2001.

"Large workers may have difficulty fitting comfortably into a variety of equipment, including gloves, respirators, eye protection and safety clothing...If a worker cannot comfortably fit into the apparel or equipment, that PPE may not work properly - or even worse, the employee may forgo wearing it altogether."

Referring specifically to working at height issues, the magazine said "some manufacturers have picked up on this issue and are striving to address it...Although many standards require a capacity up to 310 pounds for personal fall arrest systems, some equipment manufacturers now offer products certified to 400 pounds or greater. [Fall protection manufacturer Capital Safety



The Australian 'tough guy' culture, particularly prevalent in blue collar industries, can encourage poor diets and make changing eating habits difficult, says Pro Safety Gear - but not impossible. Image: <http://blog.prochoice.com.au/ohs/obesity-impact-workplaces/>

offers] full-body harnesses ... in sizes up to triple extra large, which would fit an individual who stands 6'8" and weighs 420 pounds.

"...Exceeding the weight limit of fall arrest equipment can be extremely dangerous – even deadly. When a person falls, he or she generates pounds of force that are exerted on the body... in demonstrations, test weights simulating a 310-pound individual have shown to exert up to 3,000 pounds of force from a drop of only a couple of inches on a cable lanyard.

"The real concerns are all those forces are going to be taken into your body...The human body can only take up to 1,800 pounds of force before it becomes injured. An energy absorber in a fall arrest system can negate that force, but only up to a limit. After that, if a person is heavier than the system's capacity, all of those forces are going to go to the body and put the individual at risk of serious injury or death.

"Even if an individual is within the capacity of the fall protection system, a worker whose fall has been arrested must depend on co-workers for aid, which can be complicated if the fall victim is obese. It's an extremely difficult rescue to make...– especially if overweight workers are unconscious and unable to assist in the rescue attempt.

"While hanging in the fall system that saved his or her life, the heavier worker is at greater risk of suspension trauma because he or she puts more pressure on the straps of the harness. This could lead to more bruising or blood pooling, which occurs more quickly than it would in a person of a more healthy weight."

In Australia, where "nearly two thirds of adults are overweight or obese", according to Prochoice Safety Gear (<http://blog.prochoice.com.au/ohs/obesity-impact-workplaces/>), "overweight workers are more likely to have lower productivity, more injuries and higher claim costs overall", and are at greater risk of musculoskeletal injuries and heat stress.

"The increasing trend towards obesity in Australia means that work equipment and environments may need to be reassessed to ensure they are fit for the average Australian. This includes

considering the weight capacities of machinery and equipment, such as ladders, forklifts, hoists, seats and elevators as well as providing personal protective equipment (PPE) in sizes that meet the needs of larger workers – especially given the importance of comfort and fit in PPE."

Obesity isn't the only consideration when trying to cater to the diversity of the workforce.

In the abstract from an article entitled 'Anthropometric differences among occupational groups' in the US National Library of Medicine / National Centre for Biotechnology Information, 2002 February (<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1805035/>), **Hongwei Hsiao** (the same author as above, but with different co-writers) et al wrote: "The increasing demands for anthropometric information for the design of machinery and personal protective equipment to prevent occupational injuries has necessitated an understanding of the anthropometric differences to be found among occupations.

"This study identified differences in various body measurements between occupational groups in the USA, as determined in the third National Health and Nutrition Examination Survey. Approximately 16,000 of its 32,900 subjects were associated with an occupational group. The analysis of the data showed that the body size, or body segment measurements, of some occupational groups differ significantly. For example, agricultural workers were shorter by an average of 2.5 cm in height, and had wider wrist breadths, than other workers. Female agricultural and manufacturing workers had larger waist circumferences than those in the 'other occupations' and 'all occupations' categories. Protective service workers (i.e. fire fighters, police and guards) were taller and heavier (7 kg heavier for males and over 10 kg heavier for females) than those in all occupations combined. These differences and other deviations as well as some age-and-ethnicity-adjusted results were tabulated for users' reference. Researchers and designers who use anthropometric databases to evaluate human-machine interfaces and personal protective equipment (PPE) must use caution in selecting databases that are adequate for their occupational applications."

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PVC plays critical - and not easily replaceable - role in hospitals and the healthcare environment

In a world questioning plastic pollution, PVC industry stresses its durability and recyclability

Cape Town, W. Cape, SA - The **Southern African Vinyls Association (SAVA)** – the industry association representing the local PVC industry, recently highlighted the critical role Polyvinyl Chloride (commonly known as PVC or vinyl) plays in hospitals and the healthcare environments. This international webinar was well attended and attracted delegates from Thailand, Argentina, India, the United Kingdom, Italy and Denmark.

“PVC is the third most widely-produced polymer globally and the most frequently used thermoplastic in the medical device industry. It can easily and effectively be cleaned and sterilised (at temperatures ranging from -40° C to 121° C), and be extruded to make IV tubing, thermoformed to make blister packaging or blow moulded to make hollow rigid containers. Moreover, PVC can easily be welded to itself or with other plastics by heated tool welding and vibration welding. For this reason, PVC is used as wall and floor coverings, mattress covers, oxygen masks, catheters and tubing, surgical gloves and gowns and blood-, IV- and dialysis bags,” says **Monique Holtzhausen**, CEO of SAVA.

Ole Grøndahl Hansen, Project Manager at the **PVCMed Alliance** (Denmark), explained that since the 1960s, PVC has played a huge role in allowing the broader population access to affordable, quality

healthcare. “Thanks to its versatility and cost efficiency, PVC enables the mass-production of medical devices and reduces cross-contamination between patients. It has been extensively tested and researched for patient safety, and has a track record of billions of safe patient days,” he said. “PVC can be relied upon for its strength and durability under changing temperatures and conditions, can be formulated with excellent transparency to allow for continual monitoring of fluid flow and can be created in virtually any colour if colour-coded applications are required”.

Debbie Munford, Marketing Manager at **Isegen SA**, unpacked the role and future of plasticisers in medical applications such as IV bags, tubing used for haemodialysis, nasogastric feeding, respiratory and heart bypass machines, umbilical artery catheters and enteral nutrition feeding bags.

“Phthalate Plasticisers (DEHP) is a well-defined and tested plasticizer that facilitates the separation and storage of blood components. It increases blood safety and the efficiency of blood banking thanks to improved morphology, deformability and osmotic fragility. The increased durability and flexibility of PVC blood bags prevent container breakage and bacterial contamination, allowing blood to be stored for up to 49 days with an increased chance of survival and cell recovery,” she said.

Functional. Innovative. Trusted.

fit for
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Recycle your plastics.



It is important that materials used in medical applications should be capable of accepting or conveying a variety of liquids without themselves undergoing any significant changes in composition or properties. Whenever plastics are in direct contact with a patient's tissue or blood, a high degree of compatibility is essential. PVC offers exceptional chemical stability and high biocompatibility that can even be further increased through appropriate surface modification. Currently, medical devices are exempt from the requirement to substitute DEHP for another substance, although the European Union's REACH (Registration, Evaluation, Authorisation and Restriction of Chemicals) has mandated that all medical devices containing DEHP must undergo an authorization process prior to them being placed on the market in Europe. The latest date for authorization is set for mid-2022, with the sunset date for using DEHP expected to be towards the end of 2023.

"The scientific community is currently investigating the use of alternate plasticisers, but there are not many that are able to compete when it comes to clinical performance, offering an acceptable safety profile, meeting current manufacturing and storage requirements. We cannot afford to sacrifice on product quality or safety and will have to carefully balance the risk-benefit ratio," she said.

Tandy Coleman, CEO of Polyflor SA, educated the delegates about the important role vinyl floors play in hospitals, clinics, old age homes, rehabilitation and frail care facilities.

"Vinyl floors are hygienic as they create an impervious surface that is easy to maintain and clean. They inhibit bacteria growth, are waterproof, flexible, durable and offer excellent total cost of ownership," she said.

Design and functionality go hand-in-hand with vinyl floors, as they are not only beautiful to look at, but offer exceptional versatility, practicality and comfort. Vinyl floors are soft underfoot, shock and noise absorbent (thereby helping to reduce noise and stress thanks to their fantastic acoustic properties) and significantly reduce slips, trips and falls.

"A lot of research has gone into developing modern vinyl floors that aid health and the recovery of patients or treating dementia with the use of colours, textures and designs," she said.



THE CRITICAL ROLE OF PVC IN HOSPITALS & HEALTHCARE ENVIRONMENTS

Wednesday, 25 August 2021 from 10:00 - 12:00

JOIN SAVA AT OUR NEXT FREE-TO-ATTEND INDUSTRY WEBINAR DURING WHICH INTERNATIONAL AND LOCAL MATERIAL EXPERTS WILL TOUCH ON VARIOUS TOPICS, INCLUDING:

How does PVC compare with other materials? | Physical and chemical attributes that make PVC fit-for-purpose. International trends, developments and legislation regarding plasticisers | Initiatives to boost recycling of hospital waste.

Attendance is free, but registration essential.

Please register at <https://hopin.com/events/the-use-of-pvc-in-hospitals-healthcare-environments> or email Admin@savinyls.co.za for more information

 <p>Ole Grøndahl Hansen (PVC Med Alliance)</p> <p>Ole has been working with PVC-related issues for more than 25 years. His main areas of interest are the use of PVC in medical applications, recycling and PVC in art and design. Ole will explain why PVC is relied upon to provide safe and responsible care and healthcare solutions.</p>	 <p>Tandy Coleman (Polyflor SA)</p> <p>Tandy is the CEO of Polyflor SA - a specialist providers of vinyl floors to the healthcare, retail and hospitality industries. Tandy will explain why and how vinyl floors help to make hospitals healthier, safer places.</p>
 <p>Debbie Munford (Isegen SA)</p> <p>Debbie is the Marketing Manager of Isegen SA - the sole producer of plasticisers in Africa. Debbie will explain the role of plasticisers in PVC applications and then discuss their function in medical applications in particular.</p>	 <p>Delanie Bezuidenhout (My Walk Made With Soul)</p> <p>The My Walk Made With Soul initiative has successfully collected more than 41,000 kg of non-hazardous PVC medical waste from hospitals around SA, which has been recycled into school shoes for impoverished communities.</p>



Delanie Bezuidenhout, General Manager of My Walk Made with Soul, reported on their successes achieved with the collection and recycling of non-hazardous and uncontaminated PVC IV bags, PVC oxygen masks and PVC oxygen tubing from various participating Netcare hospitals.

"My Walk is a partnership between Adcock Ingram Critical Care and Netcare that manages the cradle-to -cradle process of collecting and recycling these products into new, durable and shiny school shoes made from 100 % recycled material!" she said.

It takes twenty empty IV bags and approximately 17 seconds to manufacture one pair of school shoes. With more than twenty hospitals around the country already participating in the project, the My Walk Made with Soul Project has already collected and diverted more than 41 913 kg of hospital waste from landfill.

"An IV bag is not just an IV bag. It provides life-sustaining and life-saving fluids to critically ill patients and then goes on to have an amazing second life as a pair of much-needed school shoes. There are nearly 5 million children in South Africa that go to school without the right shoes. The My Walk Made with Soul project aims to give these learners improved safety and comfort while proudly walking in shoes that have contributed towards reducing the country's landfill waste burden and emission of greenhouse gasses," she said.

- www.savinyls.co.za or www.pvcmed.org.

Malaria tracker launched to help affected Commonwealth countries tackle the disease

Malaria is present in most of the 54 member nations of the Commonwealth, and the Commonwealth Secretariat has announced the launch of a new tracker to help its members monitor progress towards halving malaria cases by 2023 and ultimately ending the disease by 2030.

Developed by a group of malaria experts and the Secretariat, the tracker was launched in June to coincide with the Kigali Summit on Malaria and Neglected Tropical Diseases.

The tracker supports a new report on progress towards the malaria commitment made by Commonwealth leaders in 2018 to halve malaria across endemic countries by 2023. This reduction would prevent millions of malaria cases and save thousands of lives.

Accelerated action is needed The report shows significant progress with nearly one-third of malaria-endemic Commonwealth countries on track to halve their case incidence and mortality rate from the disease by the end of 2019.

However, as a grouping, the Commonwealth is currently not on track to reach the 50% reduction target. In southern and eastern Africa, where most SADC countries are also Commonwealth members, Botswana, Namibia, South Africa and Zambia are on track, but Eswatini, Kenya, Malawi, Mozambique, Rwanda and Uganda are not, while Tanzania is “close”.

The report calls on countries to accelerate action in the coming years to reach the historic target in the face of severe disruptions in malaria services caused by the COVID-19 pandemic.

Speaking ahead of the launch, Commonwealth Secretary-General **Patricia Scotland** said: “Although COVID-19 has seized the world’s attention and resources, it is equally important for us to maintain focus on our pre-pandemic commitments and also sustain gains in malaria and other health conditions. Allowing ourselves to be distracted would result in irreparable damage to major health gains and human security.”

Health ministers welcome tracker and report In May, the tracker and report were presented at the annual meeting of Commonwealth health ministers. Health ministers endorsed both resources in their joint statement and agreed to accelerate action on the halving target as well as on their regional and global commitments to end malaria by 2030.

Speaking after the meeting, Rwanda’s Minister of Health, **Dr Daniel Ngamige** said: “It is clear from discussions at the health ministers meeting that we must get back on track to meet the commitment to halve malaria by 2023 and accelerate progress towards elimination in line with our global and regional commitments will be vital.”

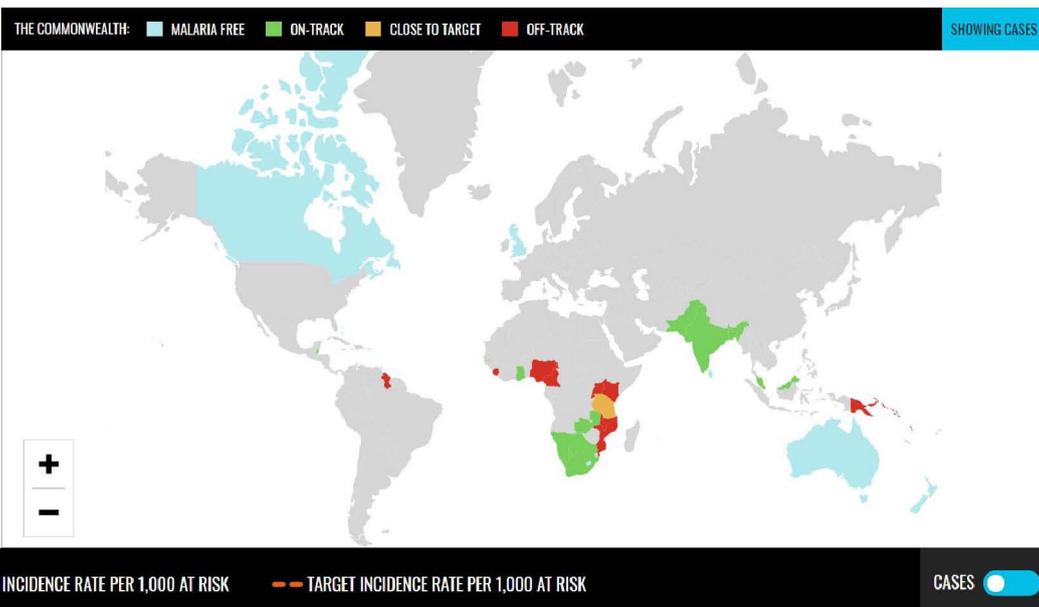
Investment in defeating malaria will not only save 217,000 lives in the Commonwealth every year, he added, but will also have an add-on effect on strengthening overall health systems that are well equipped to tackle outbreaks and protect all citizens.

“Rwanda is committed to lead by example in reducing the Commonwealth’s malaria burden. To achieve this, we need a constant dialogue between states and partners on how we can learn from each other on defeating malaria.”

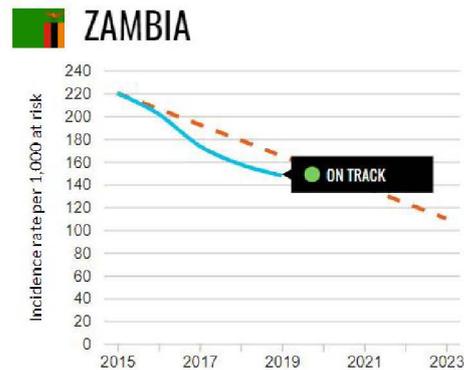
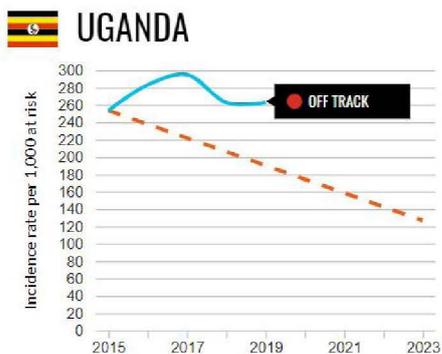
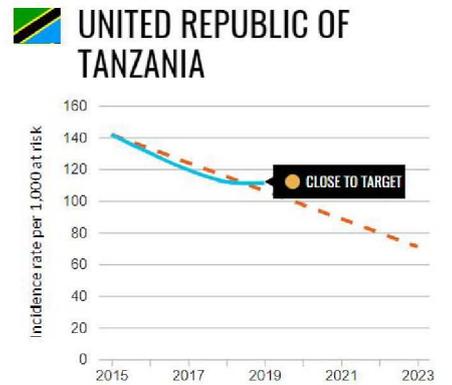
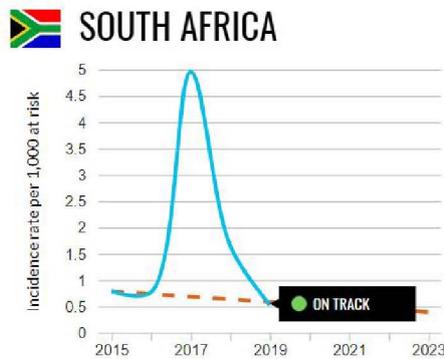
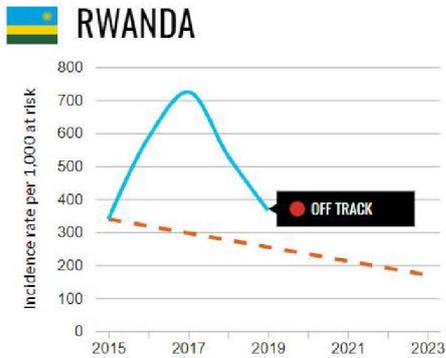
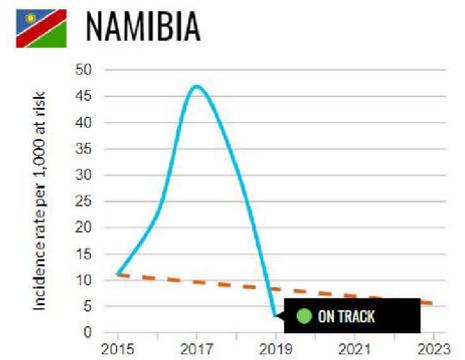
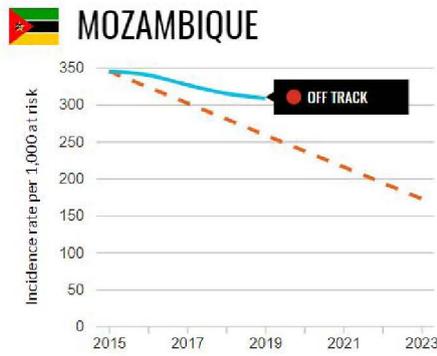
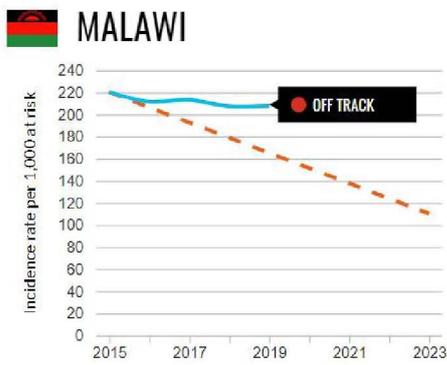
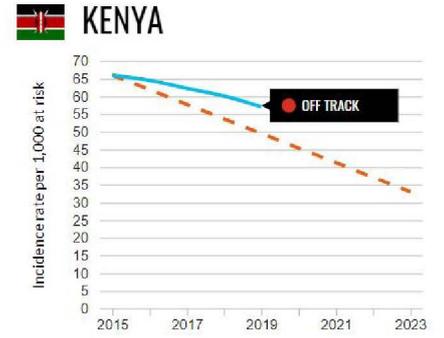
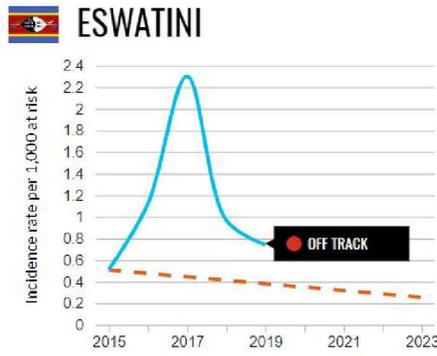
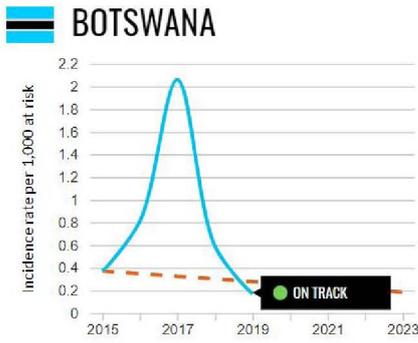
“We look forward to working with our Commonwealth partners to ensure the next CHOGM is a key milestone, both for our mutual accountability on the commitment and accelerating progress on defeating malaria.”

The digital tracker offers an interactive display to assist member governments in monitoring targets in graphs and maps as well as in identifying areas for improvement.

The tracker was produced by dentsu international’s global creative experience agency Isobar as part of the company’s pro-bono partnership and ongoing commitment to Malaria No More UK. The report benefited from the technical expertise of the African Leaders Malaria Alliance, the Asia Pacific Leaders Malaria Alliance, the RBM Partnership to End Malaria, the World Health Organization and Malaria No More UK.



The world map shows all Commonwealth countries, and the graphs (next page) indicate how the individual countries are doing in their efforts to eradicate malaria.



Do businesses need to provide PPE for employees working from home? There's certainly a case for respiratory protection, but this article, from U.S. publication *EHS Today*, suggests that businesses need to persuade working-from-home employees to take a culture of safety awareness home with them too.

We also have an article from a local perspective by Louise Woodburn, General Manager KBC Risk Solutions, on the responsibilities that businesses have for OHS for working-from-home employees.

Between Work and Home: The 21st Century Safety Paradox

After following all the safety rules at work, why do we do text and drive on the way home or overreach on a ladder while cleaning gutters? In his new book, safety expert and author Steve Casner says it's time to slow down and wise up.

As a research psychologist for NASA, **Steve Casner** spent decades analyzing how pilots think and helping turn those findings into safety protocols for the aviation industry. A few years ago, he found a new calling: making the world safer.

Collecting decades of personal anecdotes and global tragedies, loads of safety data and even more common sense, Casner authored *Careful: A User's Guide to Our Injury-Prone Minds* (available May 23).

This insightful, easy read is his attempt to show that despite our technology and greater emphasis on safety at work, we face just as many perils to our mortality and good health as our parents and grandparents, who never wore seatbelts and chain-smoked while filling up at the pump. For example, he mentions 4,005 people were killed at work in 2014, while 47,732 people headed to the emergency room following a TV set-related incident.

We recently asked Casner, a trained pilot and overall adrenaline seeker, how to re-calibrate our brains, so that a flawless safety record is the one thing from work we wouldn't mind bringing home.

NED: What made you decide to write this book?

Casner: I've been working in the aviation industry for almost 30 years and we've got aviation safety to the point where the odds of something bad happening to you on that airplane are infinitesimal. It is unbelievably safe. It's so safe that I think we may have helped to get rid of our own jobs, actually.

So, I started looking outside of the cockpit and I realized there are bigger problems out there. I got really interested in automobile safety.

We're now seeing an unprecedented rise in car crashes. How can this be happening? It got safer every year and now all of a sudden, it's leaping upward again.

And then I started looking at increases in ladder injuries. It's like all of a sudden, the safety gains we've enjoyed for 100 years just reversed and started going up again. What's going on?

We didn't turn into a bunch of klutzes or dum-dums. So, what could possibly explain this?

That question is what really captured my interest. Then I realized it was probably time to upgrade the way we all think about being careful.

NED: The workplace seems safer than ever, with a huge emphasis on protecting workers. So how are we still injury-prone?

Casner: We're not doing a good enough job of bringing workplace safety home. It's the same people in the United States that have a 2.9 percent fatality rate at work yet who have a 50 percent fatality rate at home. Just look at the words we use being at work and being at home: "I'm on (work), I'm off work."

We may be off a lot of things; maybe we're off our safety game.

NED: Why do you think that is?

Casner: In the workplace, we have a culture where we can make people go through safety training. We can infuse the safety mindset throughout the whole work environment. And then, of course, we do our job in the presence of other people. If I'm at home slicing a bagel, I'm the only one there. There aren't 10 other bagel slicers watching what I'm doing and there's no signage and I don't have to get checked out on any equipment.

People under-recognize how much support they get in the workplace.

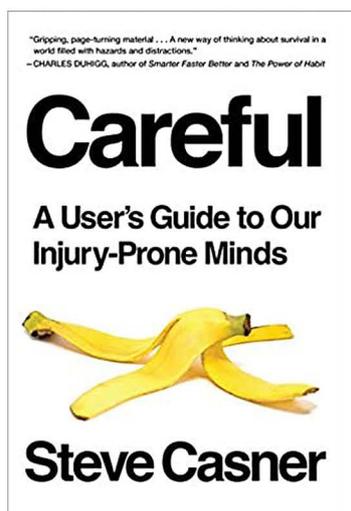
NED: How else are our minds injury-prone?

Casner: There are so many traps in our everyday thinking about being safe. When we're in a car, there's this belief that making a red light is somehow going to save us time. Study after study shows that whatever you gain here is just going to be frittered away somewhere else. And how many times do you watch someone hurry through an intersection and doesn't move when the next light turns green because they're on their phone?

We all make occasional errors but we're not that good at admitting it and preparing for them in advance. We tend to dismiss advice. Even really good advice.

We get risk all wrong. We worry in the back of airplanes that wouldn't crash if we rode on them 10 million times. Yet we'll stare down at a phone while we're in a crosswalk as if the drivers coming at us don't have phones of their own.

We need to seriously overhaul the way we think about being careful, and that's really the whole point of the book.



The cover of Steve Casner's book.

Employee health and safety remains the employer's responsibility in a work from home environment

By Louise Woodburn, General Manager KBC Risk Solutions, a Division of KBC Health & Safety

With many organisations now looking to adopt more flexible working hours on a permanent basis, the Work From Home (WFH) trend is here to stay. While this offers numerous benefits, there are certain considerations organisations must bear in mind. Not least of which is the fact that they remain responsible and liable for the health and safety of their employees when staff are working at the office, at home or remotely. Businesses need to understand the implications of WFH from a health and safety perspective and engage with the right partner to ensure they have the policies and procedures in place to protect themselves and their staff from harm.

The workplace from an OHS perspective

The Occupational Health and Safety (OHS) Act defines the workplace as any place where a person performs work for the employer. By extension, this now includes many people's homes. Employers therefore have a legal obligation, as far as reasonably practicable, to ensure that the home office environment is safe and without risk. The same requirements apply to the home working environment as to the formal office space, and organisations need to keep this in mind when it comes to their WFH strategy.

Risks versus benefits

For many employees, WFH has been incredibly beneficial. It has permitted a greater degree of work/life balance, significantly cut down on commuting costs, improved productivity and enabled more flexibility in terms of working hours. It has resulted in higher employee retention, and employers can recruit candidates from outside of a specific geographical area.

However, there are also risks involved in the WFH environment. Often, employees may have difficulty in adjusting to this new working environment, avoiding distractions, and remaining motivated. There is also the risk of overwork because the geographical boundaries between work and home have been removed. The elements of stress and fatigue come into play, as well as feelings of isolation resulting from lack of in-person interactions with co-workers.

Aside from these 'softer' challenges, organisations also need to ensure that the equipment staff are using, including



Louise Woodburn...Work from home has brought many benefits, but also some pitfalls.

computers, desks, chairs and so on, meet the same specifications as those in a formal office. It is the responsibility of the employer to provide ergonomically safe equipment and ensure that employee environments are conducive to productivity.

The implications of WFH on OHS

The duties of the employer remain the same regardless of where the workforce is performing their jobs. They need to provide safe workplaces that have sufficient light and ventilation, that are ergonomically sound, and that meet all the criteria specified in the OHS Act. In addition, if an employee is injured at work, regardless of whether work is in an office or at home, they may be entitled to compensation. This becomes complex in the WFH scenario, as it is difficult to define which parts of the home are considered 'work'.

To cover these scenarios, a WFH policy needs to be developed, defining a scope of boundaries along with requirements for a safe working environment. It is imperative that businesses consult with employees who are working remotely to ensure that they have the equipment and resources required to perform the scope of work required. It is also important to compile a risk assessment covering all elements of potential harm, from fire hazards and proper use of equipment to the possibility of burnout and fatigue. Employers must have policies and guidelines in place on their expectations for home workplaces, defining the parameters required to manage potential risk and liability. The WFH policy needs to be drawn up by a partner who has the necessary Occupational Health & Safety (OHS) expertise.

The right partner is essential

Employers have both a moral and legal obligation to create safe workplaces, but WFH adds a layer of complexity to managing employee health and safety. Collaborating with an experienced specialist partner that understands the potential implications and liabilities, is essential.

Not only will the right partner be able to identify the risks of a WFH environment and develop policies that mitigate them but they will also help to ensure that employees are happy, healthy and safe. This includes physical health and mental wellbeing.

In this changing environment, health and safety considerations need to evolve. The key is to identify risk, put the right controls in place, create awareness around the issues, and continuously monitor and review to ensure they remain relevant.

A statement by BBF Safety Group

Championing local manufacturing in workplace safety solutions

Pinetown, KZN, SA - BBF Safety Group is an integrated workplace safety solutions provider that helps customers create safe working environments. BBF Safety was formed on the basis of championing local manufacturing, procurement and SMME development – an objective more relevant now to get the South African economy back on its feet than possibly at any other time in this country's history.

How it Began In 2014, four of South Africa's largest safety footwear manufacturers joined forces to create BBF Safety Group (Pty) Ltd. The merger created the largest safety footwear manufacturer in Africa.

Since then BBF has transitioned to being an integrated workplace safety solutions provider now offering a full portfolio of head-to-toe Personal Protective Equipment (PPE) and SHEQ services including training.

We are a proudly South African business, employing more than 1,200 people at four ISO:9001 accredited manufacturing facilities across the country.

The Portfolio BBF's safety footwear portfolio incorporates renowned brands such as **Lemaitre, Frams, Bronx Safety, Sisi** and South Africa's market-leading **Bova** range which is manufactured from the Pinetown premises. **Wayne** gumboots as

part of the portfolio has long been established as one of Africa's leading gumboot manufacturers having serviced the South African market for 80 years and counting.

We also manufacture work wear, fall arrest systems and specialised thermal protection wear, while the **Nikki** brand of hard hats and face masks is well-established in the head and respiratory protection categories. As an entity BBF is able to supply solutions throughout the various PPE categories, actively working to industrialise and localise ranges as far as possible.

Industrialisation, Transformation & Development BBF Safety Group's mission has been to ensure economic empowerment, transformation and development in South Africa, forging partnerships with local SMMEs both upstream and downstream of the supply chain to create a network of highly committed, professional and efficient local suppliers and distributors.

We will continue to strive to service the safety needs of industries both domestically and abroad, while playing our part to drive the South African economy; through both our own manufacturing and services, as well as the suppliers and business partners with whom we work.

Find out more about our workplace safety solutions. - www.bbfsafety.com, info@bbfsafety.com, +27 (0)31 710 0400

Sustainability

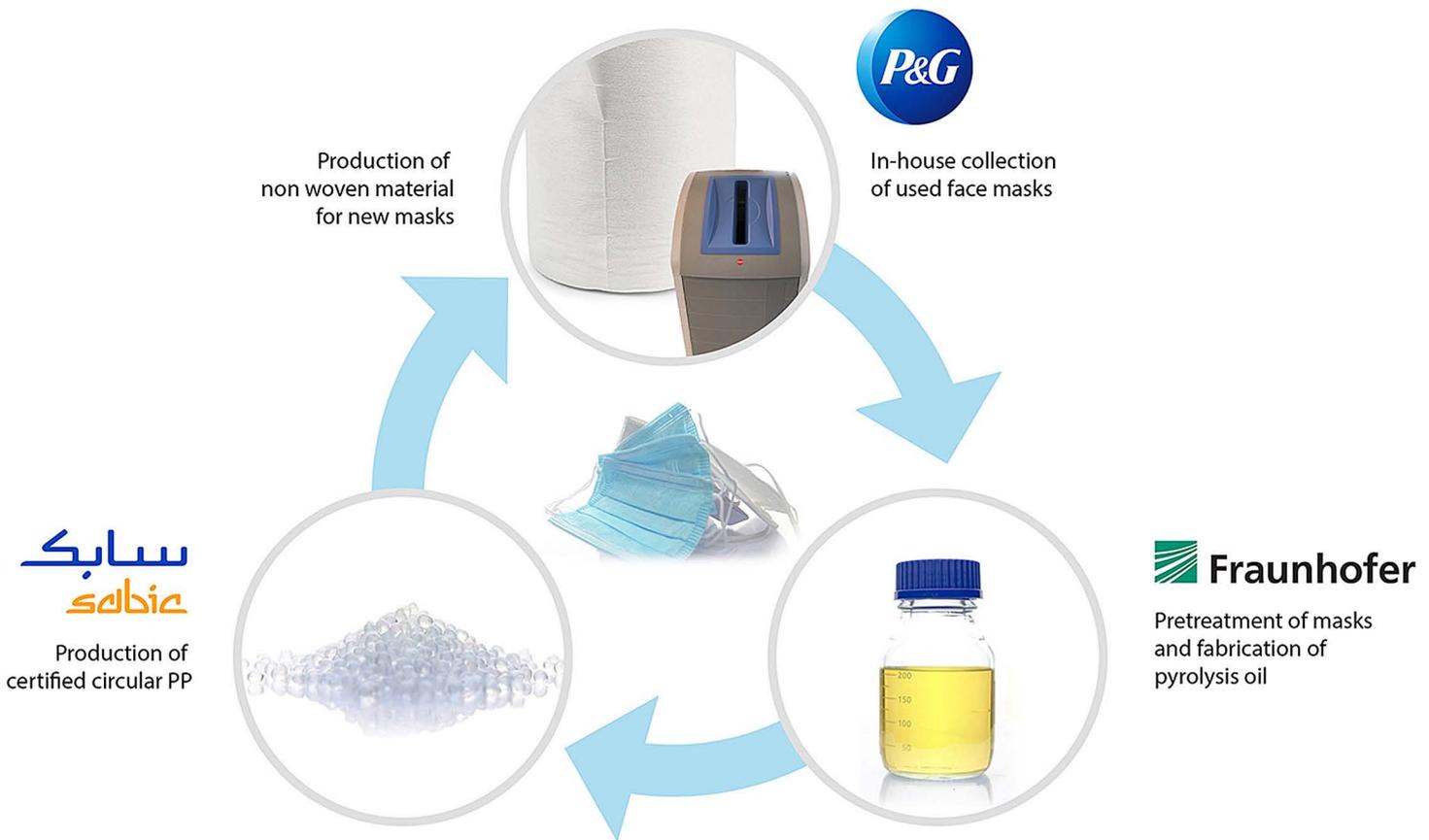
Recycling pilot project for single-use face-masks

(16 June 2021) - Fraunhofer Institute UMSICHT, SABIC and Procter & Gamble (P&G) have collaborated in an innovative circular economy pilot project which aimed to demonstrate the feasibility of closed-loop recycling of single-use facemasks.

Due to COVID-19, use of billions of disposable facemasks is raising environmental concerns especially when they are thoughtlessly discarded in public spaces, including parks, open-

air venues and beaches. Apart from the challenge of dealing with such huge volumes of essential personal healthcare items in a sustainable way, simply throwing the used masks away for disposal on landfill sites or in incineration plants represents a loss of valuable feedstock for new material.

"Recognizing the challenge, we set out to explore how used facemasks could potentially be returned into the value chain



In an innovative circular economy pilot project, Fraunhofer, SABIC and Procter & Gamble have demonstrated the feasibility of closing the loop on facemasks to help reduce plastic waste and mitigate fossil resources depletion. © SABIC / Fraunhofer

of new facemask production,” says **Dr. Peter Dziezok**, Director R&D Open Innovation at P&G. “But creating a true circular solution from both a sustainable and an economically feasible perspective takes partners. Therefore, we teamed up with Fraunhofer CCPE and Fraunhofer UMSICHT’s expert scientists and SABIC’s T&I specialists to investigate potential solutions.”

As part of the pilot, P&G collected used facemasks worn by employees or given to visitors at its manufacturing and research sites in Germany. Although those masks are always disposed of responsibly, there was no ideal route in place to recycle them efficiently. To help demonstrate a potential step change in this scenario, special collection bins were set up, and the collected used masks were sent to Fraunhofer for further processing in a dedicated research pyrolysis plant.

“A single-use medical product such as a face mask has high hygiene requirements, both in terms of disposal and production. Mechanical recycling, would have not done the job” explains **Dr. Alexander Hofmann**, Head of Department Recycling Management at Fraunhofer UMSICHT. “In our solution, therefore, the masks were first automatically shredded and then thermochemically converted to pyrolysis oil. Pyrolysis breaks the plastic down into molecular fragments under pressure and heat, which will also destroy any residual pollutants or pathogens, such as the Coronavirus. In this way it is possible to produce feedstock for new plastics in virgin quality that can also meet the requirements for medical products” adds Hofmann, who is also Head of Research Department “Advanced Recycling” at Fraunhofer CCPE.

The pyrolysis oil was then sent to SABIC to be used as feedstock for the production of new PP resin. The resins were produced using the widely recognized principle of mass balance to combine the alternative feedstock with fossil-based feedstock in the production process. Mass balance is considered a crucial bridge between today’s linear economy and the more sustainable circular economy of the future.

“The high-quality circular PP polymer obtained in this pilot clearly demonstrates that closed-loop recycling is achievable through active collaboration of players from across the value chain,” emphasizes **Mark Vester**, Global Circular Economy Leader at SABIC. “The circular material is part of our TRUCIRCLE™ portfolio, aimed at preventing valuable used plastic from becoming waste and at mitigating the depletion of fossil resources.”

Finally, to close the loop, the PP polymer was supplied to P&G, where it was processed into non-woven fibre material. “This pilot project has helped us to assess if the close loop approach could work for hygienic and medical grade plastics.” says **Hansjörg Reick**, P&G Senior Director Open Innovation. “Of course, further work is needed but the results so far have been very encouraging”.

The entire closed loop pilot project from facemask collection to production was developed and implemented within only seven months. The transferability of advanced recycling to other feedstocks and chemical products is being further researched at Fraunhofer CCPE.

The NPD Group: Addressing safety, changes in workplace, and digital are key to recovery for Europe foodservice industry

Port Washington, NY, U.S. (20 July 2021) – According to the latest report from The NPD Group, COVID-19 Foodservice Sentiment Study: Europe, a large part of the European population expects to return to dine-in restaurants as soon as COVID-19 restrictions are lifted, with 93% stating they have either already returned to restaurants or expect to be returning to restaurants before the end of the year. But while many consumers expect to go back to dining occasions comparable to what they were doing before the pandemic, one-quarter of them expect to do it less frequently.

Safety measures against COVID-19 are one of the main factors for European consumers when choosing a restaurant, including maintaining the distance between tables at 59%, hygienic cleaning procedures (58%), the availability of outdoor areas (49%), limited capacity (48%), and staff being equipped with masks and gloves (46%).

“In March 2020, 29% of consumers agreed that restaurants were the riskiest places to be infected with COVID-19. Thanks in part to safety measures, which Europeans continue to support, that number has dropped consistently every month and is practically non-existent today,” said **Jochen Pinsker**, senior vice president Foodservice Europe, The NPD Group.

Prior to the pandemic, 77% of consumers worked in an office or other type of on-site workplace environment. This declined

to 57% during the pandemic, and is only expected to increase to 62% after the pandemic. Though the overall impact this will have on the restaurant industry isn't known, there is no doubt that all foodservice providers will need to shift their businesses to succeed in this 'new normal' environment.

The importance of the industry's digital services during the pandemic cannot be overstated. Today 43% of consumers say they plan to continue using digital devices to order or pay for food after the pandemic has ended. Almost one-third of Europeans think that a restaurant without digital order services is outdated and old fashioned, meaning digital services have not only affected purchasing behaviour but they are also key to the image and perception that the consumer has of any given restaurant.

“The containment measures imposed by governments throughout the pandemic have led to significant shifts in how we operate in foodservice that can overwhelm even the most business savvy in the industry,” said Pinsker. “Whether it's adopting new technology, delivery or take-away models, providing safe socializing opportunities for consumers, or opening restaurant locations in suburban centres and closer to where more people live, all options should be explored to future-proof businesses while remaining competitive and profitable.”

**Europe 6: France, UK, Russia, Spain, Italy, and Germany*

Counterfeits

PPE high on the list, and free trade zones make control more difficult

COVID-19 and counterfeit goods: Criminals exploiting a health crisis



By Godfrey Budeli, Partner | Trade Mark Attorney, Adams & Adams

During the global COVID-19 pandemic, governments around the world implemented national lockdowns to contain the spread of the virus. As a result, borders were closed to passengers but specified cargo and retail goods for certain essential products and supplies were permitted.

Despite these unprecedented restrictions on movement for people and freight, criminals have been one step ahead of law enforcement and the counterfeit goods market has continued to thrive. Criminal enterprises or syndicates have simply devised new strategies to evade law enforcement and exploit transshipment loopholes to subvert customs duties and avoid the detection of counterfeit products moving from one continent/country to the next. These strategies include transporting counterfeit goods through chartered aircrafts that can land during the night at obscure airports where customs inspection controls and clearance are usually

relaxed. Free trade zones, such as that of the African Continental Free Trade Area (AfCFTA), heightens the risk of illicit trade due to less rigid tax and customs regulations.

Many of these fake goods have been COVID-19-related, such as counterfeit soaps, sanitisers, thermometers, testing kits, personal protective equipment (PPE), pharmaceuticals and now vaccines.

Traditionally, counterfeit goods originate and flow from Asia to Africa. However, demand for PPE fluctuated from one continent and country to another depending on the rise or decline in the number of COVID-19 infections. An interesting phenomenon of a large flow of PPE products from certain African States to Europe, specifically UK, Spain and Italy, was observed.

In South Africa, customs and South African Health Products Regulatory Authority (SAHPRA) officers seized many consignments of unregistered and prohibited medicines, as well as unauthorised antiviral medication at airports and warehouses after the implementation of the national lockdown. In one example, police seized 2 400 fake COVID-19 vaccine doses, large quantities of counterfeit N95 face masks and footwear originating from China in a warehouse in Germiston in November last year. Since then, Interpol has issued a global alert to law enforcement across its 194 member countries warning them to prepare for organized crime networks targeting COVID-19 vaccines, both physically and online.

With the rise of e-commerce during lockdown, consumers are more vulnerable to counterfeit goods available online. Websites, social media and the dark web can be used by organised criminal groups to prey on fears about the pandemic, where anxious buyers do not question the origins of goods that they are offered. Furthermore, encrypted digital platforms and communication applications have made it easier for organised crime groups to directly target businesses and consumers from remote locations anonymously, making it near impossible for law enforcement agencies to investigate and criminally prosecute.

The COVID-19 pandemic has once again shown us that criminals are quick to grab opportunities, adapt to market

changes and invest in infrastructure for their own gains. But the trade in COVID-19 related counterfeit goods is more than just an illicit activity – it poses massive threat to public health and safety globally, as well as loss of revenue to companies that own the Intellectual property (IP), subverts government taxes, and potentially discourage innovation. Before the pandemic, it was estimated that the value in global trade in counterfeit goods would exceed US\$4.2 trillion by 2022, with this figure now predicted to be even more.

Generally speaking, many countries in Africa do not have proper legislative framework or dedicated enforcement agencies or courts to mitigate the dangers posed by the counterfeit goods trade. Strengthening collaboration and a co-ordinated response amongst relevant stakeholders at international, regional and local levels is therefore critical in the fight against the scourge and proliferation of counterfeit goods trade. In addition, many international enforcement agencies, like Interpol and the World Customs Organisation, need to be allocated resources and capabilities to combat this type of organised crime. Follow the funds approach is a must to dismantle cross-border organised crime, including money-laundering.

Equally, brand holders must unite and collaborate in the fight against the counterfeit goods market. Sharing of information and joint intelligence driven operations are key in dismantling criminal enterprises. Through the services of specialist legal professionals, brand holders can benefit from the best practices to ensure the protection of their IP rights, the routinely monitoring of infringing activity, intelligence driven search and seizure operations, and civil and criminal litigation avenues.

The lack of proper legislative framework, weak border and in-market enforcement, limited resources, corruption and other challenges should not deter brand holders from enforcing their IP rights to protect their brands and the consumers. These challenges are not insurmountable and legal avenues are available to effectively address the scourge and proliferation of counterfeit goods in each country in the African continent. - godfrey.budeli@adams.africa

Respiratory Protection

What is radon gas? Is it dangerous?

An explanation by the United States Environmental Protection Agency (EPA).

Radon is a naturally-occurring radioactive gas that can cause lung cancer. Radon gas is inert, colourless and odourless. Radon is naturally in the atmosphere in trace amounts. Outdoors, radon disperses rapidly and, generally, is not a health issue. Most radon exposure occurs inside homes, schools and workplaces. Radon gas becomes trapped indoors after it enters buildings through cracks and other holes in the foundation. Indoor radon can be controlled and managed with proven, cost-effective techniques.

Breathing radon over time increases your risk of lung cancer. Radon is the second leading cause of lung cancer in the United States. Nationally, the EPA estimates that about 21,000

people die each year from radon-related lung cancer. Only smoking causes more lung cancer deaths.

You can take steps to reduce and control the amount of radon in your home. Testing is the only way to determine radon levels. Have your home tested, either by a professional or with a do-it-yourself home test kit. If radon levels are high, contact a certified radon service professional to fix your home. EPA guidance suggests mitigating if levels are at or above 148 Becquerels/meter³ (4 picocuries/liter). Usually, radon problems are fixed using an underground ventilation system or by increasing the rate of air changes in the building.

For more information about indoor air quality and the health risk of radon, visit [Health Risk of Radon](#).

BLOG POST - 12 AUGUST 2021 10:00

How does radon gas affect humans?



Radon gas is responsible for 55% of the total exposure of the general public to natural ionizing radiation (UNSCEAR report 2000). We can always find elevated radon levels indoors, and we are breathing radon gas everywhere. However, questions arise such as why is radon gas dangerous and how does it affect humans?

Introduction: Rn alpha radiation and physics

Radon is a noble gas whose radioactive isotope Rn-222 is usually known as radon. Due to the radioactive properties of Rn-222, it emits alpha radiation during its radioactive decay. Alpha radiation is ionizing radiation. It means that the radiation has enough energy to extract electrons from the atoms. Therefore, atoms reach the so-called ionizing state of energy. In addition, the half-life of Rn-222 is 3.8 days which is long enough to enable to detection of the gas.

Ionizing radiation and damage to human DNA

Alpha radiation and radioactivity are ionizing radiations, which means that they can affect our cells' DNA. Other types of ionizing radiation are beta and gamma. However, alpha particles have a high mass (massive particles at the atomic scale). They can deposit much more energy per unit of distance. This energy deposition is much higher than what derives from beta or gamma radiation. Yet, the damage that alpha radiation causes to our DNA is much more significant.

Research on how radon can cause lung cancer

One of the characteristics of radon is that it is a noble gas. It implies that it cannot create chemical compounds with other elements. So, why is it dangerous? We need to focus on its daughters. They are not gases but radioisotopes that can attach to the respiratory tract tissues, our lungs, etc. Some of the radon daughters (Po-218 and Po-214) are alpha emitters which have high energies. The end result being high energy alpha emitters that can attach to the tissues in our lungs.

The International Agency for Research on Cancer (IARC) classified radon as carcinogenic agent group 1 in 1988.

Today, there is no doubt that radon gas is responsible for many lung cancer deaths across the world. Many scientific studies have demonstrated this; for example, Sarah Darby et al. concluded in 2005 that "radon is responsible for about 2% of cancer deaths in Europe".

In summary, the only way to know your level of radon exposure is through a radon test. You can easily order your test [here](#)

The Fraunhofer-Gesellschaft, headquartered in Germany, describes itself as the world's leading applied research organization. With its focus on developing key technologies that are vital for the future and enabling the commercial exploitation of this work by business and industry, Fraunhofer plays a central role in the innovation process. Health, safety and PPE are frequently part of its research.

Medical engineering

A contact lens for the ear

Mannheim, Germany (01 July 2021)

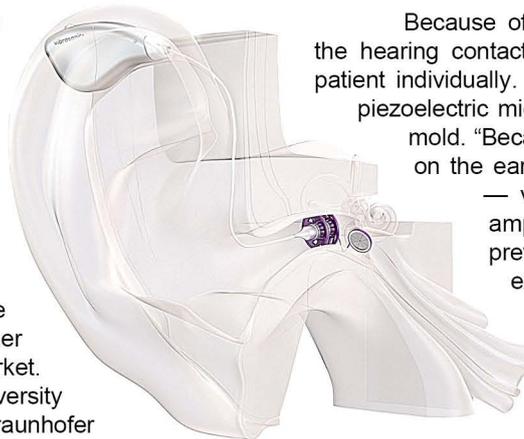
- Excessive noise, hearing loss, vascular constriction, old age – hearing difficulties can be caused by many factors. To help improve the quality of life of people with hearing impairment, Mannheim start-up Vibrosonic have developed a new, innovative hearing aid with an integrated loudspeaker that sits directly on the eardrum. This hearing contact lens® is not an implant, and the sound quality it delivers outperforms other hearing systems currently on the market. Vibrosonic is a spin-off company of the University of Tübingen's ENT clinic and the Fraunhofer Institute for Manufacturing Engineering and Automation IPA through its Project Group for Automation in Medicine and Biotechnology PAMB.

According to the German association for the hearing impaired – Deutscher Schwerhörigenbund e.V – some 15 million Germans are hard of hearing. In many cases, hearing aids can improve hearing ability and simplify the day-to-day lives of those affected. With most standard hearing devices, the loudspeaker sits inside the wearer's ear canal. This produces acoustic distortions that can impair sound quality. The microphone is positioned behind the ear where it is susceptible to noise interference such as wind. With its innovative hearing solution, Mannheim start-up Vibrosonic are set on resolving these challenges. The company was founded in 2016 by **Dr. Dominik Kaltenbacher** and **Dr. Jonathan Schächtele** – former research scientists at the Fraunhofer Project Group PAMB – and **Dr. Ernst Dalhoff** from the University of Tübingen ENT clinic. Five years on, Vibrosonic employs a staff of 27 today.

Based on their innovative hearing contact lens®, Vibrosonic's hearing solutions amplify sound within the 80 Hz to 12 kHz frequency range

Vibrosonic alpha, the spin-off's first CE-certified hearing solution, consists of three components: the hearing contact lens®, an auditory canal module and a behind-the-ear module. The hearing contact lens® and auditory canal module remain securely inside the auditory canal; the behind-the-ear module can be removed. With the hearing contact lens®, rather than just sitting inside the auditory canal, the loudspeaker is positioned right onto the eardrum. It transmits vibrations to the ossicle directly, with no interference from airborne noise. Sound is transmitted through direct mechanical stimulation of the ear. This helps reproduce the natural hearing process very effectively.

The hearing contact lens®, loudspeaker and one of the three components of Vibrosonic alpha, is capable of amplifying sounds across the complete audible frequency spectrum, ranging from under 80 Hz to 12 kHz. Conventional systems are not able to do this.



The hearing contact lens® and the auditory canal module are connected to a sound processor that is worn behind the ear. The behind-the-ear module incorporates the signal processing electronics and the battery, and can be removed. The auditory canal module and hearing contact lens® remain securely in place inside the ear. - © Vibrosonic

Because of differences in the shape of every eardrum, the hearing contact lens® is specifically manufactured for each patient individually. In this process, the Vibrosonic actuator — a piezoelectric micro-loudspeaker — is integrated into a silicon mold. "Because our hearing contact lens® is worn directly on the eardrum — just like a contact lens on your eye — very low and particularly high tones can be amplified very effectively, while the lens' principle prevents disruptive noises caused by feedback. For example low tones are crucial when listening to music, because they make the sound richer.

The ability to hear high tones properly is important for speech comprehension, as the coded overtones shape the character of the voice," Vibrosonic CEO **Dr. Dominik Kaltenbacher** explains.

Actuator structures one thousand times smaller than a human hair With severe hearing loss or extreme miniaturization, conventional hearing aids reach their limits due to feedback and

distortion effect – a result of the performance limitations of the coil-based loudspeakers that have been used up to now. "Our hearing contact lens® uses the world's first hearing device loudspeaker to have been consistently developed and manufactured based on microsystems engineering methods – the Vibrosonic actuator. The individual structures within the Vibrosonic actuator are a thousand times smaller than the width of a human hair. Despite its very small size, it delivers extraordinary hearing performance," Kaltenbacher explains.

A hearing system for patients with mild to moderately severe hearing loss Initial studies with a small number of participants have shown that the Vibrosonic alpha can improve the hearing experience of people with mild to moderate hearing impairment. The system is suitable for patients over 18 years of age and can be worn on one or both ears, depending on the degree of hearing loss. However, there are plans to reduce the size of the hearing system's current components, such that they fit discretely deep inside the ear channel, where they are invisible from the outside.



No bigger than a button: the hearing contact lens® is the heart of the Vibrosonic alpha's hearing technology. - © Vibrosonic

Safe human-robot collaboration

In more and more areas, people and robots are sharing work spaces. Safety plays a crucial role in this environment. So far, distance sensors on robots have prevented serious accidents or crushing in collisions. However, sensors do not work when the operator and the machine have to be close together, such as in pre-assembly. In this case, other solutions are needed. With the Cobot-Planner, research teams from the Fraunhofer Institute for Factory Operation and Automation IFF have developed a web-based application that determines at which robot speeds safe cooperation is ensured.



The Cobot Designer enables businesses to reduce their engineering work significantly when they are implementing their HRC applications. - © Fraunhofer IFF

The safety of people interacting with robots has top priority, especially when humans and robots are working side by side instead of being separated from each other by safety fencing. The Fraunhofer Institute for Factory Operation and Automation IFF's web-based design tool helps companies design their cobots. The Cobot Designer helps minimize the risk of accidents and increases employee safety. The tool is available as a free web application.

Humans and robots are sharing workspace in more and more sectors, whether they be manufacturing, logistics or medicine. Safety plays a major role in this. Up to now, range-finders on robots have prevented severe impacts or crushing when collisions occur but these sensors do not function when humans and machines have to stand close to each other, e.g. in subassembly. This requires other solutions. Teams of Fraunhofer IFF research scientists have developed a web-based application, the Cobot Designer, which ascertains the robot speeds that ensure safe collaboration. The design tool helps programmers design cobots safely. The project was contracted by the German Social Accident Insurance Institution for the Woodworking and Metalworking Industries (BGHM).

Digital Hazard Prevention for Cobotic Workstations Anyone acquiring cobots for their business must perform a legally required risk assessment. Companies must identify specific potential hazards and foreseeable misuse by employees beforehand.

The maximum speed a robot is permitted to reach is measured when it is certified for safety. A special device measures impact forces and pressures that act on anyone who comes into contact with the robot. The limits from the standard ISO/TS 15066 may not be exceeded. Otherwise, the robot's speed would have to be reduced to prevent injuries to employees caused by clamping or impact. Such measurement is costly and requires expertise. The robot must be programmed and built. "Small businesses in particular can't afford this. What's more, measurements are taken too late since the robot has already been purchased. Our Cobot Designer for digital hazard prevention comes into play here," says **Dr. Roland Behrens**, research scientist at the Fraunhofer IFF. Companies can use the interactive tool before making a purchase to assess whether the robot's speed suffices to perform a particular job productively and, above all, safely. "The amount of force is contingent on the robot's speed," says Behrens. If limits are exceeded, productivity subsequently suffers. "Let us assume the robot has to presort a pallet in one minute. If the speed has to be reduced by fifty percent for safety reasons, the cycle time increases to two minutes, reducing the robot's economic efficiency 50%," explains the research scientist, adding, "That's why being able to perform an economic feasibility analysis before purchasing a robot would be desirable."

Cobot Designer Is Intended to Replace Measurement with a Tester The Cobot Designer prevents bad purchases and more potentially necessary measurements. Using the design tool will enable businesses to reduce their engineering work significantly when they implement future HRC applications. "The goal is to use computer simulation, as the Cobot Designer does, to dispense with measurements entirely in the future" The tool is available for free on www.cobotplanner.de to anyone designing an HRC workstation. The digital design tool runs on all browsers.

It is easy to use: The user merely has to enter the parameters for the robot, the hazard and the tool used, e.g., a gripper. Then, the Cobot Designer automatically computes the effect of contact between a human and the robot as well as the robot's maximum permissible speed. The tool also provides the option of loading proprietary, custom robot models. Parameters no longer need to be entered then.

Various biomechanical robot and hazard models constitute the technological basis. The user can combine different robots, hazard situations and tools, thus compiling and continuously expanding a catalogue. All the data entered can be downloaded and reused at a later time. Inputs are not stored on the Cobot Designer's server to protect data.

Stress Tests with Subjects Deliver Data for the Biomechanical Model The biomechanical model precisely simulates the extent to which clamping and impact stress a person. It comprises all twenty-nine relevant body parts where a person can feel pain, including the head, for instance. This model draws from the results of the one and only human subject study in the world to ascertain biomechanical limits, which was conducted by the Fraunhofer IFF and contracted by the German Social Accident Insurance DGVU and the BGHM. The Fraunhofer IFF validated the results of the Cobot Designer's simulation experimentally in stress tests with human subjects together with physicians from Otto von Guericke University Hospital's Traumatology Clinic and with the involvement of the appropriate ethics commission. The tests ran from 2015 to 2019

Magnetic pulse welding

Optimized joining technology is opening the door to the safe use of hydrogen in the aviation industry

Dresden, Germany (01 April 2021) - Eco-friendly flying is on the horizon. All over the world, researchers are developing new technologies to achieve this goal. One focus of developments is the idea of using hydrogen-powered engines for aircraft in the future. The aircraft companies, though, face the challenge of storing this energy source. Hydrogen turns liquid when cooled to -253° Celsius, and only then can it be used as a so-called cryogenic fuel. Both tanks and pipe systems in the aircraft have to be absolutely tight at such low temperatures. An innovative new welding process has been developed to help: magnetic pulse welding. Researchers at the Fraunhofer Institute for Material and Beam Technology IWS in Dresden have now demonstrated that this joining technology can produce extremely resilient, metallic mixed joints for cryogenic applications. They successfully achieved these outstanding joint properties in cooperation with the Technical University of Munich.

Scientists at Fraunhofer IWS provided the research neutron source Heinz Maier-Leibnitz (FRM II) at the Technical University of Munich with a special component made of copper, high-grade steel and aluminium for its cryostats – cooling systems that are able to maintain extremely low temperatures. Until now, this assembly had to be produced by a complex process involving multiple laser beam welded seams, additional joining elements and a brazed or electron beam welded seam. “But then there were problems with stability and tightness,” explains **Dr. Markus Wagner**, Group Manager Design and Special Processes at the Fraunhofer Institute for Material and Beam Technology IWS. The magnetic pulse method creates tighter joints within just a few microseconds. These joints function reliably both at very low temperatures of down to -270° Celsius and also wherever extreme temperature differences prevail. Overlaps, which provide even more stability, are also created at the joints.

The technologies previously applied by the researchers at the Technical University of Munich are among the group of fusion welding processes. Metals are fused to create a joint between them. However, these methods rely on the metals having similar fusion points. This is the temperature at which a substance begins to fuse. As **Dr. Jürgen Peters**, Head of Sample Environment at the research neutron source Heinz Maier-Leibnitz (FRM II) of the Technical University of Munich explains: “The problem comes when we try to create joints between metals that have highly dissimilar fusion temperatures or become extremely brittle when mixed together – aluminium with copper or high-grade steel, for example. The samples welded by the magnetic pulse method provided by our partners at Fraunhofer IWS passed the tightness tests.”

Fast, cost-efficient joining Scientists in Dresden have been researching a new process for several years now. The materials do not need to be fused. “Magnetic pulse welding is not based on a high heat input. The process relies mainly on a high pressure between the joining partners,” explains **Jörg Bellmann**, expert in magnetic pulse welding in Markus Wagner’s group. When the process starts, there is a distance of 1 to 1.5 millimetres between the joining partners. A magnetic field causes one of the two partners to accelerate. In the rest of the process, the metals collide

with a bright flash at high speeds – 200 to 300 metres per second. A high pressure is then generated on the joining surface and this ultimately welds the two metals together. A measuring system, likewise developed at Fraunhofer IWS, guarantees throughout all this that the components are correctly positioned, collide at the right angle and that the entire process consumes the smallest possible amount of energy.

Process scores highly with liquid hydrogen The great advantage of magnetic pulse welding: It can join combinations of metals which, until now have been impossible or difficult to weld together – especially important when it comes to liquid hydrogen applications. Materials with poor thermal conductivity, high-grade steel for example, have to be joined to lightweight construction materials such as aluminium. The new process now makes this possible. “The temperature only really gets hot at the boundary surface itself,” reports Wagner. The process is said to be fast and cost-efficient and is able to produce joints of a consistently high quality. “We can also employ this method to combine extremely thin-walled components,” adds Bellmann. This is made possible by introducing special supporting elements that can be removed again when the process is complete.

And the new process holds potential for more than just aircraft construction. Its good electrical conductivity in the joining zones also makes it an attractive proposition for the electromobility sector and for processes in the electronics manufacturing industry. “This welding technology will also create new possibilities for space travel,” of that Bellmann is convinced.



Magnetic pulse welding is able to create solid state joints between dissimilar materials like copper, aluminium and steel. The method fulfils the tightness requirements even at very low temperatures, in systems for storing and distributing liquid hydrogen for example. - © ronaldbonss.com



With magnetic pulse welding, the magnetic pressure of a tool coil ensures a high-speed collision and the formation of a solid state joint of several millimetres in width, as well as high stability and leak tightness, even under extreme application conditions. - © ronaldbonss.com

Fraunhofer programme to fight against the pandemic

Disinfection robot:

Value created by linking up to building data



A disinfection robot de-monstrator in use at NOI Techpark in Bozen. - © Fraunhofer Italia

Bozen/Bolzano, Italy and Stuttgart, Germany (03 May 2021) - The disinfection robot BALTO — named after a sled dog who carried urgently needed vaccines to a highly inaccessible region of Alaska a hundred years ago — is capable of disinfecting door knobs and similar objects. It does this autonomously, reacting to human beings in the surrounding area at the same time. An interface with the Building Information Modelling (BIM) process makes this possible.

Never before has hygiene attracted so much attention — it is, after all, one of the weapons society is deploying in its effort to survive the coronavirus pandemic. BALTO, the disinfection robot of the Fraunhofer Italia Innovation Engineering Centre in Bozen

and the Fraunhofer Institute for Industrial Engineering IAO in Stuttgart, developed as part of the Fraunhofer in-house program to combat coronavirus, is addressing this very issue: As one of many modules, its job is to help contain the pandemic and do its very best to avoid others in the future. “BALTO is capable of autonomously disinfecting door knobs and other areas that a large number of people touch on a very regular basis. This is a way of reducing the risk for visitors, as well as the risk for those people who have the job of disinfecting,” says I, Deputy Director of the Fraunhofer Italia Innovation Engineering Centre. However, this robot’s distinctive feature is not its ability to disinfect per se — other disinfection robots can of course do this as well — but rather its direct link with the Building Information Modeling process, BIM

for short. The BIM models store not only the building geometries, but also all fundamental component attributes such as function or materials. The technology can detect and precisely localize even door knobs, for example.

Precise, reliable and highly automated disinfection To do its job, the robot needs the relevant building data. It does not make any sense for the robot to create its own building map: This would require not only the BIM data to be regularly updated, but the robot's data too. The system would be more expensive, trickier to operate and more error-prone. "We have therefore created, on the basis of the open Robot Operating System (ROS), an interface via which the robot can talk directly to the BIM," explains Riedl. This tells BALTO not only where doors, for example, are located in the building, but also which of these doors are frequently used and from which material the door knobs are made. It can then adapt its disinfection program accordingly. If construction work is blocking access to a particular corridor, BALTO will know this from the BIM and can use the information in its navigation planning. The interface to the BIM is also important for the human-robot interaction. BALTO is designed to sidestep if it encounters one or more people. If this is not possible, the robot stops. But there might be a problem if it stopped in an emergency exit, of all places, and caused an obstruction. Because, however, even the emergency exit pathway is logged in the BIM data, such situations can be avoided via the interface. This interface to the BIM is not unilateral, the traffic is two-way. This allows the robot to coordinate its disinfectant tasks with other BALTO colleagues and report the shared jobs back to the system once completed.

BALTO plans its route by itself BALTO also scores points when it comes to planning the disinfection routines: "We don't have to feed the robot with coordinates, we can tell it to disinfect an entire class of objects," says **Günter Wenzel**, Head of Department at Fraunhofer IAO. Instead of having to state the locations of each door knob to be disinfected, we can give a general instruction like: Disinfect all frequently used door knobs at X minute intervals. An additional interface, to the digital twin of a building for instance, would open the door for scenarios such as: According to the room planning file, a meeting will be held in this room at the following time. Please do not disinfect in this room during this time. BALTO uses data like this to plan its disinfection routine by itself — starting with the question of which routes are the best ones to choose through to the optimum disinfectant for the materials to be treated.

At NOI Techpark in Bozen, home to both companies and research institutes alike and hence a place where people constantly come and go, already has three BALTO demonstrators in use. For the time being, still permanently monitored by the research team. Another system is in use in the Future Work Lab of Fraunhofer IAO — a combination of production environment and exhibition space — and in the Centre for Virtual Engineering ZVE.

Numerous other conceivable applications BALTO is by no means limited to disinfection. The robot is able to combine disinfection with cleaning routines and will, over the longer term, be able to handle even monitoring and maintenance activities. Meaning: Users will be able to cover a range of tasks using robot systems linked to BIM. The researchers are now collaborating with companies from the disinfection sector to examine which steps need to be accomplished before the industrialization stage is reached.



*BALTO planning its disinfection tasks by itself. -
© Fraunhofer Italia*

KALIBER RAPTOR
SAFETY FOOTWEAR

- Genuine buffalo leather upper
- Steel toe cap – 200 Joules
- Shock absorbent dual density polyurethane sole unit
- Steel midsole to prevent sharp item penetration
- Oil resistant outsole
- Anti-slip
- Anti-Static
- Padded collar
- Reflective strip
- Comfort innersole



STYLE NO. SFT007-1001 | SIZES 2 - 16
NRCS/9002/28804/0011, EN ISO 20345:2011, Fully Certified & Approved

KALIBER RAPTOR EX
SAFETY FOOTWEAR

- Smooth genuine leather upper
- Steel toe cap – 200 Joules
- Shock absorbent dual density polyurethane sole unit
- Steel midsole - prevent sharp penetration
- Oil resistant outsole
- Anti-slip
- Anti-Static
- Padded collar
- Reflective strip
- Comfort innersole



STYLE NO. SFT007-1001 | SIZES 3 - 13
NRCS/9002/28804/01011, EN ISO 20345:2011, Fully Certified & Approved

KALIBER CONDOR
SAFETY FOOTWEAR

- Genuine buffalo leather upper
- Steel toe cap – 200 Joules
- Shock absorbent dual density polyurethane sole unit
- Steel midsole - prevent sharp penetration
- Oil resistant outsole
- Padded collar for comfort
- Reflective strip for visibility
- Anti-slip
- Anti-Static



STYLE NO. SFT007-1002 | SIZES 3 - 13
NRCS/9002/28804/0017, EN ISO 20345:2011, Fully Certified & Approved

KALIBER VOLCANO
SAFETY FOOTWEAR

- Genuine leather Barton print upper
- Steel toe cap – 200 Joules
- Shock absorbent dual density polyurethane sole unit
- Rubber outsole heat resistant up to 300°C
- Steel midsole - prevent sharp penetration
- Outsole has Hot and cold insulation
- Water resistant
- Oil resistant
- Anti-slip
- Anti-Static



STYLE NO. SFT007-1105 | SIZES 3 - 13
NRCS/9002/28804/0157, EN ISO 20345:2011, Fully Certified & Approved

KALIBER CHELSEA
SAFETY FOOTWEAR

- Available in black and brown
- Smooth genuine leather upper
- Steel toe cap – 200 Joules
- Shock absorbent dual density polyurethane sole unit
- Steel midsole - prevent sharp penetration
- Oil resistant outsole
- Comfort innersole
- Anti-slip
- Anti-Static
- Light weight



STYLE NO. SFT007-1008 (BLACK)
SFT007-1006 (BROWN) | SIZES 3 - 13
NRCS/9002/28804/0095, EN ISO 20345:2011, Fully Certified & Approved

KALIBER VELOCITY
SAFETY FOOTWEAR

- Breathable light weight mesh upper
- Steel toe cap – 200 Joules
- Shock absorbent dual density polyurethane sole unit
- Oil resistant outsole
- Anti-slip
- Anti-Static



STYLE NO. SFT007-1104 | SIZES 3 - 13
NRCS/9002/28804/0131, EN ISO 20345:2011, Fully Certified & Approved

KALIBER JACKAL
SAFETY FOOTWEAR

- Genuine buffalo leather upper
- Steel toe cap – 200 Joules
- Shock absorbent dual density polyurethane sole unit
- Anti-slip outsole
- Padded collar for comfort
- Oil resistant outsole



STYLE NO. SFT007-1007 | SIZES 3 - 13
NRCS/9002/28804/0034, EN ISO 20345:2011, Fully Certified & Approved

KALIBER JACKAL LO
SAFETY FOOTWEAR

- Genuine buffalo leather upper
- Steel toe cap – 200 Joules
- Shock absorbent dual density polyurethane sole unit
- Anti-slip outsole
- Padded collar for comfort
- Oil resistant outsole



STYLE NO. SFT007-1009 | SIZES 2 - 13
NRCS/9002/28804/0029, EN ISO 20345:2011, Fully Certified & Approved

KALIBER CELESTE
SAFETY FOOTWEAR

- Ladies safety shoe
- Smooth genuine leather upper
- Steel toe cap – 200 Joules
- Shock absorbent dual density polyurethane sole unit
- Oil resistant outsole
- Anti-slip outsole
- Padded collar for comfort



STYLE NO. SFT010-1002 | SIZES 2 - 9
NRCS/9002/28804/0069, EN ISO 20345:2011, Fully Certified & Approved

KALIBER REACTION
SAFETY FOOTWEAR

- Smooth genuine leather upper
- Steel toe cap – 200 Joules
- Comfort innersole
- Shock absorbent dual density polyurethane sole unit
- Steel midsole - prevent sharp penetration
- Padded collar for comfort
- Oil resistant
- Anti-slip outsole
- Light weight
- Breathable mesh on upper



STYLE NO. SFT007-1004 | SIZES 3 - 13
NRCS/9002/28804/0100, EN ISO 20345:2011, Fully Certified & Approved

KALIBER KRONOS
SAFETY FOOTWEAR

- Genuine Buffalo leather upper
- Steel toe cap – 200 Joules
- Shock absorbent dual density polyurethane sole unit
- Oil resistant outsole
- Anti-slip outsole
- Padded collar for comfort
- Light weight



STYLE NO. SFT007-1011 | SIZES 3 - 13
NRCS/9002/28804/0126, EN ISO 20345:2011, Fully Certified & Approved

KALIBER PATRIOT
SAFETY FOOTWEAR

- Available in black and brown
- Genuine leather upper
- Zip added for ease of fitting
- Dual density polyurethane sole unit
- Padded collar for comfort
- Light weight



STYLE NO. SFT007-1113 (BLACK)
SFT007-1103 (BROWN) | SIZES 3 - 13

KALIBER SENTRY
SAFETY FOOTWEAR

- Exceptional value
- Polyester upper
- Shock absorbent polyurethane sole unit



STYLE NO. SFT007-1012 | SIZES 3 - 13

KALIBER DUTY
SAFETY FOOTWEAR

- Synthetic upper
- Injection moulded polyurethane sole unit
- Light weight comfortable step out shoe



STYLE NO. SFT007-1102 | SIZES 5 - 11

KALIBER GUARDIAN
SAFETY FOOTWEAR

- Available in black and brown
- Full grain genuine leather upper
- Dual density polyurethane sole unit
- Padded collar for comfort
- Light weight
- Comfort innersole



STYLE NO. SFT007-1201 | SIZES 3 - 13

KALIBER
SAFETY FOOTWEAR

SECURITY

www.kaliberfootwear.co.za

CHELSEA - 90006



SOLE: PU/PU | ANTI-STATIC
TOE CAP: STEEL
SIZES: 3-13

SANS/ISO 20345
NRCS/9002/287766/0170



FIREWALK - 42003



ELECTRICAL RESISTANCE TO 20KV FOR 60 SECONDS (ESKOM SPEC 34-232)

SOLE: PU/RUBBER | NON-CONDUCTIVE
TOE CAP: STEEL
SIZES: 4-13

SANS/ISO 20345
NRCS/9002/287766/0134





HIKER - 20013



SOLE: PU/PU | ANTI-STATIC
TOE CAP: STEEL
SIZES: 3-13

SANS/ISO 20345
NRCS/9002/287766/0146





NEOFLEX - 90004



SOLE: PU/PU | ANTI-STATIC
TOE CAP: STEEL
SIZES: 3-15

SANS/ISO 20345
NRCS/9002/287766/0055



NEOG RIP - 90005



SOLE: PU/PU | ANTI-STATIC
TOE CAP: STEEL
SIZES: 5-13

SANS/ISO 20345
NRCS/9002/287766/0117



MUNICH - 20002



SOLE: PU/PU | ANTI-STATIC
TOE CAP: STEEL
SIZES: 5-13

SANS/ISO 20345
NRCS/9002/287766/0161





TRAINER - 60012



SOLE: PU/PU | ANTI-STATIC
TOE CAP: STEEL
SIZES: 4-12

SANS/ISO 20345
NRCS/9002/287766/0171





MAVERICK - 60002



SOLE: PU/PU | ANTI-STATIC
TOE CAP: STEEL
SIZES: 4-13

SANS/ISO 20345
NRCS/9002/287766/0169



PARIS - 51003



SOLE: PU | ANTI-STATIC
TOE CAP: STEEL
SIZES: 3-8

SANS/ISO 20345
NRCS/9002/287766/0110



VENICE - 51002



SOLE: PU / ANTI-STATIC
TOE CAP: STEEL
SIZES: 3-8

SANS/ISO 20345
NRCS/9002/287766/0132



REESE - 55006



SOLE: PU/PU | ANTI-STATIC
TOE CAP: STEEL
SIZES: 3-8

SANS/ISO 20345
NRCS/9002/287766/0152




JENNIFER - 55005



SOLE: PU/PU | ANTI-STATIC
TOE CAP: STEEL
SIZES: 3-8

SANS/ISO 20345
NRCS/9002/287766/0153




SELENA - 55011



SOLE: PU/PU | ANTI-STATIC
TOE CAP: STEEL
SIZES: 3-8

SANS/ISO 20345



MADONNA - 51004



SOLE: PU | ANTI-STATIC
TOE CAP: STEEL
SIZES: 3-8

SANS/ISO 20345
NRCS/9002/287766/0145



SYDNEY - 51005



SOLE: PU | ANTI-STATIC
TOE CAP: STEEL
SIZES: 3-8

SANS/ISO 20345
NRCS/9002/287766/0135



TYRA - 55012



SOLE: PU/PU | ANTI-STATIC
TOE CAP: STEEL
SIZES: 3-8

SANS/ISO 20345




STANDARD WORK JACKET -
OJ12927



SIZE: 32-60
FABRIC: 65/35 POLY COTTON
WEIGHT: 235GSM
COLOUR:



STANDARD WORK TROUSERS -
OT12935



SIZE: 28-56
FABRIC: 65/35 POLY COTTON
WEIGHT: 235GSM
COLOUR:



REFLECTIVE WORK JACKET -
OJ12945



SIZE: 32-60
FABRIC: J54 100% COTTON
WEIGHT: 220GSM
COLOUR:



REFLECTIVE WORK TROUSERS -
OT12949



SIZE: 28-56
FABRIC: J54 100% COTTON
WEIGHT: 220GSM
COLOUR:



REFLECTIVE WORK JACKET -
OJ12929



SIZE: 32-60
FABRIC: D59 100% COTTON FLAME
RETARDANT
WEIGHT: 300GSM
COLOUR:



REFLECTIVE WORK TROUSERS -
OT12937



SIZE: 28-56
FABRIC: D59 100% COTTON FLAME
RETARDANT
WEIGHT: 300GSM
COLOUR:



TRI-REFLECT WORK JACKET -
OJ12925



SIZE: 32-60
FABRIC: 100% COTTON (DENIM)
WEIGHT: 340GSM/120Z
COLOUR:



TRI-REFLECT WORK TROUSERS -
OT12933



SIZE: 28-56
FABRIC: 100% COTTON (DENIM)
WEIGHT: 340GSM/120Z
COLOUR:



Duralight Ladies 2
F1681

Features:

Light in weight for enhanced comfort and reduced fatigue • Optimum flexibility and abrasion resistance • Protection against blood, fats, oils and chemicals • Nylon liner allows for easy cleaning and quick drying resulting in maximum hygiene



Nitrile PVC Upper
Nitrile PVC Sole
Sizes: RSA 5 - 12

Duralight Men's 2
F1030

Features:

Light in weight for enhanced comfort and reduced fatigue • Optimum flexibility and abrasion resistance • Protection against blood, fats, oils and chemicals • Nylon liner allows for easy cleaning and quick drying resulting in maximum hygiene



Nitrile PVC Upper
Nitrile PVC Sole
Sizes: RSA 5 - 12

Polyurethane Boots
P2010

Features:

Lighter in weight to enable enhanced comfort and reduce fatigue • Enhanced thermal properties • 2 to 3 times more durable than PVC • Highest possible SRC slip resistance rating • Boots are fitted with a Polyurethane footbed insole for enhanced comfort



Polyurethane (PU) Sole
Polyurethane (PU) Upper
Sizes: RSA 4 - 14

Men's Chelsea Gripper
F1505

Features:

Recycled PVC uppers for optimum flexibility and abrasion resistance • Recycled PVC sole for durability • The cleated sole design provides maximum slip resistance • Elastic gusset • Nylon liner allows for easy cleaning and quick drying resulting in maximum hygiene



PVC Upper
Nitrile PVC Sole
Sizes: RSA 5 - 14

PVC Chest Waders

Features:

PVC uppers for optimum flexibility and abrasion resistance • Nitrile PVC sole for durability and protection against fats, oils, and chemicals • SRA level of slip resistance



PVC Heavy Duty Egoli
Sizes: RSA 3 - 13
Recycled Duralight PVC
Sizes: RSA 5 - 12

Men's Chelsea HD
F1506

Features:

PVC uppers for optimum flexibility and abrasion resistance • Nitrile PVC sole for durability and protection against fats, oils and chemicals • SRA level slip resistance and maximum soil release • Elastic gusset • Nylon liner allows for easy cleaning and quick drying resulting in maximum hygiene



PVC Upper
Nitrile PVC Sole
Sizes: RSA 3 - 13

Egoli 2 - Metaguard
F1392: Heavy Duty Improved Metatarsal Protection

Features:

PVC uppers for optimum flexibility and abrasion resistance • Nitrile PVC sole for durability and protection against fats, oils and chemicals • Nylon liner allows for easy cleaning and quick drying for maximum hygiene



PVC Upper
Nitrile PVC Sole
Sizes: RSA 4 - 14

Egoli 2 - Knee Length Boots
F1360

Features:

PVC uppers for optimum flexibility and abrasion resistance • Nitrile PVC sole for durability and protection against fats, oils and chemicals • SRA level of slip resistance • Nylon liner allows for easy cleaning and quick drying resulting in maximum hygiene



PVC Upper
Nitrile PVC Sole
Sizes: RSA 5 - 14

HARN02221



45mm UV-RESISTANT WEBBING



HARN02211



45mm UV-RESISTANT WEBBING



HARN01221



45mm UV-RESISTANT WEBBING



HARN01211



45mm UV-RESISTANT WEBBING



HARN02220



45mm UV-RESISTANT WEBBING



HARN02210



45mm UV-RESISTANT WEBBING



HARN01220



45mm UV-RESISTANT WEBBING



HARN01210



45mm UV-RESISTANT WEBBING



JS06 - ASSASSIN

SIZE: 2-15



Dual Density PU/PU sole
Chelsea Boot
S2 Water Repellent Nubuck Leather
Comfort Gel-Foam Footbed
Extended PU toe bump cap
Available in Black & Brown



ISO 20345:2011

- JS07 -
BAGHEERA

SIZE: 2-15



Black Slip-on Chelsea Safety Boot
200 Joule Resistant Steel Toe Cap
Wide Fitting for Comfort
Easy Pull on Tabs
Dual Density PU/PU Sole
with Extended Toe Bump Cap
S2 Water Repellent Nubuck Leather Upper
Sports Mesh Lining For Comfort
Lightweight, Slip Resistant and Anti-static Sole
Arachna Comfort Insole



ISO 20345:2011

- LS02 -
CHARLOTTE

SIZE: 3-9



Ladies Shoe
Lightweight and Easy Fit
Dual Density PU/PU sole
Genuine Leather
Available in Black



JS04 - GOLIATH

SIZE: 2-15



Dual Density PU/PU sole
S2 Water Repellent Nubuck Leather
Comfort Gel-Foam Footbed
Arachna Lock Ankle Support
Extended PU toe bump cap
Available in Brown



SAFIRI BOOT

• FULL GRAIN CRAZY HORSE LEATHER UPPER • PADDED COLLAR • PADDED TONGUE • FULL MOISTURE-WICKING LINING • NEW IMPROVED MOULDED, PADDED, REMOVABLE SOCKLINER • STEEL SHANK • 200J IMPACT RESISTANT STEEL TOE CAP • DUAL-DENSITY PU/PU SOLE • SLIP RESISTANT • ACID & OIL RESISTANT • ANTI-STATIC • NEW WIDER MOULD • ISO 20345 : 2011 S1 • NRCS/9002/211171/0058



TEL: +27 21 506 6900 WWW.INTERCEPTOR.CO.ZA



TELEZA CHELSEA

• FULL GRAIN CRAZY HORSE LEATHER UPPER • FULL MOISTURE-WICKING LINING • NEW IMPROVED MOULDED, PADDED, REMOVABLE SOCKLINER • STEEL SHANK • 200J IMPACT RESISTANT STEEL TOE CAP • DUAL-DENSITY PU/PU SOLE • SLIP RESISTANT • ACID & OIL RESISTANT • ANTI-STATIC • NEW WIDER MOULD • ALSO AVAILABLE IN BLACK • ISO 20345 : 2011 S1 • NRCS/9002/211171/0084



TEL: +27 21 506 6900 WWW.INTERCEPTOR.CO.ZA



LYNX BLACK

PADDED COLLAR AND TONGUE FOR COMFORT • YKK SIDE ZIPPER FOR EASY ON AND OFF • ZIPLOCK LACE HOOK HELPS ENSURE A MORE SECURE FIT • DURABLE RUSTPROOF HARDWARE • EVA INSOLE FOR ENERGY ABSORPTION AND COMFORT • NON-METALLIC COMPOSITE SHANK FOR LIGHTWEIGHT SUPPORT • CERTIFIED TO EN ISO 20347:2012 OB E FO SRA • SIZES: UK 3-14



TEL: +27 21 506 6900
WWW.MAGNUMBOOTS.CO.ZA



RAZER SP

• 4 REINFORCED NON-RUSTING, DURABLE, METAL D-RINGS • EVA FOAM PADDED BELLOW TONGUE PREVENTS DEBRIS ENTERING BOOTS • ANTI-PENETRATION STEEL PLATE • ANTI-STATIC • WIDE-FITTING, COMFORTABLE STEEL TOE CAP TESTED TO 200J IMPACT RESISTANCE, MEETS ISO EN 20345 SPECIFICATION • OIL & ACID RESISTANT • HEAT RESISTANT TO 90°C • SIZE RANGE: UK 4-13 • SPECIFICATIONS: MEETS ISO 20345 : 2011 S1P • NRCS/9002/211171/0091



TEL: +27 21 506 6900 WWW.INTERCEPTOR.CO.ZA

REBEL
SAFETY GEAR

TECH GEAR ACID FLAME TROUSERS

CODE VWV-TRREAB | SIZES 28 - 48



The REBEL Tech Gear Acid Flame Trousers are made from high quality, durable cotton canvas in a range of sizes from 28 to 48 with a modern and contoured fit. These acid flame trousers are flame retardant and acid resistant, making them ideal for applications like welding and acid environments.

www.rebelsafetygear.com

REBEL
SAFETY GEAR

AIRMAXX DISPOSABLE FFP1 DUST MASK

CODE RE-DISDU-FFP1



The Airmaxx FFP1 disposable dust mask has an aluminium strip glue bonded nose clip and a 3 layer non-woven polyester respirator. The Airmaxx has a low profile and adjustable nose clip to ensure a better fit. The latex free head straps are pre-stretched and are glue bonded to the mask. The Airmaxx will protect against low levels of dust as well as solid and liquid aerosols (concentrations of up to 4x APF or OEL).

www.rebelsafetygear.com

REBEL
SAFETY GEAR

AIRMAXX DISPOSABLE FFP2 DUST MASK

CODE RE-DISDU-FFP2



The Airmaxx FFP2 disposable dust mask has an aluminium strip glue bonded nose clip and a 4 layer non-woven polyester respirator. The Airmaxx has a low profile and adjustable nose clip to ensure a better fit. The latex free head straps are pre-stretched and are glue bonded to the mask. The Airmaxx will protect against low levels of dust as well as solid and liquid aerosols (concentrations of up to 12x OEL and 4x APF). Sold in packs of 20.

www.rebelsafetygear.com

REBEL
SAFETY GEAR

AIRMAXX DISPOSABLE FFP2V DUST MASK WITH VALVE

CODE RE-DISDU-FFP2V



The Airmaxx FFP2V disposable dust mask has an aluminium strip glue bonded nose clip, 4 layer non-woven polyester respirator and a rubber one way exhalation valve. The Airmaxx has a low profile and adjustable nose clip to ensure a better fit. The latex free head straps are pre-stretched and are glue bonded to the mask. The Airmaxx will protect against moderate levels of dust as well as solid and liquid aerosols (concentrations of up to 12x OEL and 4x APF). Sold in packs of 12.

www.rebelsafetygear.com

REBEL
SAFETY GEAR

RUBBERISED HI VIZ REFLECTIVE LIME RAIN SUIT

CODE RA-S-RUHVRL | SIZES S - 4XL



The Hi-Viz Lime Rubberised Rain Suit is a high-quality 100% waterproof polyester/PVC rain suit with a nylon mesh lining, fully taped seams and a 110gsm inner fill. The rain suit features 50mm wide silver reflective strips sewn into the jacket and trousers, a PVC drawstring bag is included for easy storage.

www.rebelsafetygear.com

REBEL
SAFETY GEAR

RUBBERISED HI VIZ REFLECTIVE ORANGE RAIN SUIT

CODE RA-S-RUHVRO | SIZES S - 4XL



The Hi-Viz Orange Rubberised Rain Suit is a high-quality 100% waterproof polyester/PVC rain suit with a nylon mesh lining, fully taped seams and a 110gsm inner fill. The rain suit features 50mm wide silver reflective strips sewn into the jacket and trousers, a PVC drawstring bag is included for easy storage.

www.rebelsafetygear.com

REBEL
SAFETY GEAR

RUBBERISED HI VIZ REFLECTIVE NAVY RAIN SUIT

CODE RA-S-RURNA | SIZES S - 4XL



The Hi-Viz Navy Rubberised Rain Suit is a high-quality 100% waterproof polyester/PVC rain suit with a nylon mesh lining, fully taped seams and a 110gsm inner fill. The rain suit features 50mm wide silver reflective strips sewn into the jacket and trousers, a PVC drawstring bag is included for easy storage.

www.rebelsafetygear.com

REBEL
SAFETY GEAR

RUBBERISED NAVY RAIN SUIT

CODE RA-S-RUNA | SIZES S - 4XL



The Rubberised Rain Suit is a high-quality 100% waterproof polyester/PVC rain suit with a nylon mesh lining, 110gsm inner filling, fully taped seams, a polyester/PVC drawstring bag is included for easy storage purposes.

www.rebelsafetygear.com

REBEL
SAFETY GEAR

RUBBERISED YELLOW RAIN SUIT

CODE RA-S-RUYE | SIZES S - 4XL



The Rubberised Rain Suit is a high-quality 100% waterproof polyester/PVC rain suit with a nylon mesh lining, 110gsm inner filling, fully taped seams, a polyester/PVC drawstring bag is included for easy storage purposes.

www.rebelsafetygear.com

FX2 SAFETY BOOT

FX2-S1P | Sizes: 2-14
ISO 20345, SABS & NRCS approved

The FX2 is a general purpose work boot that features a 200J steel toe cap and steel midsole for anti-penetration ensuring optimal protection in a variety of work environments.



REBEL
SAFETY GEAR

FX2 METATARSAL BOOT

FX2-MT-S1P | Sizes: 3-13
ISO 20345, SABS & NRCS approved

The FX2 Metatarsal Boot is a general purpose work boot that features a 200J steel toe cap, a fixed metatarsal guard as well as a steel midsole for anti-penetration properties, ensuring optimal protection in a variety of work environments.



REBEL
SAFETY GEAR

FX2 CHELSEA BOOT

FX2-CB-S1P | Sizes: 3-13
ISO 20345 & SABS approved

The FX2 Chelsea boot is a general purpose work boot that includes a 200J steel toe cap and steel midsole for anti-penetration protection. The laceless design ensures efficient slip-on and off functionality as well as a stylish look.



REBEL
SAFETY GEAR

FX2 CHELSEA BOOT

FX2-CB-BR | Sizes: 3-13
ISO 20345 & SABS approved

The FX2 Chelsea boot is a general purpose work boot that includes a 200J steel toe cap and steel midsole for anti-penetration protection. The laceless design ensures efficient slip-on and off functionality as well as a stylish look.



REBEL
SAFETY GEAR

CHUKKA BOOT

RE811 | Sizes: 2-16
ISO 20345, SABS & NRCS approved

The Chukka is Africa's iconic work boot. A traditional boot that incorporates the essential combination of safety features in a stylish lace-up design. The Chukka boot includes a 200J steel toe cap and protective toe bumper for added scuff protection. The Hi-Viz reflective strips provide added visibility.



REBEL
SAFETY GEAR

CHUKKA BOOT

RE811-BR | Sizes: 2-15
ISO 20345, SABS & NRCS approved

The Chukka is Africa's iconic work boot. A traditional boot that incorporates the essential combination of safety features in a stylish lace-up design. The Chukka boot includes a 200J steel toe cap and protective toe bumper for added scuff protection. The Hi-Viz reflective strips provide added visibility.



REBEL
SAFETY GEAR

HIKER HI

RE304-BK | Sizes: 3-13
ISO 20345, SABS & NRCS approved

The Hiker HI is a superior work boot with a range of premium features including a high-quality, full grain, waxy leather upper, 200J steel toe cap, and toe bumper for added scuff protection. The Hiker HI provides excellent safety, comfort and style in a traditional design available in black or brown.



REBEL
SAFETY GEAR

HIKER HI

RE304 | Sizes: 2-14
ISO 20345, SABS & NRCS approved

The Hiker HI is a superior work boot with a range of premium features including a high-quality, full grain, waxy leather upper, 200J steel toe cap, and toe bumper for added scuff protection. The Hiker HI provides excellent safety, comfort and style in a traditional design available in black or brown.



REBEL
SAFETY GEAR

CHROME LEATHER YELLOW CANDY GLOVES

GL-CHRCAWRSU | Sizes: 10 (large)

The Chrome Leather Yellow Candy Superior glove is a wrist length general handling glove made from chrome split leather. The glove features thicker leather for inner fingers, resulting in extra durability as well as a soft fleece inner lining for extra comfort on palm and fingers.



REBEL
SAFETY GEAR

YELLOW LINED WELDERS GLOVES

GL-WELYEWSU | Sizes: 10 (large)

The Yellow Lined Welders Superior Glove is a wrist length chrome black/yellow leather glove with a reinforced palm and thumb area. The glove features black leather piping sewn into the seam for added durability, fleece on the inside of the palm as well as denim lining on the inside of the collar.



REBEL
SAFETY GEAR

YELLOW LINED WELDERS GLOVES – ELBOW LENGTH

GL-WELYEELSU | Sizes: 10 (large)

The Yellow Lined Welders Superior Glove is an elbow length chrome black/yellow leather glove with a reinforced palm and thumb area. The glove features black leather piping sewn into the seam for added durability, fleece on the inside of the palm as well as denim lining on the inside of the collar.



REBEL
SAFETY GEAR

RED PU COATED GENERAL HANDLING GLOVES

GL-PUREWR | Sizes: M/L/XL

The Red PU Coated is a wrist length general handling and small component handling glove fit for the food industry. The Gloves have a smooth PU coating to ensure excellent grip in wet and dry conditions and has a smooth coated finish.



REBEL
SAFETY GEAR

TRU TOUCH HI VIZ SANDY NITRILE GLOVES

GL-NITHISAWR | Sizes: M/L/XL

The Tru Touch Sandy Nitrile Glove is a general and small component handling glove fit for the food industry. The rough nitrile coating ensures grip in both wet and dry conditions and is fit for use in greasy and oily work environments.



REBEL
SAFETY GEAR

WONDER GRIP® OPTY™

OP-600L | Sizes: 8/M, 9/L, 10/XL

This glove protects against chemical risks in dry, oily or humid environments thanks to its triple PVC coating.



REBEL
SAFETY GEAR

WONDER GRIP® AQUA

RE420-BR | Sizes: 8/M, 9/L, 10/XL, 11/XXL

This glove provides excellent dexterity and prevents fatigue in a wide variety of uses in wet environments thanks to its double latex coating.



REBEL
SAFETY GEAR

BASIC FALL ARREST HARNESS

HS-HARFA-01

Basic fall arrest harness with double lanyard and scaffold hooks. Full body harness, with adjustable leg straps, permanently connected to lanyard. Full EN Compliance, suitable for users up to 140kgs.



REBEL
SAFETY GEAR