2016 EMERGENCY RESPONSE GUIDEBOOK
**SHIPPING DOCUMENTS (PAPERS)**

- Shipping documents are kept in: (4)
  
  a) Road – kept in the cab of the motor vehicle
  b) Rail – kept in possession of a crew member
  c) Aviation – kept in possession of the aircraft pilot
  d) Marine – kept in a holder on the bridge of a vessel

- The shipping document contains:
  - The four digit 4 digit ID number (yellow bordered pages)
  - Proper shipping name (blue bordered pages)
  - Hazard class or division number of the material
  - Packing Group
  - Emergency Response Telephone Number
  - Information describing the hazards of the material

- The 4 digit ID number may be shown on the diamond shaped placard or on an adjacent orange panel displayed on the ends and sides of a cargo tank, vehicle or rail car

**HAZARD CLASSIFICATION SYSTEM “PLACARDS”**

- **Class 1**  
  **Explosives**
  Division 1.1 Explosives with a mass explosion hazard
  Division 1.2 Explosives with a protection hazard
  Division 1.3 Explosives with predominantly a fire hazard
  Division 1.4 Explosives with no significant blast hazard
  Division 1.5 Very insensitive explosives with a mass explosion hazard
  Division 1.6 Extremely insensitive articles

- **Class 2**  
  **Gases**
  Division 2.1 Flammable gases
  Division 2.2 Non flammable, non toxic gases
  Division 2.3 Toxic gases

- **Class 3**  
  **Flammable liquids** (and Combustible liquids)

- **Class 4**  
  **Flammable solids** Substances liable to spontaneous combustion, substances which, on contact with water, emit flammable gases
  Division 4.1 Flammable solids
  Division 4.2 Spontaneously combustible materials
  Division 4.3 Water reactive substances/Dangerous when wet materials

- **Class 5**  
  **Oxidizing Substances and Organic peroxides**
  Division 5.1 Oxidizing substances
  Division 5.2 Organic peroxides

- **Class 6**  
  **Toxic substances and infectious substances**
  Division 6.1 Toxic substances
  Division 6.2 Infectious substances

- **Class 7**  
  **Radioactive materials**

- **Class 8**  
  **Corrosive materials**

- **Class 9**  
  **Miscellaneous hazardous materials/Products, Substances or Organisms**

**INTRODUCTION TO THE TABLE OF MARKINGS, LABELS AND PLACARDS**

- Use the Table of Placards only WHEN THE ID NUMBER OR PROPER SHIPPING NAME IS NOT AVAILABLE (SEE PAGE 8 AND 9).
- Use GUIDE _____ when the DANGER/DANGEROUS placard is displayed or the nature of the spilled, leaking or burning material is not known. Also use this GUIDE when the presence of dangerous goods is suspected but no placards can be seen.

- Asterisks (*) on orange placards represent explosives

### TABLE OF PLACARDS AND INITIAL RESPONSE GUIDES TO USE ON SCENE

- **Explosives** – orange and black placard
- **Poison** – black and white placard
- **Oxidizer and Organic Peroxides** – yellow, red and black placard
- **Corrosive** – black and white placard
- **Flammable solid** – Red, black, and white placard
- **Radiactive** – yellow, black, and white placard
- **Flammable** – red and white
- **Non Flammable Gases** – green and white or black
- **Organic Peroxide** – red, black and yellow placard

### PROTECTIVE ACTIONS DECISION FACTORS TO CONSIDER

- Protective action decision factors to consider: (3)
  1. The Dangerous Goods
  2. The Population Threatened
  3. Weather Conditions

- The Table of Initial Isolation and Protective Action Distances (green bordered pages) predicts the size of downwind areas which could be affected by a cloud of dangerous gas.

- Shelter in Place protection is used when evacuating the public would cause greater risk than staying where they are, or when an evacuation cannot be performed.
In place protection (shelter in place) may not be the best option if:
   a) The vapors are flammable
   b) Will take a long time for gas to leave the area
   c) If buildings cannot be closed tightly

- Vehicles can offer some protection for a short period if the windows are closed and the ventilating systems are shut off. Vehicles are not as effective as buildings for in place protection.

- Persons protected in place should be warned to stay far from windows because of the danger from glass and projected metal fragments in a fire and/or explosion.

**ERG 2016 USER’S GUIDE**

- It is primarily a guide to aid first responders in quickly identifying the specific or generic hazards of the materials involved in the incident, and protecting themselves and the general public during the initial response phase of the incident.

- It is primarily designed for use at a dangerous goods incident occurring on a highway or railroad. Be mindful that there may be limited value in its application at fixed facility locations.

- The letter “P” following the guide number in the yellow bordered and blue bordered pages identifies those material which presents a polymerization hazard under certain conditions.

**GUIDEBOOK CONTENTS**

- _____ bordered pages: Index list of dangerous goods in numerical order of ID number.
  Yellow

- _____ bordered pages: Index list of dangerous goods in alphabetical order of material name.
  Blue

- _____ bordered pages: This section is the most important section of the guidebook because it is where all safety recommendations are provided. Each guide provides safety recommendations and emergency response information to protect yourself and the public.
  Orange

- Orange guide is divided into three main sections:
  a) The first section describes ________ that the material may display in terms of fire/explosion and health effects upon exposure
  b) The second section outlines suggested ________ measures based on the situation at hand
  c) The third section covers ____________ actions including first aid
     potential hazards
     public safety
     emergency response

- The Green bordered pages provide two different types of recommended safe distances which are
  Initial isolation
  Protective action distances
• Yellow bordered pages and blue bordered pages with materials highlighted in _____ indicate TIH materials, including certain chemical warfare agents, and water reactive materials which produce toxic gases upon contact with water.

  green

• Initial Isolation Distances is a distance within which all persons should be considered for evacuation in all directions from the actual spill/leak source. It is a distance (radius) which defines a _____ (Initial Isolation Zone) within which persons may be exposed to dangerous concentrations of hazards

  circle

• Green Border pages: Small spill is 55 US gallons or less and ___ pounds or less for solids spilled in water and large spills more than ___ US gallons for liquids and more than 660 pounds for solids when spilled in water.

  660, 55

• __________ is a gas or volatile liquid which is known to be so toxic to humans as to pose a hazard to health during transportation, or in the absence of adequate data on human toxicity, is presumed to be toxic to humans

  Toxic Inhalation Hazard (TIH) Materials

FIRE AND SPILL CONTROL

➢ Water is the most common and generally most available fire extinguishing agent.

• There are two general types of fire fighting foam: _____ and _____ resistant.

  Regular, alcohol

➢ Examples of regular foam are protein base, fluoroprotein, and aqueous film forming foam (AFFF). Some flammable liquids, including many petroleum products, can be controlled by applying regular foam.

➢ Other flammable liquids, including polar solvents (flammable liquids which are water soluble) such as alcohols and ketones cannot be easily controlled with regular foam and requires application of alcohol resistant foam

• BLEVE (Boiling Liquid Expanding Vapor Explosion)

• What are the main hazards from a BLEVE

  Fire
  Thermal radiation from the fire
  Blast
  Projectiles

CRIMINAL/TERRORIST USE OF CHEMICAL/BIOLOGICAL AGENTS

• __________ are characterized by the rapid onset of medical symptoms (minutes to hours) and easily observed signatures (colored residue, dead foliage, pungent odor, dead insects and animals).

  Chemical Incidents
• _______ are characterized by the onset of symptoms in hours to days. Typically, there will be no characteristic signatures because biological agents are usually odorless and colorless. Because of the delayed onset of symptoms in a biological incident, the area affected may be greater due to the movement of infected individuals.

Biological Incidents

• _______ are characterized by the onset of symptoms, if any, in days to weeks or longer. Typically, there will be no characteristic signatures because radioactive materials are usually odorless and colorless.

Radiological incidents

➢ Indicators of a possible chemical incident
  - Dead animals/birds/fish
  - Lack of insect life
  - Unexplained odors
  - Unusual numbers of dying or sick people (mass causalities)
  - Pattern of casualties
  - Blisters/rashers
  - Illness in confined area
  - Unusual liquid droplets
  - Different looking areas
  - Low lying clouds
  - Unusual metal debris

➢ Indicators of a possible biological incident
  - Unusual numbers of sick or dying people or animals
  - Unscheduled and unusual spray being disseminated
  - Abandoned spray devices

➢ Indicators of a possible radiological incident
  - Radiation Symbols
  - Unusual metal debris
  - Heat emitting material
  - Glowing material
  - Sick people/animals

➢ Initial actions to consider in a potential CBRN/Hazmat Terrorism event: avoid using cell phones, radios, etc. within 100 meters (300 feet) or a suspect device.

DECONTAMINATION MEASURES

➢ Emergency responders should follow standard decontamination procedures (flush strip flush).

➢ If chemical agents are suspected the most important and effective decontamination will be that done within the first one or two minutes. If possible, further decontamination should be performed using a 0.5% hypochlorite solution.

• If biological agents are suspected a contact time of ___ to ___ minutes should be allowed before rinsing

  10, 15

GLOSSARY

• _______: A foam that is resistant to “polar” chemicals such as ketones and esters which may break down other types of foam.

  Alcohol resistant foam
• _______: Liquids which have a flash point greater than 140F and below 200F
  
  Combustible Liquid

• _______: A refrigerated, liquefied gas that has a boiling point colder than -90 C (-130 F) at atmospheric pressure
  
  Cryogenic liquid

• Dry Chemical: A preparation designed for fighting fires involving flammable liquids, pyrophoric substances and electrical equipment. Common types contain ___________ or ___________.
  
  sodium bicarbonate; potassium bicarbonate

  ➢ Flammable liquid is a liquid that has a flash point of 60C (140F) or lower.

• PH is a value the represents the acidity or alkalinity of a water solution. Pure water has a PH of 7. A PH value below 7 indicates an ____ solution. A PH above 7 indicates an _____ solution. Acids and alkales are commonly referred to as corrosive materials
  
  Acid, alkaline

  ➢ Protective clothing
    
    Level A: SCBA plus fully encapsulating chemical resistant clothing (permeation resistant)
    Level B: SCBA plus chemical resistant clothing (splash proof)
    Level C: Full or half face respirator plus chemical resistant clothing (splash proof)
    Level D: Coverall with no respiratory protection

• _______: A substance which ignites spontaneously upon exposure to air (or oxygen)
  
  Pyrophoric

  ➢ Small spill is a spill that involves quantities that are less than 208 liters (55 U.S. Gallons) for liquids and less than 300 kilograms (660 pounds) for solids

• Straight stream is an efficient straight solid stream, approximately ___% of the water passes through an imaginary circle ___ inches in diameter at the breaking point
  
  90, 15

• _______: Measures of a liquid’s internal resistance to flow. This property is important because it indicates how fast a substance will leak out through holes in containers or tanks
  
  Viscosity

• _______: Can be used to absorb vapors, knock down vapors or disperse vapors.
  
  Water Spray (FOG)

• ______ is particularly effective on fires of flammable liquids and volatile solids having flash points above 37.8 C (100 F)
  
  Water Spray