



Designation: E 589 – 95

Standard Guide for the Use and Development of PA-14 Avian Stressing Agent¹

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1. Scope

1.1 PA-14 is a recently developed avian control agent with a limited history of use. Published methods for the use and evaluation of PA-14 are not available.

1.2 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.* Special hazard statements are given in Sections 10 and 13.

2. Summary of Guide

2.1 PA-14 is designed for treating roosting blackbirds (Icteridae) and starlings (*Sturnus vulgaris*) during or immediately preceding cold, wet weather. Control of other species (for example, crows) is possible.

2.2 PA-14 causes wetting of plumage which results in increased heat conductivity. If treated birds cannot increase their metabolic rate to compensate for this loss, body temperature drops, falling to a lethal level.

3. Significance and Use

3.1 Because of the potential for use of this material in many areas of the U. S. to control roosting populations of blackbirds, this standard guideline has been developed to provide a published, easily accessible information source for potential users.

4. Product Type

4.1 PA-14 is a nonionic surface-active agent, or surfactant, which lowers the surface tension of water, thereby enhancing wetting.

4.2 PA-14 contains α -alkyl (C_{11} - C_{15})-omega-hydroxypoly(oxyethylene) (99.5 % min) and water (0.5 % max).

5. Storage

5.1 All containers used for storage and transportation of PA-14 should bear the appropriate labels, where required.

5.2 PA-14 undiluted or diluted with water should be stored at temperatures between 60 and 120°F (16 and 49°C). Dilution with ethanol or isopropanol (to make up 14 % of total) permits storage down to 10°F.

6. Formulation and Delivery

6.1 Treatment must not exceed 20 gal of actual PA-14 per acre (187 L/hm²). Effective concentrations may vary from 8 to 25 % PA-14 diluted in water, depending on the application technique used. Two aircraft application methods are normally used:

6.1.1 *Single-Pass*—This method should be used when roosting birds under a spray swath are expected to flush to another area after a single pass. Treatment, in this case, should be made in a series of single, contiguous swaths at high concentrations (for example, 80 gal/acre (gpa) (748 L/hm²) of 25 % actual material). Delivery at this volume may be obtained by use of venturi spreader, perforated-wing spray apparatus, or helicopter.

6.1.2 *Multiple-Pass*—If birds are not expected to flush under the spray plane, better distribution of the material is obtained by using a low PA-14 concentration and making repeated passes over a given area until the total 20 gpa (187 L/hm²) of actual material is delivered. For example, using an 8 % solution, treatment might be made in ten passes at 25 gpa (234 L/hm²) of solution with a boom and nozzle sprayer or three passes at 80 gpa (748 L/hm²) of solution with a perforated-wing sprayer. Helicopters are especially effective with the multiple-pass technique. However, since certain helicopters will flush various species in certain habitats, hazards to pilots and machines must be carefully anticipated.

6.2 If air temperatures are below 35°F (2°C), or if concentrations of PA-14 greater than 15 % are to be sprayed, up to 5 % (based on final solution) isopropanol (isopropyl alcohol) or denatured ethanol (ethyl alcohol) can be added as a thinner and to prevent freezing.

6.3 Use of warm or hot water enhances mixing. If cold water must be used, isopropanol or ethanol (up to 5 % of final solution) should be mixed with PA-14 before addition of water.

6.4 Ground application methods using high volume pumps and nozzles can be effective.

7. Areas to Be Treated

7.1 Treatment areas should be restricted to rural wooded or

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brushy roosts where nocturnal aircraft flight operations can be safely conducted.

7.1.1 Application to valuable timber or nursery stock should be confined to the dormant period due to possible slight phytotoxic effects.

7.2 It should be established beforehand whether the pilot is to spray only predetermined swaths, or spray visible concentrations of birds.

7.2.1 See 6.4.

7.3 Ground application methods may eliminate the use of nocturnal aircraft flights to apply PA-14 in some situations.

8. Frequency and Timing of Application

8.1 Efficacious use of PA-14 at volumes attainable by agricultural spray aircraft is dependent upon weather conditions. Applications must be limited to nights when at least 0.5 in. (12.7 mm) of rain and temperature below 45°F (7°C) can be reasonably expected to occur after treatment and before the birds leave the roost area at dawn.

8.1.1 If temperatures remain cold enough to prevent bathing by treated birds, some mortality at the roost can be expected from cold rains occurring up to three nights posttreatment.

9. Physical Restrictions in Application

9.1 Treatment should not be carried out where aerial obstructions such as high trees or powerlines pose an undue hazard to the aircraft pilots.

9.2 Generally, spray flights should not be made when wind velocities exceed 10 mph (16 km/h). Pilots should be kept aware of wind velocity and direction throughout the actual spraying.

9.3 Delivery should be at an altitude high enough to minimize bird flushing and reduce danger of collision. This height will vary with different roosts and aircraft, but usually will be approximately 75 to 150 ft (23 to 46 m) above ground level.

9.4 PA-14 is toxic to some fish species and to certain other aquatic animal life and should not be applied to lakes, streams, ponds, or estuaries.

9.5 PA-14 should not be applied to drainage areas where short term run-off or flooding will create hazardous contamination of ponds, lakes, streams, or estuaries.

10. Special Hazards

10.1 Birds dying in urban areas should be picked up and disposed of in an appropriate manner (that is, by burning or burial where possible).

10.2 Nothing in these guidelines should be construed to circumvent or violate any applicable state or local law or regulation.

10.2.1 Where state or local government agencies involved in control operations (for example, conservation, Agricultural and Health Agencies, etc.) do not have jurisdiction over such operations, the appropriate agencies should be informed and kept advised of the operation.

11. Degree of Restriction

11.1 Use of PA-14 in avian population control is limited to use by certified applicators (public, commercial, and private). Overall coordination by government agencies may be required.

11.2 When applicable, personnel directly involved in the treatment should have any required federal and state collecting permits for the area and species concerned.

11.3 Pilots must obtain permission and, if necessary, a waiver, to conduct each operation from the appropriate aviation regulation agency.

11.3.1 Aircraft involved must have day and night VFR equipment (FAR 91.33), and IFR equipment is desirable.

11.3.2 For maximum safety to fixed-wing aircraft, treatment should not be made while rain is falling.

11.4 Pilots must hold appropriate commercial licenses.

12. General Labeling Requirements

12.1 All PA-14 containers should bear appropriate label(s).

13. Human Safety Factors Related to Application

13.1 **Precaution**—PA-14 is corrosive when mixed with water and may cause eye damage and skin irritation; wear eye protection and rubber gloves during handling.

13.2 Personnel working in or near the roost should be informed of the dangers of histoplasmosis or cryptococcosis infection from bird droppings and should be cautioned to wear suitable respirators. Personal hygiene following operations is required for safety.

13.3 Avoid contamination of food or foodstuffs.

13.4 Do not contaminate natural waterways by disposal of waste or cleaning of equipment.

14. Environmental Impact

14.1 Some nontarget bird species may be killed in areas where they (for example, robins) use blackbird-starling roosts. No known hazards exist for mammalian species.