

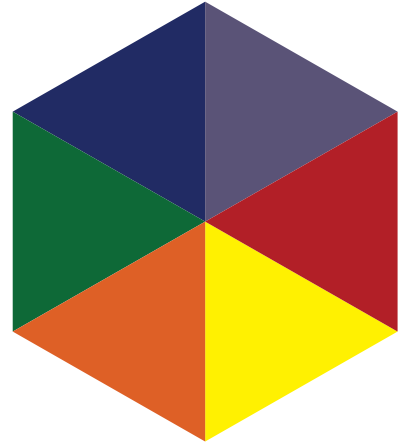
# COLOR

## YOUR WAY TO AN IMPROVED WORKPLACE

Simple Steps to a Safer and More Productive Facility



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Color. Have you ever stopped to think about just how important color is in your daily life? Just think of all of the information we receive in color – traffic signs, transportation maps, Doppler radar, homeland security advisories, warning labels, instructional signs and much more. It’s a part of your daily interactions, and an essential element of your workplace. This guidebook will explain the impact and importance of color, and how it can help you create a safer, leaner and more productive facility.

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# CHAPTER 1




## UNDERSTANDING THE IMPACT OF COLOR


To understand the impact of color, you first have to get to the root of how it can impact our moods, feelings, perceptions and decisions.

## The Psychology of Color

**COLOR** – something we see every day and often take for granted – has proven to have effects on our behavior, even when we don't realize it. In fact, in the 1960s, an experiment was conducted to demonstrate the power of color on the subconscious mind. Two groups were each given placebo sleeping pills containing the exact same medication, however, one pill was blue and one pill was pink.

### THE RESULTS?

**72%**   
of those who  
took the blue pill  
reported feeling sleepy

**32%**   
of those who  
took the pink pill  
reported feeling sleepy<sup>1</sup>

Blue is perceived to inspire calmness and serenity, which is why it's believed that the group that took the blue placebo pill more often felt sleepy.

To better understand the impacts of color, there have been a number of studies conducted over the years. Take a look at some of these interesting findings:

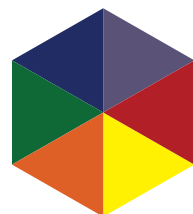
- Introducing blue streetlights in Glasgow, Scotland and Nara, Japan **decreased the number of crimes** in the areas with the new lights<sup>2</sup>
- Color **increases brand recognition by up to 80%**, according to a study at the University of Loyola
- An insurance company that began using color to highlight key information on their invoices began **receiving customer payments 14 days earlier**<sup>3</sup>
- An experiment showed that in a room with **red light, elapsed time was overestimated**, while in a **green or blue lit room, elapsed time was underestimated**
- Workers **lifting black boxes thought that they were heavier** than the same boxes painted green<sup>4</sup>
- Silver cars are **least likely to be involved in an auto accident**, since they are most visible on the road and in low light<sup>5</sup>

## How the Brain Processes Color

Our brain responds to color cues everyday – such as stopping when we see a red light. That’s because colors that are used as part of a repetitive, standardized system become a part of our automatic, intuitive response. To put it simply, when we see a color, we react.

A factor that comes into play when using colors is the principle of cognitive consistency (that we seek consistency in our beliefs and attitudes in any situation). We base our decisions on the outcome of past events, so we continue to make the quick decision to go when we see a green light. We tend to feel more uncomfortable and take a longer time to make decisions when there isn’t a consistency for us to follow – this is known as cognitive dissonance.

It stands to reason that the more we build color and consistency into our worlds, the more efficient our actions will become.



### **DID YOU KNOW?**

The use of color can improve learning by **55-78%** and **comprehension by 40%**<sup>6</sup>

Just imagine the impact color can have on helping workers understand processes and safety precautions.

# CHAPTER 2



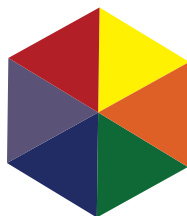
## 5 REASONS WHY COLOR IS IMPORTANT

With a better understanding of the psychology behind color, you can see how using color – and using it consistently – speeds up cognition. Let's dive into just why our responses to color are important and what it means for your workplace.

Color is a powerful tool that can be used to convey information quickly. It speaks a visual language that employees are able to process before they are even aware of it. The universal language of color can simplify learning, cut training costs to a minimum and make your workplace more efficient and safer.

In this chapter, we'll walk through **5 reasons** why using color in visual messages is important in any workplace. These include:

1. Color Speeds Visual Search
2. Color Improves Recognition
3. Color Emphasizes Information
4. Color Shows Associations
5. Color Transmits Important Messages



### **DID YOU KNOW?**

**Black and white images** hold the viewer's interest for **less than 2/3 of a second**, while the same **colored images** hold attention for **2 seconds or more**<sup>7</sup>

Imagine how colored workplace visuals could help grab your employees' attention.

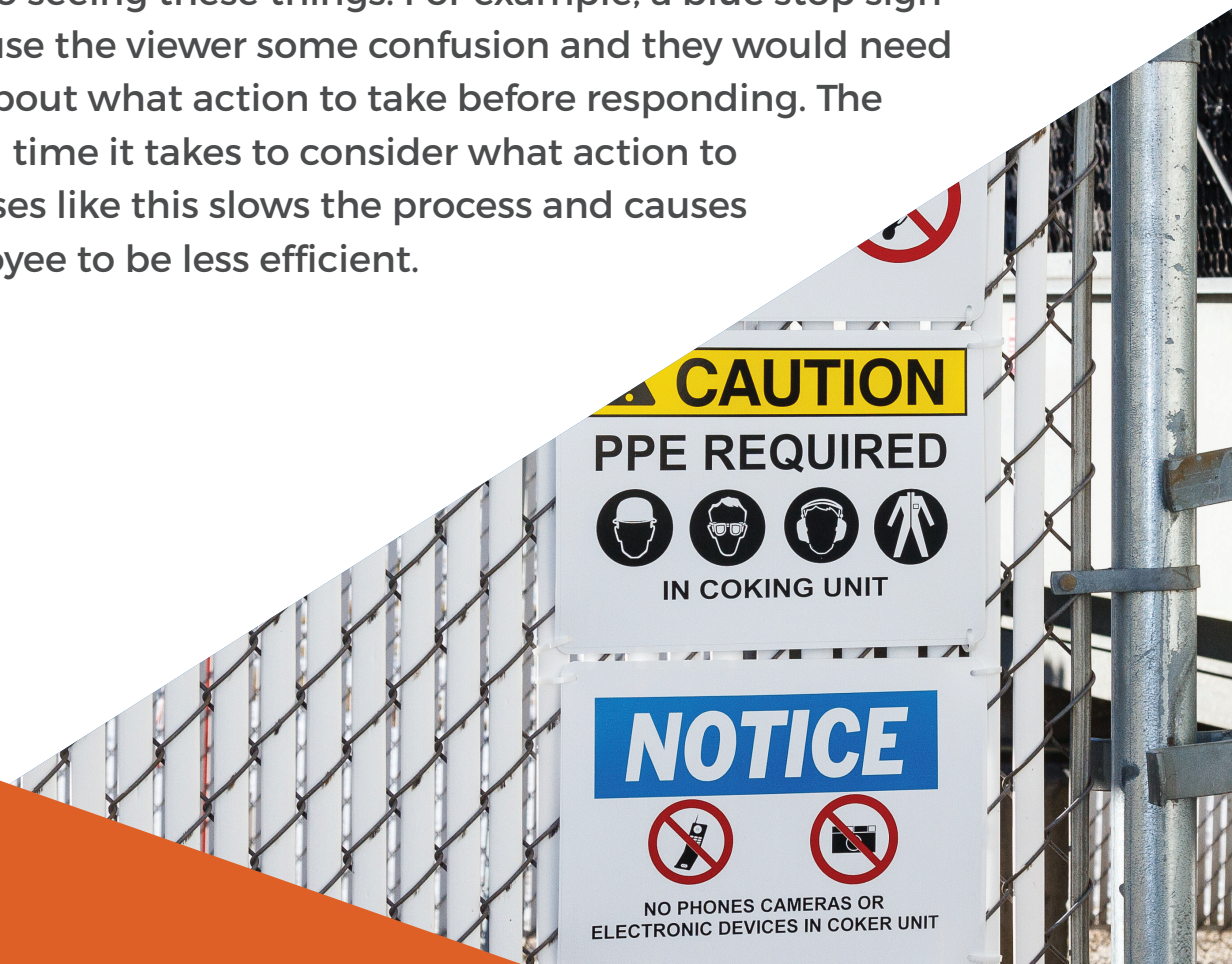


## **REASON 1: Color Speeds Visual Recognition**

Colors and color coding help to convey information quickly and easily. Whether we realize it or not, we rely on visually scanning our surroundings to locate a specific feature or item among many distracters. When consistent color standards and color coding are used in the workplace, we are able to visually recognize and identify where to locate certain items or how to respond to warnings or directional signage.

## **REASON 2: Color Improves Recognition**

The human brain is hardwired to jump to conclusions. We are able to recognize things faster if the color reflects the way we are used to seeing these things. For example, a blue stop sign would cause the viewer some confusion and they would need to think about what action to take before responding. The additional time it takes to consider what action to take in cases like this slows the process and causes the employee to be less efficient.



### **REASON 3: Colors Emphasize Information**

We are drawn to colors, especially bright colors. When we see a color, our brains are compelled to find meaning, whether or not a meaning is intended. Since people cannot process every object within view at one time, color can be used to emphasize or de-emphasize areas or objects within your workplace. An example of this is the use of a colored sign above an exit door, while a door simply leading to another room has no emphasizing sign.

### **REASON 4: Color Shows Associations**

Using the same color indicates a relationship. Think about shadowboards and the correlating colors of the labels on the tools themselves, sections in a manual or catalog that are differentiated by color, or product parts that use colors to show how to put them together. In all of these cases, the use of the same color labeling will quickly show the relationship between each item.

### **REASON 5: Colors Transmit Important Messages**

Colors are required to transmit important information to employees and visitors in a workplace. Because we rely on color associations and scanning for color cues, the proper use of a standardized color code is the first step to a safer, more productive workplace. Consider a yellow crossing sign – anytime this yellow sign catches a person’s attention, they know the message is important and that caution must be taken.

# CHAPTER 3



## THE BENEFITS OF COLOR IN THE WORKPLACE

Simply by incorporating color and color standards into your workplace, you can realize a number of improvements and benefits to your operations.



Using colored signs and labels can go a long way for your workplace and your employees. It can help to improve:

## **SAFETY**

We mentioned that a consistent color standard in your workplace helps employees quickly recognize and respond with the correct action. This is an essential element to establishing and maintaining a safe workplace. When an employee sees a red danger sign, for example, they know, right away, to pay attention and take the steps necessary to stay safe. Using safety signs with standardized colors helps to speed up recognition and response time to workplace hazards.

## **PRODUCTIVITY**

Visual cues not only improve safety, but help to improve productivity. That's because using color-coding and effective labeling on inventory, processes and general facility identification can help reinforce employee training and guide workers to complete their tasks more quickly. In addition, safe state, equipment identification and safety signs all help to keep processes running smoothly so that you have less downtime.

## COST SAVINGS

When you are able to keep your workplace safer and more productive due to colorful and consistent workplace visuals, you end up saving time and money. That's because training is reduced by visually reinforcing processes and steps, equipment is kept in proper working conditions and tasks are completed more safely and efficiently.



### DID YOU KNOW?

People make a subconscious decision about their environment within 90 seconds of initial viewing – **62-90% of that assessment is based on color alone.**<sup>8</sup>

In your workplace, don't underestimate the power of color.



# CHAPTER 4








## EXAMPLES OF WORKPLACE VISUALS

Now that you're equipped with the knowledge of how color can improve your operations by helping employees make quicker, more effective decisions, we'll show you some examples of color in action.



# Safety Color Standards

The Occupational Safety and Health Administration (OSHA) and the American National Standards Institute (ANSI) have set standards for the use of color in manufacturing facilities. These safety sign requirements can help employees determine at-a-glance the level of hazard or level of importance of a situation or task.

	Danger	Warning	Caution	Notice	Safety First
<b>Meaning</b>	Indicate dangerous and immediately hazardous situations that could cause serious injury or death	Identify potentially hazardous situation which, if not avoided, could result in injury or serious death	Indicate potentially hazardous situations that could result in moderate injury	Provide general information in order to avoid misunderstanding	Notice of general practices relating to health, first aid, housekeeping and general safety
<b>Example</b>	Flammable liquid containers, emergency stop switches, fire exits, fire protection equipment	Machine hazards, restricted area, biohazard, electrical hazard	Trip hazards, do not enter, pinch points, eye protection required	No trespassing, fire lane, keep area clean, do not touch	Report incidents, fasten seat belt, first aid kit, eye wash station
					

The ANSI A13.1 standard provides guidelines for color and size identification of pipe markers to reach compliance. By using the following color scheme to align with the listed classification, employees can quickly and easily identify pipe contents.



<b>Fire Quenching Fluids</b>
<b>Toxic &amp; Corrosive Fluids</b>
<b>Flammable Fluids</b>
<b>Combustible Fluids</b>
<b>Potable, Cooling, Boiler Feed and Other Water</b>
<b>Compressed Air</b>



## Floor Marking Color Guidelines

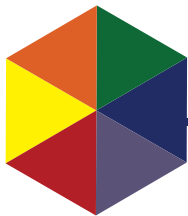
Floor markings can be used to outline passageways and differentiate between areas containing equipment, storage, hazardous flooring or forklift traffic. While several OSHA regulations dictate that permanent aisles and passageways must be clearly marked, there are no current government-mandated or even widely accepted industry standards that recommend what colors to use when marking floors.

The below guide can help you establish floor marking consistency:

Color		Area
Yellow		Aisle ways, traffic lanes and work cells
White		Equipment and fixtures not otherwise color coded (workstations, carts, floor stand displays, racks, etc.)
Blue, Green and/or Black		Materials and components, including raw materials, work-in-progress and finished goods
Orange		Materials or products held for inspection
Red		Defects, scrap, rework and red tag areas
Red & White		Areas to be kept clear for safety/compliance reasons (areas in front of electrical panels, firefighting equipment and safety equipment, such as eyewash stations, safety showers and first aid stations)
Black & White		Areas to be kept clear for operational purposes (not related to safety and compliance)
Black & Yellow		Areas that may expose employees to special physical or health hazards

With some of these color standards and guidelines in mind, along with the understanding of just how color can benefit your workplace, let's take a look at some common workplace signs, labels and tags that use color to communicate to employees. These examples are broken down into 3 key areas:

- Safety & Compliance
- 5S Lean Manufacturing
- Facility and Equipment ID



## **DID YOU KNOW?**

People are **more likely to recall a colored version of an image** compared to a black and white version of it. They believe this is because color has a stronger appeal to the senses, resulting in a better connection with memory.<sup>9</sup>

# Safety & Compliance

## ANSI

Under OSHA's 2013 update, users can use either the latest ANSI standard from 2011 (ANSI Z535.1, Z535.2 and Z535.5) or the previous standard from 1967-1968. The ANSI Z535 signs allow for clearer messages with a descriptive and color-coded header, a legend containing the hazard description and a visual pictogram to help convey the safety message.



# Safety & Compliance

## HAZCOM/GHS

With OSHA aligning the Hazard Communication Standard with GHS, chemical labeling is becoming more consistent, and clearly identifies and explains chemical hazards. These labels have 6 key elements: Signal Word, Symbols in Red Diamonds, Product Name/Identifiers, Hazard Statements, Precautionary Statements and Manufacturer Information.

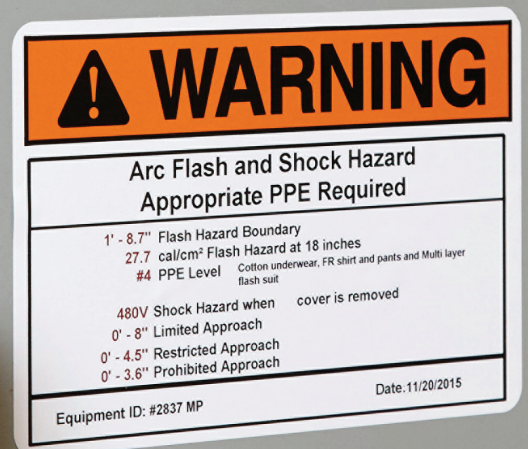


# Safety & Compliance

## ARC FLASH

Arc Flash labels are used to alert employees of the potential of a dangerous arc flash event that could result in injury or even death. The labels have an orange warning header, along with nominal voltage information, arc flash boundary and personal protective equipment information.

...R  
...SSOR  
... VOLT  
MCC-17



**WARNING**

Arc Flash and Shock Hazard  
Appropriate PPE Required

1' - 8.7" Flash Hazard Boundary  
27.7 cal/cm<sup>2</sup> Flash Hazard at 18 inches  
#4 PPE Level Cotton underwear, FR shirt and pants and Multi layer flash suit

480V Shock Hazard when cover is removed  
0' - 8" Limited Approach  
0' - 4.5" Restricted Approach  
0' - 3.6" Prohibited Approach

Equipment ID: #2837 MP Date: 11/20/2015

# Safety & Compliance

## LOCKOUT TAGOUT

Using visuals in lockout tagout helps prevent unexpected startup by informing employees that a piece of equipment is being worked on. Lockout tags with red headers are used to grab employees' attention and provide them with contact information. In addition, electrical disconnect labels should be placed on equipment with the location of the disconnect switch or energy isolating source.





# Safety & Compliance

## **FIRE SAFETY**

Red fire signs help to quickly identify fire exits, fire extinguishers and other fire suppression equipment in your facility. That way, employees can take action immediately, with just a glance to find what's needed in the case of an emergency.



# 5S Lean Manufacturing

## ORGANIZATION LABELS

Mark shelves, drawers, flow racks, tool boxes, storage boards, cabinets and totes with colored labels that are large enough to read at a glance, along with brief descriptions, part numbers or bar codes, and symbols or pictures. Using color consistently on these labels will help employees locate items faster and reduce mistakes.





## 5S Lean Manufacturing

### INVENTORY LABELS

Use labels to indicate minimum and maximum inventory levels to keep your operation running smoothly. With the maximum level marked with red, you can avoid unnecessarily high inventory levels that tie up capital that could be used elsewhere, while minimum level markers in green identify when stock is running low and needs to be reordered. Color adds a stronger visual cue to support the text portion of the message.



# 5S Lean Manufacturing

## FLOOR MARKING

Floor marking tapes help keep your workplace safer, leaner and more organized. By using a standard color-coding in your floor tape, you can easily warn workers of hazardous areas or equipment, identify foot and forklift traffic paths, and clearly show storage locations. For example, when yellow tape is always used to mark aisles, employees will know immediately that this is a safe area where they can walk.



## Facility and Equipment ID

### **SAFE STATE & MAINTENANCE VISUALS**

Equipment identification labels can be used to explain what the equipment is, where it's located and what it's connected to. Adding labels to indicate normal/safe state (such as whether valves or air pumps are normally opened or closed), maintenance targets to ensure vibration and ultrasound probes are positioned accurately, lubrication point information and more, can help machinery stay in its top working condition.



**Normal Set Point**  
185°F, 240 psi

# Facility and Equipment ID

## GAUGE LABELS

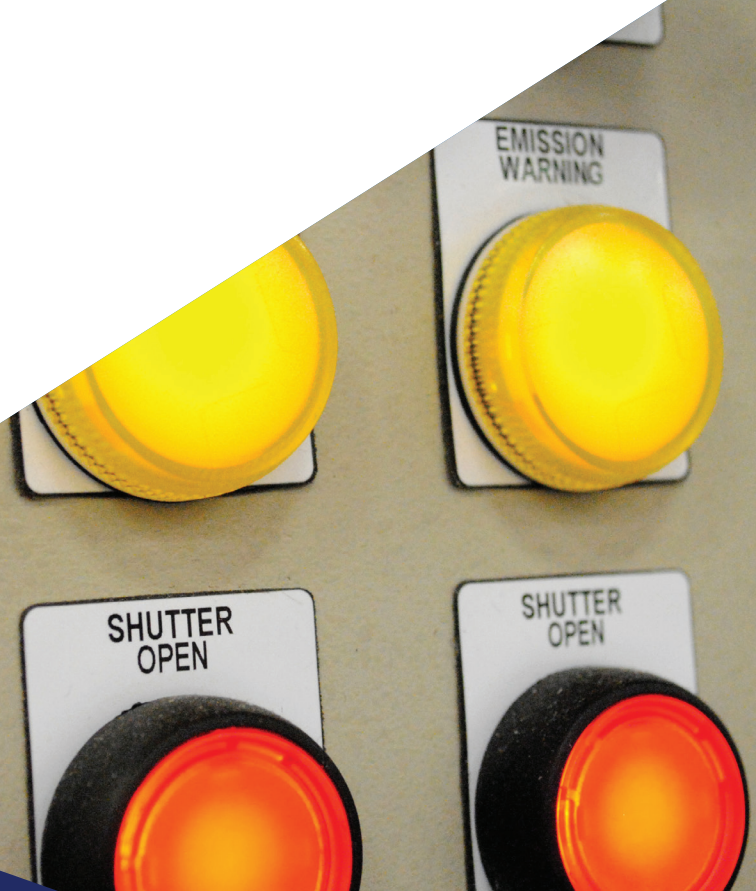
Using multi-color gauge labels helps your employees and contractors to detect abnormalities at a glance – and at a distance. It shows when pressures, temperatures and other readings are at a normal level (in the green), just above or below normal (in the yellow) or reaching a much higher or lower level than expected (in the red). These multi-color labels make it easy to determine the correct settings of equipment to keep operations running safely and smoothly, and help reduce downtime.



# Facility and Equipment ID

## **RAISED PANEL LABELS**

Raised panels labels are used to identify enclosures, push buttons, property and more. With bright colors and clear text, they help employees identify each button at-a-glance to safely and efficiently perform the task at hand.





# Facility and Equipment ID

## PIPE MARKERS

Color coding and labeling pipes helps to simplify and expedite the process of tracing pipes through your facility. It can also be helpful to indicate both source and destination points, saving time and money. Using universal colors on pipes, such as brown markers with white letters for combustible fluids, will help employees stay safer because they will have quicker recognition of pipe contents.

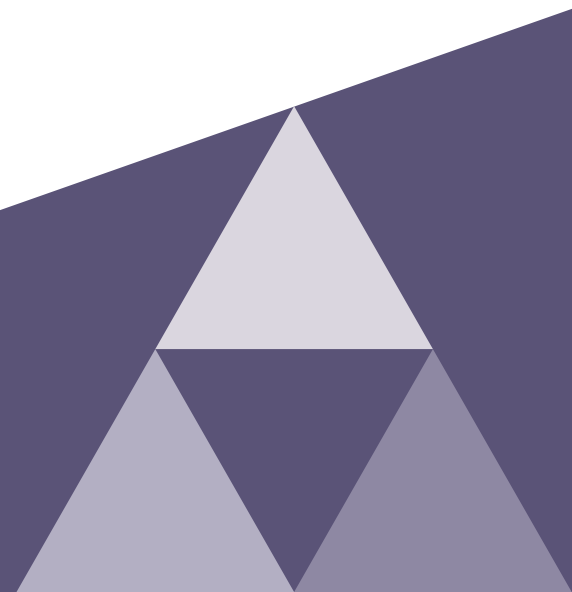


# CHAPTER 5



## CONCLUSION

Take the importance of color and start applying it to your workplace – you'll be amazed at the results!



Although we don't always realize it, color has a significant impact on the way we perceive the world around us and the actions we take. Our brains are wired to respond to patterns and consistency, allowing us to make quick choices based on color recognition.

When color is used effectively in the workplace – with consistent color standards and color coding – your workplace becomes safer, leaner and more productive.

To help you color your way to an improved workplace, Brady offers multi-color sign and label printers, along with a wide variety of facility identification products and solutions.

**Visit [BradyID.com/BBP37](https://bradyid.com/BBP37) to learn more!**

<sup>1</sup> Olesen, J. (2015). Color Psychology. Retrieved from Color-Meanings: [www.color-meanings.com/color-psychology-how-colors-affect-your-everyday-life](http://www.color-meanings.com/color-psychology-how-colors-affect-your-everyday-life)

<sup>2</sup> The Yomiuri Shimbun. (2008, October 10). Blue Streetlights Believed to Prevent Suicides, Street Crime. The Seattle Times.

<sup>3</sup> Morton, J. (2010). Why Color Matters. Retrieved from Colorcom: [www.colorcom.com/research/why-color-matters](http://www.colorcom.com/research/why-color-matters)

<sup>4</sup> Adler, L. (1999). Responding to Color. University of Kentucky: Design Expressions Fact Sheet.

<sup>5</sup> Daily Mail. (n.d.). Silver cars are safer, research shows. Retrieved from Daily Mail: [www.dailymail.co.uk/news/article-204356/Silver-cars-safer-research-shows.html](http://www.dailymail.co.uk/news/article-204356/Silver-cars-safer-research-shows.html)

<sup>6</sup> (Morton, J.)

<sup>7</sup> (Morton, J.)

<sup>8</sup> (Morton, J.)

<sup>9</sup> Ellasos, P. (2014, December). 22 Intriguing Facts About Colors. Retrieved from UCreative: <http://www.ucreative.com/articles/22-intriguing-facts-about-colors-that-you-need-to-know/>



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