



MAG Ireland

The Irish Motorcyclist's Action Group

Get the Facts: RSA Hi-Viz Proposals

A MAG Ireland Information Sheet

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[What is High Visibility \(Hi-Viz\) Clothing?](#)

[How does it work?](#)

[What is Fluorescence?](#)

[What is Retro Reflectivity?](#)

[So Hi-Viz is a good thing then?](#)

[So, What is the RSA Proposal ?](#)

[How will this affect Riders from other countries ?](#)

[Why are MAG opposed to the RSA Proposal](#)

[But if it saves just one life, it'll be worth it!](#)



What is High Visibility (Hi-Viz) Clothing?

[Wikipedia](#)¹ defines [High-visibility clothing](#) thus :

High-visibility clothing, a type of [personal protective equipment](#) (PPE), is any [clothing](#) worn that has highly [reflective](#) properties or a colour that is easily discernible from any background. Yellow waistcoats worn by [emergency services](#) are a common example.

Part of the surface of the garment may have [retroreflective](#) stripes. This way they become much more visible in the dark for observers near a light source, such as the driver of a car with its headlights on. The pattern of the retroreflecting parts also helps to distinguish between objects and people. Area reflective fabric has proven to be the most effective way of outlining the body, so that drivers can distinguish a human shape at night.

For greater visibility during the daytime, very bright colours are used for the main body of the garment by means of [fluorescent](#) material.

How does it work?

Hi-Viz clothing works by distinguishing the wearer from the visual clutter by means of being brighter through fluorescence, or by increasing night-time visibility through the use of retroreflective stripes and markings.

Hi-Viz clothing is a passive safety measure, which is shown in lab studies to increase the distance at which a person or object is noticed by an observer (typically cyclist / pedestrian being noticed by a driver). This is borne out somewhat by the use of hi-viz vests by builders, and full hi-viz suits by rail workers.

What is Fluorescence?

Fluorescence is when an object absorbs energy invisible to the human eye, and uses that energy to emit visible light. The inks and dyes we're used to nowadays are relatively modern, and work by absorbing UltraViolet light, which we cannot see, and emitting that energy as visible light enhancing the colours we can see (pinks, yellows, greens, blues etc)

What is Retro Reflectivity?

Retro Reflectivity literally means "Returning the light by reflection". It works by using tiny spherical or prism shapes in the material/paint - which return light along the path from which it came.

The most common retro-reflectors are the cats-eyes we're all used to seeing on the roads. Technology has meant that retro-reflectors are now smaller, and more efficient - allowing us to use them in fabrics and on garments of any colour. It's even possible to have retro-reflective material that looks black in daylight, but shines white in direct artificial light.

¹Yes, we're aware that Wikipedia may not be considered the best primary source - however their definition seems reasonable and is written in something resembling plain English.



So Hi-Viz is a good thing then?

Unfortunately, the answer is a little more complex than the question.

Irene Kwan and James Mapstone published a paper in the journal "Accident Analysis and Prevention" No. 36 (2004) entitled : **Visibility aids for pedestrians and cyclists: a systematic review of randomised controlled trials**

Their analysis showed that yes - in all lab-based trials hi-viz clothing made a difference however they note that "*No trials which assessed the effect of visibility aids on pedestrian and cyclist-motor vehicle collisions and injuries were identified*"

In daylight conditions - the 12 trials whose results they reviewed showed that "fluorescent materials in yellow, red and orange colours enhanced [daytime] detection and recognition [of cyclists]"

Their study laments the absence of controlled before-and after trials on accident statistics and rates, while remaining positive on the potential for hi-viz garments to play a significant part in increasing cyclist and pedestrian safety - the studies they list note that driver recognition time dropped by nearly two-thirds in some cases between hi-viz and non-hi-viz wearing cyclists.

The findings of [The Hurt Report](#) from 1981 recommended taking action to increase the conspicuity of motorcycle riders -

14. Conspicuity of the motorcycle is a critical factor in the multiple vehicle accidents, and accident involvement is significantly reduced by the use of motorcycle headlamps (on in daylight) and the wearing of high visibility yellow, orange or bright red jackets.
18. Conspicuity of the motorcycle is most critical for the frontal surfaces of the motorcycle and rider.
34. Motorcycles equipped with fairings and windshields are underrepresented in accidents, most likely because of the contribution to conspicuity and the association with more experienced and trained riders.

However, also notes that -

33. Any effect of motorcycle color on accident involvement is not determinable from these data, but is expected to be insignificant because the frontal surfaces are most often presented to the other vehicle involved in the collision.

Hi-Viz may not be the answer, the 2004 European [Motorcycle Accident In Depth Study \(MAIDS\)](#) (funded by [ACEM](#)) noted broadly similar collision statistics to those noted by the Hurt Report - despite a marked increase in the wearing of hi-viz clothing by motorcyclists between a near-nil in 1981 to the 2004 trend where a large portion of riders wear hi-viz voluntarily.

This may be explained by a phenomenon on which Jon Ronson wrote an article in The Guardian newspaper in 2005, entitled [How the World Turned Day-Glo](#) it notes the history of Day-Glo fabrics, and their increased use while writing about an art [exhibition by Stephen Gill called Invisible](#).



MAG Ireland

The Irish Motorcyclist's Action Group

Criminals have, of late, taken to wearing high-visibility clothing to avoid being spotted. Just last December 16 [2004], 14 men wearing fluorescent yellow overalls stole three and a half million cigarettes from a lorry in Killeen, Northern Ireland. The gardai say they suspect the Provisional IRA was to blame, fluorescent disguise apparently being a recognised Provo trick. But regular gangs have picked up on this, too. An Asda superstore in Benton, Newcastle, fell victim to fluorescent-attired men on Christmas Eve. And the 12 men who tried to steal the 203-carat De Beers diamond from the Millennium Dome in November 2000 were fluorescent from head to toe. They must have glowed like fireflies, yet they went unnoticed by the 64 members of the public enjoying the Dome that day. Little did the robbers realise, however, that 200 undercover police officers were stationed around the Dome, waiting to swoop. The thieves didn't notice the police, though, because they were disguised as cleaners.

He continues, noting that for a while, cyclist and motorcyclist deaths and injuries were, indeed, reduced with credit being given to the increased use of Hi-Viz clothing, however that the then recent increase in accident rates, despite a further increase in the use of Hi-Viz suggests that it has, as is the thesis of the art exhibition on which he was reporting, become invisible!

This suggestion, that hi-viz no longer works, was also mooted in a 2007 paper by David D. Clarke, Patrick Ward, Craig Bartle and Wendy Truman from the University of Nottingham School of Psychology. In a paper entitled "[The role of motorcyclist and other driver behaviour in two types of serious accident in the UK](#)", where they studied a sample of 1790 accident cases. 1003 in detail, from UK midland police forces, involving motorcyclists of all ages, and covering the years 1997–2002 inclusive.

They note :

When these cases are examined, it can be seen that the most common failure of other drivers in motorcycle accidents is a failure in the continuity of their observation of the road scene. Over 65% of ROWV [Right of Way Violation] accidents where the motorcyclist is not regarded as to blame involve a driver who somehow fails to see a motorcyclist who should be in clear view, and indeed frequently is in view to witnesses or other road users in the area. Sometimes, accident-involved drivers in motorcycle accidents fail to see riders even when they are verifiably using visibility aids such as daytime running lights and high-visibility protective clothing. Over 30% of our detailed sample of ROWV accidents where a motorcyclist is not at fault involve a motorcyclist who is recorded as using daytime running lights, reflective clothing, or both. It is likely that this figure is an underestimation, given that police do not always record this information.

The MAIDS report also seems to dispute the value of Hi-Viz in the modern environment noting that in only a very small portion of accidents could the clothing worn have been a factor in the cause, and,



MAG Ireland

The Irish Motorcyclist's Action Group

indeed, that a further portion of accidents, almost balancing the first set, Hi-viz clothing was in use.

So, What is the RSA Proposal ?

The RSA are proposing mandatory high visibility clothing, in their [2010-2014 Motorcycle Safety Action Plan](#) where section 4.4.5 states :

4.4.5 The Motorcycle Safety Action proposes the introduction of regulations for the mandatory wearing of high visibility upper body clothing with full sleeves for ride and pillion passenger

There have been various public pronouncements from the RSA that they will not seek these regulations if the voluntary wearing rate is above a set figure, usually between 70% and 80%. Other pronouncements from Noel Brett in response to queries have suggested that they don't mean "full sleeves" and that a tabard of the type given away annually with Bike Buyers Guide magazine, or supplied as part of the Garda Síochána's Bike Safe programme would suffice.

How will this affect Riders from other countries ?

This is a question that remains to be seen - recent correspondence between the RSA and the Northern Irish "Write to Ride" group has left that question actively unanswered.

WriteTo Ride asked :

"Our concerns are that if hi-viz are made compulsory in the ROI, then motorcyclists from Northern Ireland or from any other country for that matter, would then have to comply with the regulations in the ROI, which may not be a legal requirement in UK or in other countries for riding on the road and would thus suggest that these motorcyclists would be open to prosecution for non compliance."

The RSA's responses to date have completely avoided this question.



Why are MAG opposed to the RSA Proposal

Quite simply, while supporting the use of hi-viz by motorcyclists in appropriate situations, MAG Ireland are opposed to making hi-viz mandatory, thus negating any residual benefits it may have.

Along with the dearth of statistics available to prove the efficacy of Hi-Viz clothing in terms of motorcyclist collisions, it has been noted in the 2004 MAIDS report that some 80% of motorcycle collisions involving other vehicles, involved the other driver failing to give way to the motorcyclist.

More interesting is the balance in the analysis of accident causation between The Hurt Report and MAIDS, both finding the same balance of causes for motorcycle accidents / fatalities. Given the improvements in technology and conspicuity aids (Auto Headlights, and increased use of Hi-Viz), we would expect to have seen the balance shift away from "Looked but Failed to See" incidents - this has not been the case in the 25 years since conspicuity was mooted as a probable factor.

Studies have shown that the median distance at which a motorist becomes a hazard to a motorcyclist in such situations is under 30 meters [Hurt Report states 2 seconds start to finish]. While MAIDS tells us that 75% of crashes occur below 50km/h, however even at 50km/h, the total stopping distance in good conditions is 24m per the [RSA Rules of the Road brochure](#).

MAIDS and other studies have found that the majority of accidents occur in good conditions, in full daylight, between March and September. MAG Ireland agree that this tallies with anecdotal evidence from riders themselves. As such, any failure to clearly spot a motorcycle at 20 meters in good conditions cannot be blamed upon a rider who is following the course of the road, but rather on the disturbing lack of observation prevalent in Irish drivers.

MAG Ireland notes that these "Looked But Did Not See" (or SMIDSY - "Sorry Mate, I didn't see you!") incidents occur as frequently to fully liveried emergency motorcycles as they do to the general public. Anecdotal evidence tells of one Garda motorcyclist, upon having had his journey interrupted by such an incident, being accused by the other driver of speeding (in heavy traffic !)

A [2002 Study](#) by Martin Langham, Graham Hole, Jacqueline Edwards and Colin O'Neil of the School of Cognitive and Computing Sciences, University of Sussex showed that many motorists failed to perceive a stopped police car, side-on to them on a motorway carriageway. In a lab test, it took between 3.1 and 4.5 seconds for the participants in the study to recognise the parked Volvo Estate police car as a hazard - despite full hi-viz markings and flashing lights. This is significantly longer than the 2 seconds mentioned by the Hurt report, for a substantially larger and more visible road hazard.

The MAIDS report noted that in 89.6% of accidents, the risk was located between 10 O'Clock and 2 O'Clock relative to the rider (front wheel at 12), with a full 71% in the 11 - 1 positions. This suggests that the frontal profile of the bike is what is seen / unseen by the other driver.

What is most disturbing about this statistic is that the same report noted that white motorcycles are significantly over-represented in the accident statistics (compared to exposure)



MAG Ireland

The Irish Motorcyclist's Action Group

But if it saves just one life, it'll be worth it!

Without attempting to get into the emotional argument of the rights and wrongs of such arguments - MAG Ireland considers this emotional blackmail on a par with "Won't someone think of the children?" We, as motorcyclists, fully accept that our chosen mode of transport comes with attendant risks - and while many of us do wear Hi-Viz as part of our overall risk-reduction strategy ... it's far from being a silver bullet.

Motorists, in cars mainly, kill and maim 300 people annually on Irish roads. As motorcyclists, we cannot ignore the fact that we are over-represented in these statistics. However the statistics only tell part of the story.

Enhanced, and regular training is a key factor in improving the safety of all road users, the RSA's own statistics see a fall of nearly 50%, sustained, in motorcycle fatalities since 2005, when compared to the trend prior to that. While lacking concrete evidence to fully support any causal link, that drop coincides with many Irish motorcycle insurers requiring "Skills Certificates", issued after an advanced training course and test, to insure many motorcyclists.

Members of the Irish Rider Training Association (IRTA) also noted an increase in training in those years, with recent surveys by MAG Ireland suggesting that just over 50% of motorcyclists had taken additional training, either pre- or post-test including training to the RoSPA advanced riding standard. Most pre-test training was above the RSA test standard.



MAG Ireland

The Irish Motorcyclist's Action Group

MAG Ireland were shocked to learn that even the new [Essential Driver Training](#) (EDT) places a minimal emphasis on a new drivers' observational skills, leaving it to lesson 6 to introduce:

What is the objective for Lesson 6?

During this lesson your ADI should make sure that you:

- *know how to scan the environment for potential hazards; and*
- *can identify and respond appropriately to potential hazards.*

Including practice sessions with their sponsor, the candidate has already been in control of a car, on the public road, for at least 20 hours (a recommended minimum of 15 hours of practice with their 'sponsor', and 5 1-hour lessons with an ADI), before it is even suggested they look out for other road users. We are at least heartened to note that motorcyclists are included in the list of potential hazards, along with parked vehicles and road-works. This is, however, the only mention of motorcycles in the entire curriculum.

By contrast, the [Initial Basic Training for Motorcycling](#) (IBT) course, emphasises detailed observational skills in Module 2, before the trainee is allowed on the public road.

MAG Ireland feel that addressing this basic inequality, and encouraging all current full-licence holders to seek some advanced training would have a significantly better impact on all road-user accident statistics, with a corresponding reduction in motorcyclist injuries and fatalities.

In conclusion

MAG Ireland is not opposed to high visibility clothing per-se, rather we are opposed to the mandatory aspect. In a poll carried out by MAG Ireland on this issue, 92% of respondents want to retain the right to choose, 1% are undecided, and just 7% support the RSA position.

Our view therefore is simple - ***“Let the rider decide”***