

provisions, however atmospheric icing conditions are highly variable and can exceed these standards. Freezing precipitation (freezing rain and freezing drizzle), within and below clouds are examples of conditions that are not address by and exceed Appendix C. When encountering icing conditions that exceed appendix C of 14 CFR part 25, ice protection provisions may no longer be effective to provide safe operations and flight crew action may be required to promptly and safely exit those atmospheric environments, as required by 14 CFR 91.13.

The following is the list of terms recommended by the Task 1B WG as an updated replacement for current terminology used in reference to in-flight icing of aircraft. The FAA intends to update the current terminology with the following terms.

### Icing Terminology and Definitions

#### *Icing Intensities*

##### Light

The rate of ice accumulation requires occasional cycling of manual deicing systems\*\* to minimize ice accretions on the airframe. A representative accretion rate for reference purposes is ¼ inch to one inch (0.6 to 2.5 cm) per hour \* on the outer wing. The pilot should consider exiting the condition.\*\*\*

##### Moderate

The rate of ice accumulation requires frequent cycling of manual deicing systems\*\* to minimize ice accretions on the airframe. A representative accretion rate for reference purposes is 1 to 3 inches (2.5 to 7.5 cm) per hour \* on the outer wing. The pilot should consider exiting the condition as soon as possible.\*\*\*

##### Heavy

The rate of ice accumulation requires maximum use of the ice protection systems to minimize ice accretions on the airframe. A representative accretion rate for reference purposes is more than 3 inches (7.5 cm) per hour \* on the outer wing. Immediate exit from the conditions should be considered.\*\*\*

##### Severe

The rate of ice accumulation is such that ice protection systems fail to remove the accumulation of ice and ice accumulates in locations not normally prone to icing, such as areas aft of protected surfaces and any other areas identified by the manufacturer. Immediate exit from the condition is necessary.\*\*\*

\* These rates can be measured by a suitable icing rate meter.

\*\* It is expected that deicing or anti-icing systems will be activated and operated continuously in the automatic mode, if available, at the first sign of ice accumulation, or as directed in the Airplane Flight Manual. *Occasional and frequent* cycling refers to manually activated systems.

\*\*\* It is assumed that the aircraft is approved to fly in the cited icing conditions. Otherwise, immediate exit from any of these intensity categories is required by regulations (14 CFR 91.13(a), 91.527, 121.341, 125.221, and 135.227).

\*\*\*\* Severe icing is aircraft dependent, as are the other categories of icing intensity. Severe icing may occur at *any* ice accumulation rate when the icing rate or ice accumulations exceed the tolerance of the aircraft. Icing certification implies an increased tolerance to icing intensities up through heavy.

#### *Icing Types*

**Note:** Ice types are difficult for the pilot to discern and have uncertain effects on an airplane in flight. Ice type definitions will be included in the AIM for use in the "Remarks" section of the pirep and for use in forecasting.

##### Rime Ice

A rough, milky, opaque ice formed by the rapid freezing of supercooled drops/droplets after they strike the aircraft. The rapid freezing results in air being trapped, giving the ice its opaque appearance and making it porous and brittle. Rime ice typically accretes along the stagnation line of an airfoil and is more regular in shape and conformal to the airfoil than glaze ice. It is the ice shape, rather than the clarity or color of the ice, which is most likely to be accurately assessed from the cockpit.

##### Glaze Ice

Ice, sometimes clear and smooth, but usually containing some air pockets, which results in a lumpy translucent appearance. Glaze ice results from supercooled drops/droplets striking a surface but not freezing rapidly on contact. Glaze ice is denser, harder, and sometimes more transparent than rime ice. Factors, which favor glaze formation, are those that favor slow dissipation of the heat of fusion (i.e., slight supercooling and rapid accretion). With larger accretions, the ice shape typically includes "horns" protruding from unprotected leading edge surfaces. It is the ice shape, rather than the clarity or color of the ice, which is most likely to be accurately assessed from the cockpit. The terms "clear" and "glaze" have been used for essentially the same type of ice accretion, although some reserve "clear" for thinner accretions which lack horns and conform to the airfoil.

##### Clear Ice

See Glaze Ice.

##### Mixed Ice

Simultaneous appearance or a combination of rime and glaze ice characteristics. Since the clarity, color, and shape of the ice will be a mixture of rime and glaze characteristics, accurate identification of mixed ice from the cockpit may be difficult.

##### Known or Observed or Detected Ice Accretion

Actual ice observed visually to be on the aircraft by the flight crew or identified by onboard sensors.

##### Runback Ice

Ice which forms from the freezing or refreezing of water leaving protected surfaces and running back to unprotected surfaces.

##### Residual Ice

Ice which remains on a protected surface immediately after the actuation of a deicing system.

##### Intercycle Ice

Ice which accumulates on a protected surface between actuation cycles of a deicing system.

#### *Icing Conditions*

##### Forecast Icing Conditions

Environmental conditions expected by a National Weather Service or an FAA-approved weather provider to be conducive to the formation of in-flight icing on aircraft.

##### Potential Icing Conditions

Atmospheric icing conditions that are typically defined by airframe manufacturers relative to temperature and visible moisture that may result in aircraft ice accretion on the ground or in flight. The potential icing conditions are typically defined in the airplane flight manual or in the airplane operation manual.

##### Known Icing Conditions

Atmospheric conditions in which the formation of ice is observed or detected in flight.

**Note:** Because of the variability in space and time of atmospheric conditions, the existence of a report of observed icing does not assure the presence or intensity of icing conditions at a later time, nor can a report of no icing assure the absence of icing conditions at a later time.

##### Freezing Rain (FZRA)

Rain is precipitation at ground level or aloft in the form of liquid water drops which have diameters greater than 0.5