

**3M** Science.  
Applied to Life.™

**Reflective markings.  
Keeping vehicles  
visible.**



**Between 2013 and 2014 there was a four per cent increase in the total number of roadway fatalities in the UK, fuelling the urgent need to improve road safety<sup>1</sup>. A contributing factor to these roadway casualties is the poor visibility of vehicles.**

Studies and field tests conducted over a 10 year period show that well marked vehicles are 30 times less likely to be involved in road traffic accidents, compared with unmarked ones.<sup>2</sup>

Retro-reflective conspicuity tapes for vehicles have become essential tools in increasing the visibility of vehicles and reducing roadway casualties. The 3M range of vehicle conspicuity tapes using allows vehicles to be seen up to nine seconds earlier than unmarked vehicles, allowing for considerably longer reaction times<sup>3</sup>. In addition, they are highly durable, easy to apply, and meet or exceed regulations and guidelines set out in UK roadway legislation.

A report by the US National Highway Traffic Safety Administration (NHTSA), published in January 2015, estimates the lives of 2,660 people were saved from 1960 to 2012 by conspicuity tape on heavy trailers. NHTSA's 2001 evaluation estimates that retro-reflective tape would save 191 to 350 lives per year.<sup>4</sup> NHTSA's July 2015 evaluation estimates the tape reduces side and rear impacts into heavy trailers by 41%.<sup>4</sup>

## Compliance with regulations and guidelines

3M offers local technical and regulatory support, helping you to comply with regulations and guidelines set out in UK roadway legislation. Tutorial videos are also available showing the ease of applying 3M vehicle conspicuity tapes whilst providing guidance for correct application.

## 3M™ Product Range – ECE104 approved

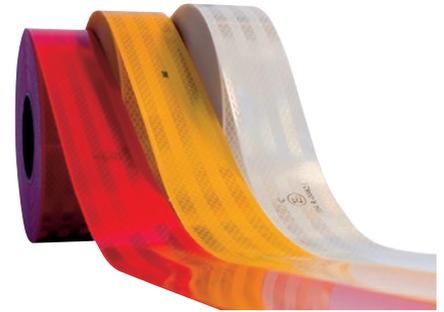
Features	3M™ Diamond Grade™ Vehicle Marking Tape Series 983	3M™ Diamond Grade™ Vehicle Marking Tape Series 983S	3M™ Diamond Grade™ Vehicle Marking Tape Series 997	3M™ Diamond Grade™ Vehicle Marking Tape Series 997S	3M™ Vehicle Marking Tape Series 943
Typical use	For application on rigid-sided vehicles	Segmented tanker stickers for application on rigid-sided vehicles	For application on curtain-sided vehicles	Segmented markings for application on curtain-sided vehicles	For application on rigid-sided vehicles
Suitable application surfaces and substrates	Aluminium, stainless steel, automotive paint	Aluminium, stainless steel, automotive paint	3M approved coated curtains, not older than 6 months	3M approved coated curtains, not older than 6 months	Aluminium, stainless steel, automotive paint
Maximum warranty	8 Years	8 Years	3 Years	3 Years	5 years
Standard colour range	White, yellow & red	White, yellow & red	White, yellow & red	White, yellow & red	White, yellow & red
Adhesive	Clear, pressure sensitive	Clear, pressure sensitive	Clear, pressure sensitive	Clear, pressure sensitive	Clear, pressure sensitive
Product construction	Prismatic construction	Segmented prismatic construction	Flexible, prismatic construction	Flexible, segmented prismatic construction	Metalised
Roll size	55mm x 50m	50mm x 50m	52mm x 50m	51mm x 50m	51mm x 50m
ECE104 compliant & E-mark	Yes (104 R – 00821)	Yes (104 R – 00821)	Yes (104 R – 003189)	Yes (104 R – 003189)	Yes (104 R - 003994)
Application temperature range of air and substrate	10°C – 30°C	10°C – 30°C	10°C – 30°C	10°C – 30°C	10°C – 30°C

## 40 per cent of collisions occur in the hours of darkness

According to research by the Department for Transport, road casualty statistics show that 40 per cent of collisions occur in the hours of darkness.<sup>5</sup> Retro-reflective ECE104 vehicle conspicuity tapes have become vital tools in increasing the visibility of larger vehicles on the road at night and in poor weather conditions.

In July 2011, European Governments introduced the mandatory ECE104 regulation for Heavy Goods Vehicles (HGVs) over 7.5 tonnes and trailers over 3.5 tonnes.

The 3M range of ECE104 Approved Tapes clearly outline the rear, sides and front of the vehicle. A marked HGV may be seen up to nine seconds earlier than an unmarked one, allowing for considerably longer reaction times.<sup>3</sup>



### ECE104 recommended colours

Position on vehicle	Colours
Front	White
Sides	Yellow or white*
Rear	Red or yellow*

\* The Department for Transport states that the UK preference for colours is yellow to the sides and red to the rear.<sup>6</sup>

Contour markings should cover at least 80 per cent of the total length and width of the vehicle or trailer and should be as close as practicable to the edges.

There are two contour options available: full contour markings, or partial contour markings, the latter being the minimum requirement.

#### Full contour markings



#### Partial contour markings



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## Protecting those stopping on the road

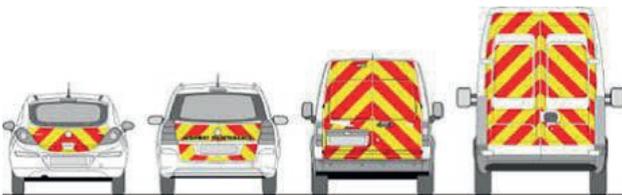
Stopping on a road, irrespective of the speed limit, puts drivers at an increased risk of becoming roadway casualties, especially in darkness and in poorly-lit areas. Chapter 8 of the Traffic Signs Manual recommends all vehicles stopping on roads for works purposes or inspections to have high visibility rear chevron markings.<sup>6</sup>

These markings are to be applied to the rear of vehicles and need to cover as much of the rear-facing portion as possible without obscuring windows, vehicle lighting or registration plates.

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### Recommended rear chevron markings

Combining 3M™ Diamond Grade™ DG<sup>3</sup> Reflective Sheeting 4092 Red and 3M™ Scotchcal™ Fluorescent Film 3485 Saturn Yellow provides optimum safety for the driver and others on the road. 3M retro-reflective rear chevron markings exceed the minimum Class RA2 (microprismatic) as specified in Chapter 8, whilst ensuring the visibility of vehicles. The illustrations below show how different vehicles are marked correctly.



Where the main body of the vehicle is not a recognised conspicuous colour (yellow or white) then the above retro-reflective markings should be supplemented by a high visibility fluorescent yellow strip along the side of the vehicle as a minimum.

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### Cost efficiency

Cost efficiency is a growing importance in anyone's decision-making process. By applying 3M highly durable rear chevron markings, longer term savings can be made. The likelihood of your vehicles being involved in roadway accidents is reduced, leading to less downtime and decreased repair costs.

1. Reported road casualties in Great Britain, GOV.UK, 2015
2. Technical University of Darmstadt, Germany, 2004
3. Freight Transport Association, United Kingdom, 2013

#### Transportation Safety Division

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### Lack of street lighting on roads

Some high-speed roads are not fully illuminated at night by street lighting. Consequently, drivers may struggle to see vehicles in front of them, especially larger vehicles or those that have stopped. The 3M range of vehicle conspicuity markings help vehicles to be seen clearly, regardless of the effectiveness of street lighting.

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### Employee satisfaction

Employee satisfaction is important for any company. By prioritising your drivers' safety, their satisfaction levels are likely to increase. Applying vehicle conspicuity markings increases the visibility of the vehicle, helping to reduce roadway accidents involving your drivers and others on the road. 3M provides a range of easy-to-apply vehicle conspicuity tapes for all types of vehicles, ensuring your drivers' safety is put first.

**For further information on ECE104 and rear chevron markings, where to buy and 3M product ranges visit:**

**[www.3M.co.uk/traffic/vehiclemarkings](http://www.3M.co.uk/traffic/vehiclemarkings)**

**or call: 0800 032 9597**

4. US NHTSA, 2015
5. Reported Road Casualties 2010, DfT
6. DfT, United Kingdom, 2011

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