



U.S. Department
of Transportation

**Research and
Special Programs
Administration**

400 Seventh Street, S.W.
Washington, D.C. 20590

NOV 22 1999

Ref. No. 99-0176

Mr. Gregory Maynard
Administrator, Environmental Affairs
Kaman Aerospace Corporation
Post Office Box 2
Bloomfield, CT 06002

Dear Mr. Maynard:

This is in response to your letter dated June 29, 1999, concerning the requirements for determining the hazard class of your product under the Hazardous Materials Regulations (HMR; 49 CFR Parts 171-180). Specifically, you ask for assistance in determining whether or not spent Alodine solution is forbidden from transportation under §§ 173.21 or 173.24, or carries a subsidiary hazard, and whether a motor carrier may carry the material to a hazardous waste treatment facility.

Sections 173.21(e) and 173.24(e)(4) do not apply to the mixture of hazardous materials in the manufacturing process, they apply to separate materials packaged or stored together in transportation. Section 177.848(c) applies to segregating packages of hazardous materials from other packages of hazardous materials. According to your letter, you are shipping a hazardous material in an authorized packaging, and are not packaging it or mixing it with other materials.

Regarding the subsidiary hazard for your material, it is the shipper's responsibility to class a material and determine whether a subsidiary hazard exists under the HMR. In your letter, you state that your material off-gasses a trace amount (0.36 mg/m^3 (0.33 ppm)) of hydrogen cyanide vapor. Based upon this information, this Office agrees that your material is properly classed and does not meet the definition for a Division 6.1 subsidiary hazard. Therefore, your product may be transported as "Waste Corrosive Liquid, Inorganic, N.O.S. (Chromic Acid, Nitric Acid), 8, UN3264, PG II" by an appropriately licensed motor carrier to a waste treatment facility.

I trust this answers your question. If you have further questions, please do not hesitate to contact this Office.

Sincerely,

Delmer F. Billings
Chief, Standards Development
Office of Hazardous Materials Standards



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Kaman Aerospace Corporation
P.O. Box 2
Bloomfield, CT 06002
(203) 242-4461
TELEX: 9-9326

Nelson
\$ 173.22

KAMAN

99-0176

June 29, 1999

Mr. Edward T. Mazzullo, Director
Office of Hazardous Materials Standards
Department of Transportation
Research and Special Programs Administration
400 7th Street, S. W., Room 8422
Washington, DC 20590-0001

Dear Mr. Mazzullo:

Kaman Aerospace Corporation ("Kaman") is a manufacturer of aircraft and aircraft sub-assemblies, which may be considered generically as fabricated metal products. To prevent corrosion on aircraft parts, the surface of metal components are immersed and treated in various acidic and/or alkaline baths. One such bath, commonly used in the industry, is called alodine. Alodine is purchased as a powder. It is mixed with water and a small amount of nitric acid to form an acidic solution that is 99% water, 0.75% alodine, and 0.1% nitric acid. It should be noted that the pure alodine powder contains approximately 60% chromic acid and between 10% and 30% potassium ferricyanide. When this solution becomes spent, it is offered for shipment off-site.

Citing prohibitions in 49 CFR 173.21(e), 173.24(e)(4), and 177.848(c), one of our motor carrier contractors has questioned the shipment of spent alodine solutions. Specifically, the carrier states that this acidic solution cannot be shipped over the road because it off-gases a trace amount (0.36 mg/m^3 (0.33 PPM)) of hydrogen cyanide vapor. The carrier has stated that in addition to being a Class 8 acidic material, this waste solution may also carry a subsidiary Class 6 hazard.

Kaman's hazard classification process for this material confirms the Class 8 designation, however, we do not believe that it carries a Class 6 subsidiary hazard, and we do not believe that transportation of the material is prohibited by 49 CFR 173.21(e), 173.24(e)(4), or 177.848(c).

To the best of our knowledge, there is no data on human toxicity with respect to alodine solutions. According to 49 CFR 173.132(a)(1), a material is presumed to be a Class 6, Division 6.1 material if, in the absence of adequate data on human toxicity, it falls within the categories of oral, dermal or inhalation toxicity when tested on animals. Kaman believes that none of these categories are applicable to the alodine solution. Specifically,

- Oral Toxicity: This is not applicable. Based on the MSDS data for the alodine and the composition of the solution mixture, we have estimated that the solution's LD_{50} is greater than 500 mg/kg.

- Dermal Toxicity: This is also not applicable, as there is no indication in any product literature that any of the ingredients in the solution mixture have a dermal toxicity component.
- Inhalation Toxicity: Part A is not applicable because the solution is not a dust or a mist. We believe that Part B is also not applicable because the 0.33 PPM concentration of hydrogen cyanide vapors being emitted from this solution is less than one-fifth of LC₅₀ for acute toxicity for hydrogen cyanide. According to published literature, the LC₅₀ for rats is 500 mg/m³ and death in humans can occur at concentrations of 100 mg/kg.

Based on all of the above, it is Kaman's belief that the provisions of 49 CFR 173.21(e), 173.24(e)(4), and 177.848(c) are not applicable to this material, and the spent alodine solution does not carry the subsidiary hazard of a Class 6, Division 6.1 material. Accordingly, we have assigned the following proper shipping name and hazard class for this material:

- "RQ Waste Corrosive Liquid, Inorganic, N.O.S. (Chromic Acid, Nitric Acid), 8, UN3264, PGII"

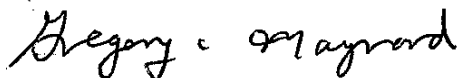
Based on the information provided, can you confirm the following:

1. That the provisions of 49 CFR 173.21(e), 173.24(e)(4), and 177.848(c) are not applicable to this material,
2. That this material does not carry a subsidiary hazard, and
3. Kaman's classification is correct and a licensed motor carrier can ship the material over the road to a hazardous waste treatment facility.

If Kaman's classification appears to be incorrect, please provide assistance in correctly classifying this waste material.

Should you have any questions or need additional information, please contact the undersigned at the letterhead address or call (860) 243-7268.

Sincerely,



Gregory C. Maynard
Administrator, Environmental Affairs