



United States Department of the Interior

FISH AND WILDLIFE SERVICE
Washington, D.C. 22041



MBP

Date:

MIGRATORY BIRD PROGRAM MEMORANDUM

SUBJECT: Clarification of Approved Nontoxic Shot Requirements under Migratory Bird Hunting Regulations (50 CFR 20.21(j))

PURPOSE: This memorandum clarifies what types of shot are considered approved nontoxic shot under 50 CFR 20.21(j).

BACKGROUND: The U.S. Fish and Wildlife Service (FWS) implements the Migratory Bird Treaty Act (16 U.S.C. §§ 703–712) and related hunting regulations in 50 CFR 20, which prohibit the use or possession of any shot type that is not listed as approved nontoxic shot (50 CFR 20.21(j)) when hunting waterfowl, coots, or species included in aggregate bag limits. Only the shot types listed in this section, and only with the coatings specified, may be used in nontoxic-shot zones.

Regulations at 50 CFR 20.134 describe how new nontoxic shot types are evaluated. To be approved, a shot material must:

1. Show no significant toxicity risk to birds, wildlife, or habitats.
2. Be identifiable as non-lead in the field using portable testing devices; and
3. Be formally approved through rulemaking and added to the list in §20.21(j).

We have received frequent questions about copper shot. While thin copper coatings¹ on other approved shot types have been allowed since 1986, pure copper shot is not approved because copper can be toxic to waterfowl and aquatic species. There are four shot variations contained or coated with copper that are authorized (see attachment 1). However, only one copper-based shot type with greater than 44% copper, corrosion-inhibited copper (CIC) shot², is currently approved. CIC shot is a unique formulation in which copper is allowed only because it is coated with benzotriazole and a fluorescent powder that prevents corrosion and exposure meeting all requirements in 50 CFR 20.134.

Shot types that are not listed in 50 CFR 20.21(j), or that lack required coatings or field-testing compatibility, may not be used for migratory bird hunting (see attachment 1 for list of approved non-toxic shot types). The FWS will continue reviewing new shot and coating applications under §20.134; but no additional copper-based shot types are

¹ Copper coating is specified at a thickness of ~0.0002 inches or less.

² CIC is the product name used in the 2017 approval rule for this specific copper-based nontoxic shot formulation.

approved at this time. The FWS is considering future rulemaking to update migratory bird hunting regulations at 50 CFR 20 to address several emerging issues and technological advances, including nontoxic shot types and their approval processes. Because updates to the regulations take time, we are providing this clarification now in response to increasing questions from States, manufacturers, and the public.

POLICY:

Under 50 CFR 20.21(j), only shot types that are officially listed as approved nontoxic shot may be used to hunt waterfowl and coots during open seasons. These requirements help prevent harm to migratory birds, other wildlife, and habitats. Enforcement officers rely on field-testing tools to confirm that shot is non-lead and matches an approved composition.

The following apply:

- Only shot types and coatings that appear in 50 CFR 20.21(j) are legal for use.
- Pure copper shot is NOT approved.
- CIC shot is the only copper-based shot type that is approved. To qualify, it must:
 - Contain at least 99.9% copper,
 - Include required benzotriazole (BTA) and fluorescent thermoplastic coatings, and,
 - Be loaded in a translucent hull and wad, clearly labeled by the manufacturer.
- Thin copper, nickel, tin, zinc, or similar coatings are allowed only when applied to an already-approved nontoxic shot type and only in the limited thicknesses previously authorized (0.0002 inches or less)
- Shot types or coatings not listed in §20.21(j) may not be used until they complete the approval process described in 50 CFR 20.134, including toxicity testing, field-testing compatibility, and publication of a final rule.

Manufacturers may submit new shot materials or coatings for evaluation following the procedures in §20.134. No additional copper-based shot types are approved unless and until the Service adds them to §20.21(j) through rulemaking.

Attachment 1: Table of Approved Shot Types as listed in 50 CFR 20.21(j)(1).

Approved shot type*	Percent composition by weight	Field testing device**
Bismuth-tin	97 bismuth, and 3 tin	Hot Shot®***
Iron (steel)	iron and carbon	Magnet or Hot Shot®.
Iron-tungsten	any proportion of tungsten, and ≥ 1 iron	Magnet or Hot Shot®.
Iron-tungsten-nickel	≥ 1 iron, any proportion of tungsten, and up to 40 nickel	Magnet or Hot Shot®.
Copper-clad iron	84 to 56.59 iron core, with copper cladding up to 44.1 of the shot mass	Magnet or Hot Shot®
Corrosion-inhibited copper	≥ 99.9 copper with benzotriazole and thermoplastic fluorescent powder coatings	Ultraviolet Light.
Tungsten-bronze	51.1 tungsten, 44.4 copper, 3.9 tin, and 0.6 iron, or 60 tungsten, 35.1 copper, 3.9 tin, and 1 iron	Rare Earth Magnet.
Tungsten-iron-copper-nickel	40-76 tungsten, 10-37 iron, 9-16 copper, and 5-7 nickel	Hot Shot® or Rare Earth Magnet.
Tungsten-matrix	95.9 tungsten, 4.1 polymer	Hot Shot®.
Tungsten-polymer	95.5 tungsten, 4.5 Nylon 6 or 11	Hot Shot®.
Tungsten-tin-iron	any proportions of tungsten and tin, and ≥ 1 iron	Magnet or Hot Shot®.
Tungsten-tin-bismuth	any proportions of tungsten, tin, and bismuth	Rare Earth Magnet.
Tungsten-tin-iron-nickel	65 tungsten, 21.8 tin, 10.4 iron, and 2.8 nickel	Magnet.
Tungsten-iron-polymer	41.5-95.2 tungsten, 1.5-52.0 iron, and 3.5-8.0 fluoropolymer	Rare Earth Magnet or Hot Shot®.

* Coatings of copper, nickel, tin, zinc, zinc chloride, zinc chrome, fluoropolymers, and fluorescent thermoplastic on approved nontoxic shot types also are approved.

** The information in the "Field Testing Device" column is strictly informational, not regulatory.

*** The "HOT*SHOT" field testing device is from Stream Systems of Concord, CA.