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SA RALLY-RAID SAFETY NOTES

1. FIRE

1.1 FIA cars: All FIA cars to be fitted with piped extinguishers to FIA 8865-2015. Cylinder mounted in the cabin, nozzles in the engine compartment and the cabin if required. The cabin nozzles not to be aimed at the heads of the crew. Turbocharged cars to have a second parallel piped system with cylinder in the cabin, nozzles in other areas of fire risk, eg. fuel tank. No nozzles from the second system in the cabin. The two systems must be activated simultaneously with one switch. Non-turbo cars may also have a second system.
The extinguishant for piped systems is typically AFFF foam or NOVEC 1230 fluid.

1.2 SARRC cars: All cars to be fitted as a minimum with two 2,5 kg Dry Chemical Powder (DCP) or 2,4 litre AFFF handheld fire extinguishers as per SARRC SSR Part 2 art 6. Piped systems as per FIA specification allowed in addition to the handheld.

1.3 Fitting of the extinguishers: The extinguishers must be mounted securely in a robust metal bracket with metal straps and anti-torpedo tabs onto a sturdy metallic part of the cabin or chassis, with at least two M6 gr8.8 steel bolts and nuts to withstand 25g shock load. The straps holding the hand held extinguisher must be fastened with a quick release system and a positive lock such as a P-clip. Cable ties, lock-wire, duct-tape etc., not allowed.

1.4 Maintenance of in-car and service area extinguishers: Check the pressure gauges regularly. Must be in the green. Extinguishers to be checked yearly by an accredited service provider, who will issue a new expiry date sticker. Extinguishers expired, no race.

1.5 Extinguishant: Two types - AFFF and DCP.
AFFF foam is an aerated solution which is used for fire prevention and firefighting. AFFF foam concentrates are designed for rapid fire knockdown by producing a thin aqueous film which helps to prevent the release of fuel vapours. **B foams** are best suited for putting out fires that involve flammable liquids.
DCP - Dry Chemical Powder (ABC Class) are mono ammonium phosphate-based (MAP) powders that are generally for multipurpose use on Class A, B and C fires. These dry chemical powders comes in 40%, 70% and 90% MAP. The powder breaks the chain reaction of Class-B fires by coating the surface to which it is applied.
Class B fires consist of flammable liquid or gas which include petrol, oil, propane, and natural gas.

1.6 Health and Safety:
Neither AFFF foam nor DCP MAP are classified as harmful substances on their own in small volumes.
Inhalation of mono ammonium phosphate and sodium bicarbonate can cause mild irritation to the nose, throat, and lungs and results in symptoms like shortness of breath and coughing. Dizziness and headaches are also possible. These symptoms usually resolve quickly with fresh air. Ongoing minor irritation often improves after a steam treatment, such as a steamy shower. People with lung conditions like asthma or someone deliberately sprayed at close range can have more serious respiratory effects and might need medical attention. Contact of these powders with the eyes, nose, throat and skin can cause irritation, which should improve after rinsing the exposed area. Deliberate inhalation or ingestion can cause serious symptoms such as pneumonia, seizures, irregular heartbeat, and kidney failure. People with more than mild symptoms or anyone with a deliberate exposure should be managed in a healthcare facility.
https://www.poison.org/articles/fire-extinguisher-safety-184

Inhalation of smoke and carbon monoxide (CO) from the fire is harmful, and exposure should be avoided.

2. DEHYDRATION

Dehydration occurs when these losses through vomit, urine and sweat are not replaced adequately and a deficit of water and electrolytes develops.
Dehydration is the loss of water and salts from the body. The human body needs water to maintain enough blood and other fluids to function properly.
Along with the fluids, the body also needs electrolytes, which are salts normally found in blood, other fluids and cells. The body may lose fluids in a variety of ways:

- when urinating
- when you vomit or have diarrhoea
- when sweating (even in winter months)
- from the lungs during normal breathing

The body loses a substantial amount of fluids and salts and when they are not quickly replaced the body starts to 'dry up' or get dehydrated.

SEVERE DEHYDRATION CAN CAUSE DEATH

The usual causes if dehydration are a lot of diarrhoea and vomiting but can also occur if you do not eat or drink much during an illness or if you do not drink enough during or after strenuous exercise.

What are the symptoms of dehydration?
The degree of dehydration is graded according to signs and symptoms that reflect the amount of fluid lost. In the early stages of dehydration, there are no signs or symptoms. Early features are difficult to detect but include dryness of mouth and thirst.
As dehydration increases, these signs and symptoms develop:

- Thirst
- Restlessness
- Irritable behaviour
- Decreased skin turgor
- Dry mucous membranes
- Sunken eyes

Symptoms of early or mild dehydration include:

- Flushed face (red appearance)
- Extreme thirst (more than normal or unable to drink)
- Dry, warm skin
- Cannot pass urine or reduced amounts with dark yellow appearance
- Dizziness made worse when you are standing
- Weakness
- Cramping in the arms and legs
- Sleepy or irritable
- Headaches
- Dry mouth and tongue with thick saliva

Symptoms of moderate to severe dehydration include:

- Low blood pressure
- Fainting
- Severe muscle contractions in the arms, legs, stomach, and back

- Convulsions
- A bloated stomach
- Heart failure
- Sunken dry eyes
- Skin loses its firmness and looks wrinkled
- Lack of elasticity of the skin (when a bit of skin lifted up stays folded and takes a long time to go back to its normal position)
- Rapid and deep breathing - faster than normal
- Fast, weak pulse

In severe dehydration these effects become more pronounced and the patient may develop evidence of hypovolemic shock (loss of volume), including:

- Diminished consciousness
- Lack of urine output
- Cool, moist extremities
- A rapid and feeble pulse (the radial pulse may be undetectable)
- Low or undetectable blood pressure, and peripheral cyanosis
- **Death follows soon if rehydration is not started quickly**

Treatment

Correction of a dehydrated state is accomplished by the replenishment of necessary water and electrolytes (rehydration)
Even in the case of serious lack of fresh water, drinking sea water or urine does not help, nor does the consumption of alcohol.
When dehydrated, unnecessary sweating should be avoided, as it wastes water. If there is only dry food, it is better not to eat, as water is necessary for digestion.
The best treatment for minor dehydration is consumption of an electrolyte-balanced fluid like a sports drink (Powerade or Energade)
For severe cases of dehydration where fainting, unconsciousness, or any other severely inhibiting symptom is present (the patient is incapable of standing or thinking clearly), emergency attention is required.
Fluids will be given through intravenous administration and within a few hours, the patient will return to normal unless a complication occurs.

Avoiding dehydration

A person's body loses, during an average day in a temperate climate such as Cape Town, approximately 2.5 litres of water. This can be through the lungs as water vapour, through the skin as sweat, or through the kidneys in the form of urine.
During vigorous exercise or in a hot environment, it is easy to lose several times this amount. Heavy exercise in high temperatures could cause the loss of over 2.5 litres of fluid per hour, which exceeds the body's absorptive capacity.
The average adult should excrete 1ml of urine, per kg of body weight per minute and accordingly replace such fluid.
The best way of avoiding dehydration is to regularly take sips of water and a relative isotonic liquid such as Powerade, to keep hydration levels in check. As this is not always possible for competitors, when a rest is being taken, food substance with sufficient amounts of fluids should be taken.
The best method of treatment for dehydration is in taking a pro-active approach by

- being aware of what causes it
- being aware of your surroundings and
- hydrate as regularly as possible

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3. MSA GCR 239. SAFETY APPAREL AND EQUIPMENT

INDIVIDUAL COMPETITORS ARE RESPONSIBLE FOR ENSURING THEIR OWN SAFETY DURING COMPETITION.
The following guidelines are provided to assist competitors in this regard:

[i] Crash helmets

i) Helmets must fit properly, be secured and be suitable for the purpose intended.
ii) Helmets are deliberately constructed so as to absorb the energy of an impact. It therefore stands to reason that if, following such impact, the helmet is damaged (even if such damage is not readily apparent) it must be replaced.
iii) Painting or use of solvents on helmets can damage them, and is therefore potentially dangerous. Helmets should be cleaned with a weak solution of soap and water only.
iv) Helmets should be as closely fitting as possible, consistent with comfort. No sideways movement should be possible, nor should the helmet be able to be pulled off the head in a forward direction, with the strap secured.
v) Helmets should be stored, preferably in a helmet bag, in a cool, dry place away from sunlight, when not in use.
vi) Visors must provide clear vision.
vii) The Hans device strap-to- helmet clips should be cleaned regularly to ensure the clip actually locks in properly.
There have been cases where the clip did not lock in properly, caused by dust and dirt, and the strap unhooked in a roll-over.
The Hans device belts must also match the seat belts.

[ii] Clothing

i) Where fire-resistant clothing (overall, gloves, shoes, socks, balaclava and underwear) is not specified as mandatory in individual category regulations, the wearing of such clothing is highly recommended for four-wheeled competitions.
ii) Such fire-resistant clothing must be in good condition and should be FIA-approved or locally produced by a recognised manufacturer from flame-retardant material. The clothing item must be clearly labelled to indicate whether it is FIA-approved or locally produced from flame retardant material. In instances where the racing overall being worn is not FIA- approved, underwear that is FIA-approved should be worn underneath it.

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