

RCRA COMPLIANCE EVALUATION INSPECTION

1) Inspector and Author of Report

Daryl R. Himes, Environmental Engineer
U.S. Environmental Protection Agency, Region 4
RCRA Enforcement Section
Chemical Safety and Land Enforcement Branch
Enforcement and Compliance Assurance Division
61 Forsyth Street, S.W.
Atlanta, Georgia 30303
(404) 562-8616

2) Facility Information

GKN Aerospace South Carolina, Inc. (GKNASC)
174 Millennium Drive
Orangeburg, South Carolina 29115
EPA ID: SCR000784041

3) Responsible Official

Ryan Shirley
Health, Environmental and Safety Manager

4) Inspection Participants

Ryan Shirley, GKNASC
Gerald Shealy, SCDHEC Columbia Office
Daryl Himes, US EPA Region 4 Atlanta

5) Date of Inspection

November 30, 2021

6) Applicable Regulations

Resource Conservation and Recovery Act (RCRA) Sections 3002, 3005 and 3007 (42 U.S.C. §§ 6922, 6925 and 6927), and the regulations promulgated pursuant thereto at 40 Code of Federal Regulations (C.F.R.) Parts 260-270, 273 and 279 [South Carolina Hazardous Waste Management Regulations (SCHWMR), S.C. Code Ann. Regs. 61-79.260-270, 61-79.273 and 61-79.279].

7) Purpose of Inspection

The purpose of the inspection was to conduct an unannounced Compliance Evaluation Inspection (CEI) to determine the compliance of GKNASC with the applicable RCRA regulations.

8) Facility Description

GKNASC operates a manufacturing facility which produces inlet lip skins for the Boeing 737 MAX and 777X. Lip skins are the leading metallic edges on these Boeing aircraft engines. The facility is located adjacent to GKNASC's existing assembly facility at this location in Orangeburg, South Carolina.

The 126,000-square-foot facility produces the one-piece 737 MAX and two-piece 777X lip skins. Approximately 75 personnel are currently employed at this facility. The facility began production of lip skins at the facility in 2011.

On January 18, 2021, GKNASC notified as large quantity generator of hazardous waste. Hazardous waste codes included with this submittal include D001, D002, D007 and D008 characteristic hazardous wastes and F003, F005, U134 and U220 listed hazardous wastes.

9) Findings

On November 30, 2021, EPA inspector Daryl Himes, accompanied by Gerald Shealy of SC Department of Health and Environmental Control SC DHEC, arrived at GKN Aerospace at approximately 9:00 a.m. Ryan Shirley, the facility's Environmental, Health and Safety (EHS) Manager, immediately received the inspectors. Mr. Shirley and the inspectors were joined by the facility's Site Manager, Bas Van Hese, for a brief introduction during the opening conference. The inspectors introduced themselves, showed their credentials, and explained the purpose of the visit. The inspectors described the anticipated use of their digital camera during the inspection and provided a request for records.

Ryan Shirley provided an overview of the facility's history and current operations during the opening conference.

The company does not appear to meet the Small Business Regulatory Enforcement Fairness Act's classification of a "small business," which is generally set by the Small Business Administration using the business' SIC/NAICS code and annual receipts or number of employees. Therefore, the EPA inspector did not provide a copy of the agency's information sheet for small businesses, which can be found at <https://www.epa.gov/sites/production/files/2017-06/documents/smallbusinessinfo.pdf>.

Walk-through Inspection

A walk-through inspection of the facility was then performed, and the results of this walk-through are described in the findings below. During the walk-through inspection, numerous containers were observed within satellite accumulation areas (SAAs). Unless otherwise noted, each container within an SAA was observed to be closed and labeled with the words "Hazardous Waste" and an indication of the hazard contents of the container. In addition, for 90-day hazardous waste accumulation areas, unless otherwise noted, each container observed within one of these areas was observed to be closed and labeled with the words "Hazardous Waste" and an indication of the hazard contents of the container and marked with an accumulation start date.

Spinform Area

Solid sheet aluminum is formed into lip skins for Boeing 737 aircraft that offer a weight reduction and generate a laminar flow surface that reduces drag and improves aerodynamic performance in this area.

Excess aluminum from the forming process is collected and sent off-site for recycling.

One 55-gallon container of hazardous waste rags was observed within a SAA in this area (Photo 1). The rags were contaminated with methyl ethyl ketone (MEK) used to clean any contamination on the surface of the lip skins upon finishing the initial spinning formation operation. The placard on this container of hazardous waste rags and all other placards observed during the walk-through inspection indicate that rags used by the facility to perform surface cleaning operations are managed as a flammable solid.

Spinform Wash Bay

The lip skins formed in the Spin Form Area are pressure washed in this area using a mixture of “Simple Green” and water. Simple Green is a nonhazardous cleaning compound. Aluminum scrap generated in the wash water is collected and sent off-site to be recycled. The spent wash water is collected in a 275-gallon plastic tote (Photo 2) and sent off-site as a nonhazardous wastewater.

Advance Topometric Sensor (ATOS) Area

The lip skins are mechanically measured in this area after being washed.

One 55-gallon container of hazardous waste rags were observed within a SAA in this area for cleaning purposes in advance of using the ATOS equipment (Photo 3). The rags were contaminated with MEK. One 5-gallon container of universal waste batteries was also observed in this area. The container of universal waste batteries was not labeled with any universal waste language or marked with an accumulation start date.

Pursuant to 25 S.C. Code Ann. Regs. 61-79.273.9 [40 C.F.R. § 273.9], a “Small Quantity Handler of Universal Waste” (SQHUW) is a Universal Waste handler who does not accumulate 5,000 kilograms or more of Universal Waste (batteries, pesticides, mercury-containing equipment, or lamps, calculated collectively) at any time.

Pursuant to 25 S.C. Code Ann. Regs. 61-79.273.14(a) [40 C.F.R. § 273.14(a)], a SQHUW must label or mark each Universal Waste battery or container or tank in which the batteries are contained clearly with one of the following phrases: “Universal Waste - Battery(ies),” or “Waste Batterie(A),” or “Used Batterie(s).”

Pursuant to 25 S.C. CODE ANN. REGS. 61-79.273.15(a and c) [40 C.F.R. § 273.15(a) and (c)], a SQHUW may accumulate universal waste no longer than one year and must be able to demonstrate the length of time that the universal waste has accumulated from the date that it became a waste or was received.

Computer Numerical Control (CNC) Area

The lip skins are mechanically trimmed in this area after being washed.

One 55-gallon container of hazardous waste rags were observed within a SAA in this area (Photo 4). The rags are contaminated with MEK used to perform surface cleaning on the lip skins to enhance performance of an advanced topometric sensor (ATOS) used on the surface of the lip skins during the performance of the CNC mechanical trimming operations.

Grind and Polish Area

Lip skins are measured for thickness, ground, and polished to the proper thickness in this area. No hazardous wastes are generated in this area.

Trim Height Area

The lip skins are cleaned with rags soaked in MEK in this area. No hazardous waste containers were observed in the designated SAA at the time of the inspection.

Final Touch-Up Area

The lip skins are polished for a final time with a very fine grit sandpaper in this area. No hazardous waste is generated in this area.

One 55-gallon container of hazardous waste rags were observed within a SAA in this area (Photo 5). The rags were contaminated with MEK used to cleaning purposes.

Lip skin Thickness Measurement Area

One box of used aerosol cans of “SKD-S2 Aerosol” was observed in a box measuring approximately 4 feet cubed. The box was open at the time of the inspection and unlabeled as universal waste aerosol cans (Photo 6).

Pursuant to 25 S.C. CODE ANN. REGS. 61-79.273.15(a and c) [40 C.F.R. § 273.14(a)], a SQHUW must label or mark each Universal Waste battery or container or tank in which the aerosol cans are contained clearly labeled with one of the following phrases: “Universal Waste – Aerosol Can(s),” or “Waste Aerosol Can(s),” or “Used Aerosol Can(s).”

Pursuant 25 S.C. CODE ANN. REGS. 61-79.273.13(e)(1) [40 C.F.R. § 273.13(e)(1)], a SQHUW must manage universal waste aerosol cans in container way that prevents releases of any universal waste or component of a universal waste to the environment.

Anodizing Area

An oxidized finish is applied to the exterior of the lip skins by anodizing the aluminum in this area. Twelve dip tanks include baths of alkaline cleaners, nitric acid, sulfuric acid, city and deionized water rinse tanks are used to anodize the aluminum. These tanks are located within a concrete secondary containment system. Eleven of the tanks have a volume of 7,200-gallons. The other tank has a volume of 10,000-gallons.

There are two alkaline cleaning tanks. Each of these tanks have a pH of approximately 10.

There are two nitric acid tanks and one sulfuric acid tank. Each of these tanks have a pH of less than one. When the contents of these tanks become spent, the facility contacts their hazardous waste hauler, and the tanks are pumped directly to a tanker truck for shipment off-site as a D002 characteristic hazardous waste.

Quality Control Lab

Samples are taken periodically from the alkaline cleaning and acid dip tanks in the anodizing area for quality control purposes. At the time of the inspection, a two-gallon container of chromic acid hazardous waste (Photo 7) was observed in a hood in the lab labeled as “Chromic Acid Waste”. The container was open and not labeled with the words “Hazardous Waste” at the time of the inspection.

Pursuant to 25 S.C. CODE ANN. REGS. 61-79.262.15(a) [40 C.F.R. § 262.15(a)], a generator may accumulate as much as 55 gallons of non-acute hazardous waste in containers at or near the point of generation where wastes initially accumulate, which is under the control of the operator of the process generating the waste, without a permit or without having interim status, as required by Section 44-56-60(a)(2) and (b)[4] of the SCHWMA, S.C. Code Ann. § 44-56-60(a)(2) and (b) [Section 3005 of RCRA, 42 U.S.C. § 6925], and without complying with 25 S.C. CODE ANN. REGS. 61-79.262.16(b) or 25 S.C. CODE ANN. REGS. 61-79.262.16(b) or 262.17(a) [40 C.F.R. § 262.16(b) or § 262.17(a)], except as required in 25 S.C. CODE ANN. REGS. 61-79.262.15(a) (7 and 8) [40 C.F.R. § 262.15(a)(7) and (8)], provided that the generator complies with the satellite accumulation area conditions listed in 25 S.C. CODE ANN. REGS. 61-79.262.15(a) [40 C.F.R. § 262.15(a)] (hereinafter referred to as the “SAA Permit Exemption”).

Pursuant to 25 S.C. CODE ANN. REGS. 61-79.262.15(a)(4) [40 C.F.R. § 262.15(a)(4)], which is a condition of the SAA Permit Exemption, a generator is required to keep containers of hazardous waste closed at all times during accumulation, except when adding, removing, or consolidating waste; or when temporary venting of a container is necessary for the proper operation of equipment, or to prevent dangerous situations, such as build-up of extreme pressure.

Pursuant to 25 S.C. CODE ANN. REGS. 61-79.262.15(a)(5) [40 C.F.R. § 262.15(a)(5)], which is a condition of the SAA Permit Exemption, a generator is required to mark or label its containers (i) with the words “Hazardous Waste.”

Aisle Area Outside of Prime Paint Booth

Four drums of paint waste from the prime coat paint booth were observed on a pallet along an aisle adjacent to the prime paint booth (Photo 8). The drums were not marked with an accumulation start date at the time of the inspection. Mr. Shirley stated that this was not designated as a 90-day hazardous waste accumulation area by the facility.

Pursuant to 25 S.C. CODE ANN. REGS. 61-79.262.10 [40 C.F.R. § 262.10], a Large Quantity Generator (LQG) is a generator who generates greater than or equal to 1,000 kilograms (2200 lbs.) of non-acute hazardous waste in a calendar month.

Pursuant to 25 S.C. CODE ANN. REGS. 61-79.262.17 [40 C.F.R. § 262.17], a LQG may accumulate hazardous waste on-site for 90 days or less without a permit or without having interim status, as required by Section 44-56-60(a)(2) and (b)[4] of the SCHWMA, S.C. Code Ann. § 44-56-60(a)(2) and (b) [Section 3005 of RCRA, 42 U.S.C. § 6925], provided that the generator complies with the conditions listed in 25 S.C. CODE ANN. REGS. 61-79.262.17 [40 C.F.R. § 262.17] (hereinafter referred to as the “LQG Permit Exemption”).

Pursuant to 25 S.C. CODE ANN. REGS. 61-79.262.17(a)(5)(i) [40 C.F.R. § 262.17(a)(5)(i)], which is a condition of the LQG Permit Exemption, a generator must mark or label its containers with (C) the date upon which each period of accumulation begins clearly visible for inspection on each container.

Prime Coat Paint Booth

The prime coat paint booth was equipped with 128 exhaust filters measuring approximately 2-feet by 2-feet each (Photos 9 and 10). Analytical data found paint waste coming into direct contact with the primer to be characteristically hazardous for chromium by failing the TCLP test with a chromium level of 5.4 ppm. The facility determined that the filters which are not sprayed directly with any of the facility’s primer paint containing chromium would be characteristically hazardous.

One 55-gallon drum of flammable solid paint waste was observed within this booth. The container was observed to be open at the time of the inspection (Photos 11 and 12).

Pursuant to 25 S.C. CODE ANN. REGS. 61-79.262.15(a)(4) [40 C.F.R. § 262.15(a)(4)], which is a condition of the SAA Permit Exemption, a generator is required to keep containers of hazardous waste closed at all times during accumulation, except when adding, removing, or consolidating waste; or when temporary venting of a container is necessary for the proper operation of equipment, or to prevent dangerous situations, such as build-up of extreme pressure.

Procoat Paint Booth

The procoat paint booth is located adjacent to the Prime Coat Paint Booth. No hazardous waste containers were observed within the booth.

Two separate 55-gallon drums of flammable solid paint waste were observed outside of this booth. The containers were each observed to be open at the time of the inspection (Photos 13 and 14).

A cardboard container measuring approximately four feet by four feet by three feet high managing hazardous waste flammable solids was also observed in the area outside of the procoat paint booth (Photo 15). The container was open, did not have a placard indicating the hazard within the box (Photo 16) and was not marked with an accumulation start date (Photo 17).

Pursuant to 25 S.C. CODE ANN. REGS. 61-79.262.17(a)(5)(i) [40 C.F.R. § 262.17(a)(5)(i)], which is a condition of the LQG Permit Exemption, a generator must mark or label its

containers with the following: (B) an indication of the hazards of the contents; and (C) the date upon which each period of accumulation begins clearly visible for inspection on each container.

Pursuant to 25 S.C. CODE ANN. REGS. 61-79.262.17(a)(1)(iv) [40 C.F.R. § 262.17(a)(1)(iv)], which is a condition of the LQG Permit Exemption, (A) a container holding hazardous waste must always be closed during accumulation, except when it is necessary to add or remove waste; and (B) A container holding hazardous waste must not be opened, handled, or stored in a manner that may rupture the container or cause it to leak.

Hazardous Waste 90-Day Accumulation Building

The facility's Hazardous Waste 90-Day Accumulation Building for wastes generated in the main building measured approximately 36 feet by 33 feet and was constructed on a concrete pad (Photo 18).

Outside of the Hazardous Waste 90-Day Accumulation building, on an asphalt pad, two 275-gallon plastic totes (Photo 19) were observed about 30 yards away. These totes were used to manage corrosive wastes from the facility's anodizing line which were in excess of hazardous wastes taken with the last tanker truck shipment. A pH reading on the wastewater found them to have a pH of less than one. The containers were not labeled with placards or any indication of the type of hazard in the containers and were not marked with accumulation start dates.

Pursuant to 25 S.C. CODE ANN. REGS. 61-79.262.17(a)(5)(i) [40 C.F.R. § 262.17(a)(5)(i)], which is a condition of the LQG Permit Exemption, a generator must mark or label its containers with the following: (B) an indication of the hazards of the contents; and (C) the date upon which each period of accumulation begins clearly visible for inspection on each container.

Inside of the Hazardous Waste 90-Day Accumulation Building, the inspectors observed the following:

One cardboard box measuring approximately four feet by four feet by three feet containing eight containers of various types of paint wastes (Photos 20 -27). Gallon containers of three PPG Aerospace 020-044 001 Thinner Component have a flash point of 33-degrees Fahrenheit. This cardboard container was open, unlabeled, did not have an indication of the hazard contents of the container and was not marked with an accumulation start date.

Pursuant to 25 S.C. CODE ANN. REGS. 61-79.262.17(a)(5)(i) [40 C.F.R. § 262.17(a)(5)(i)], which is a condition of the LQG Permit Exemption, a generator must mark or label its containers with the following: (A) the words "Hazardous Waste"; (B) an indication of the hazards of the contents; and (C) the date upon which each period of accumulation begins clearly visible for inspection on each container.

Numerous cubic yard supersacks of nonhazardous paint filters were observed in the building from the facility's paint booths (Photos 28-30).

One pallet with six lead acid universal waste batteries were observed. The batteries were not labeled with universal waste language or accumulation start date (Photo 31).

Pursuant to 25 S.C. CODE ANN. REGS. 61-79.273.14(a) [40 C.F.R. § 273.14(a)], a SQHUW must label or mark each Universal Waste battery or container or tank in which the batteries are contained clearly with one of the following phrases: “Universal Waste - Battery(ies),” or “Waste Batterie(A),” or “Used Batterie(s).”

Pursuant to 25 S.C. CODE ANN. REGS. 61-79.273.15(a) and (c) [40 C.F.R. § 273.15(a) and (c)], a SQHUW may accumulate universal waste no longer than one year and must be able to demonstrate the length of time that the universal waste has accumulated from the date that it became a waste or was received.

Record Review

A review of the facility’s records was performed following the completion of the walk-through inspection.

A review of the facility’s contingency plan did not find any discrepancies and the plan was updated with a quick reference guide.

At the time of the inspection, a review of the facility’s inspection logs found that the facility missed one weekly inspection of its containers in the 90-Day Hazardous Waste Accumulation Building the week of April 8, 2021.

Pursuant to 25 S.C. CODE ANN. REGS. 61-79.262.17(a)(1)(v) [40 C.F.R. § 262.17(a)(1)(v)], which is a condition of the LQG Permit Exemption, a generator is required to, at least weekly, inspect central accumulation areas looking for leaking containers and for deterioration of containers caused by corrosion or other factors.

A review of the facility’s hazardous waste manifests for the past two years did not find any discrepancies.

Training records for Alanna McNamee, Roy Crocker, Torrence Brown, Paul McKowen and Stan Rhoda were requested and reviewed at the time of the inspection.

From this review it was determined that Ryan Shirley had hazardous waste training in March of 2020. Mr. Shirley has not had training during 2021. None of the other employees at the facility have had any hazardous waste training. In addition, the facility did not have a list of facility personnel by job title and job description that are required to have hazardous waste training and the training required for those personnel.

Pursuant to 25 S.C. CODE ANN. REGS. 61-79.262.17(a)(7) [40 C.F.R. § 262.17(a)(7)], which is a condition of the LQG Permit Exemption, (i) Facility personnel must successfully complete a program of classroom instruction or on-the-job training that teaches them to perform their duties in a way that ensures the facility's compliance with the regulations; (ii) Facility personnel must complete personnel training within six months of being hired or of being assigned to a new position at the Facility; (iii) Facility personnel must take part in an annual review of the initial training required by this section; and/or (iv) the generator must maintain training records that include, among others: the job title for each position at the

facility related to hazardous waste management, and the name of the employee filling each job; a written job description for each position; a written description of the type and amount of both introductory and continuing training that will be given to each person filling a position; and records documenting that the training required has been given to and completed by Facility personnel.

Closing Conference

At the conclusion of the walk-through inspection and record review, a brief closing conference was conducted with each of the facility participants identified above. During the conference, the areas of concern identified during facility walk-through and also during the record review identified and discussed.

Facility representatives were informed that reports summarizing findings of the inspection would be forwarded to the facility representative by both the US EPA and SC DHEC.

10) Signed

DARYL HIMES Digitally signed by DARYL HIMES
Date: 2021.12.16 18:24:18 -05'00'

Daryl R. Himes
Environmental Engineer

Date

11) Concurrence

**ARACELI
CHAVEZ** Digitally signed by ARACELI
CHAVEZ
Date: 2022.01.18 08:03:25
-05'00'

Araceli B. Chavez
Chief
RCRA Enforcement Section

Date

ATTACHMENT A

GKN Aeronautics South Carolina, Inc.

Orangeburg, South Carolina

COMPLIANCE EVALUATION INSPECTION

SCR000784041

November 30, 2021

Photos taken by Daryl R. Himes

Photos taken with Canon Power Shot Elph 360 HS



Photo 1 – Satellite accumulation container in Spinform Area



Photo 2 – Plastic tote used to collect wastewater containing Simple Green in the Spin Form wash bay



Photo 3 – 55-gallon Container of hazardous waste rags and 5-gallon container of Universal Waste batteries observed in the ATOS Area



Photo 4 – 55-gallon Container of hazardous waste rags observed in the CNC Area



Photo 5 – 55-gallon Container of hazardous waste rags observed in the Final Touch-Up Area



Photo 6 – Aerosol Cans of Magnaflux SKD-S2 in lip skin thickness measurement area



Photo 7 – Chromic acid hazardous waste in blue container in QC lab hood.



Photo 8 – Four drums of paint waste along aisle outside of prime coat paint booth.



Photo 9 – Inside prime coat paint booth.



Photo 10 – Inside of prime coat paint booth.



Photo 11 – Container of paint waste inside of prime coat paint booth.



Photo 12 – Container of paint waste inside of prime coat paint booth.



Photo 13 – Container of paint waste solids outside of procoat paint booth.



Photo 14 – Container of paint waste solids outside of procoat paint booth.



Photo 15 – Container of paint waste solids outside of procoat paint booth.



Photo 16 – Label on Container of paint waste solids outside of procoat paint booth.

HAZARDOUS WASTE. SOLID. N.O.S.. (CHROMIUM). 9. PG III

9

HAZARD CLASS

HA3077

HAZARDOUS WASTE

FEDERAL LAW PROHIBITS IMPROPER DISPOSAL
IF FOUND, CONTACT THE NEAREST POLICE, OR
PUBLIC SAFETY AUTHORITY, OR THE
U.S. ENVIRONMENTAL PROTECTION AGENCY

MANIFEST TRACKING #		ACCUMULATION START DATE	
GENERATOR GKN Aerospace			
ADDRESS 174 Millennium Drive			
CITY Orangeburg	ST SC	ZIP 29115	
GENERATOR'S EPA IDENTIFICATION NUMBER SCR000784041		EPA HAZARD NAME TOXIC	
WASTE CODES D007 OUTS002H			
PROFILE# CH1795995	DESCRIPTION PAPER WITH PAINT FROM PAINT OPERATIONS		CUST. CONTROL#

CAUTION

CONTAINS HAZARDOUS OR TOXIC WASTE

HAZARDOUS CONSTITUENTS Chromium, PAINT SOLIDS, PAPER

11/30/2021 11:25

54 | 2600 /1382

Photo 17 – Label on Container of paint waste solids outside of procoat paint booth.



Photo 18 – Facility’s 90-day Hazardous Waste Accumulation Building



Photo 19 – Two totes of waste acid from the facility’s anodizing line on a pad in the area outside of the facility’s 90-day Hazardous Waste Accumulation Building

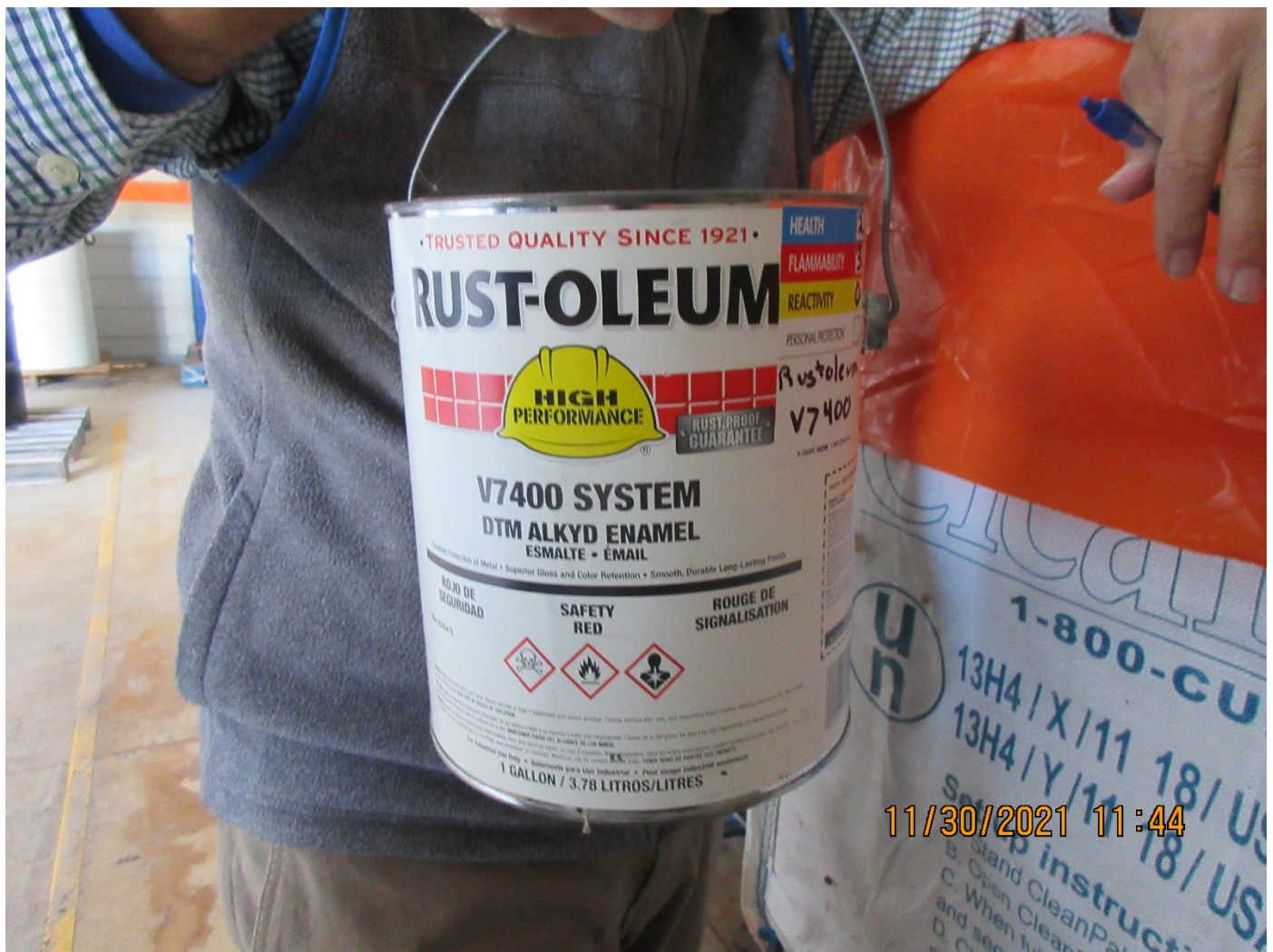


Photo 20 – One of several paint wastes observed within a box in the 90-day Hazardous Waste Accumulation Building

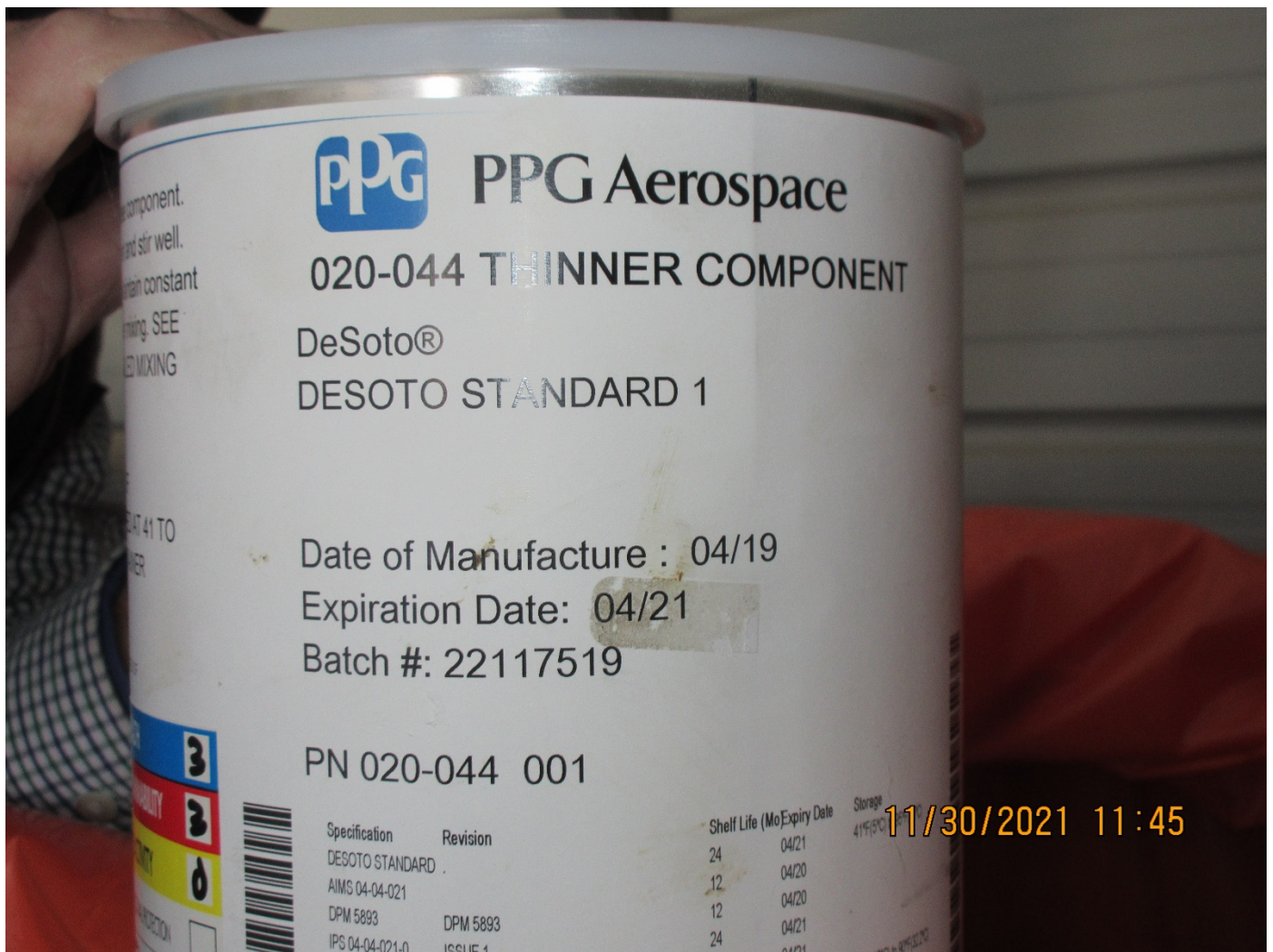


Photo 21 – One of several paint wastes observed within a box in the 90-day Hazardous Waste Accumulation Building



Photo 22 – One of several paint wastes observed within a box in the 90-day Hazardous Waste Accumulation Building



Photo 23 – One of several paint wastes observed within a box in the 90-day Hazardous Waste Accumulation Building



Photo 24 – One of several paint wastes observed within a box in the 90-day Hazardous Waste Accumulation Building

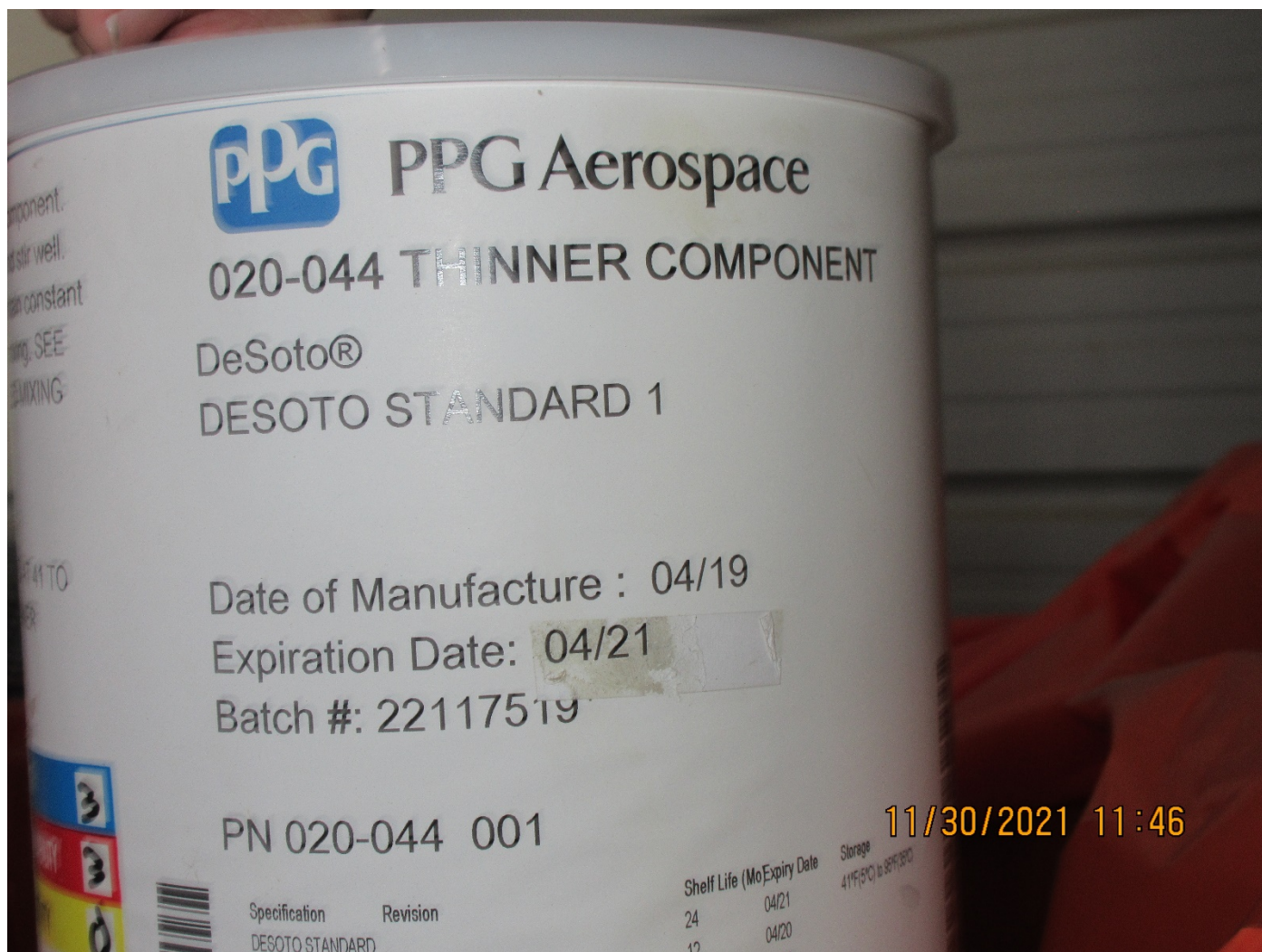


Photo 25 – One of several paint wastes observed within a box in the 90-day Hazardous Waste Accumulation Building

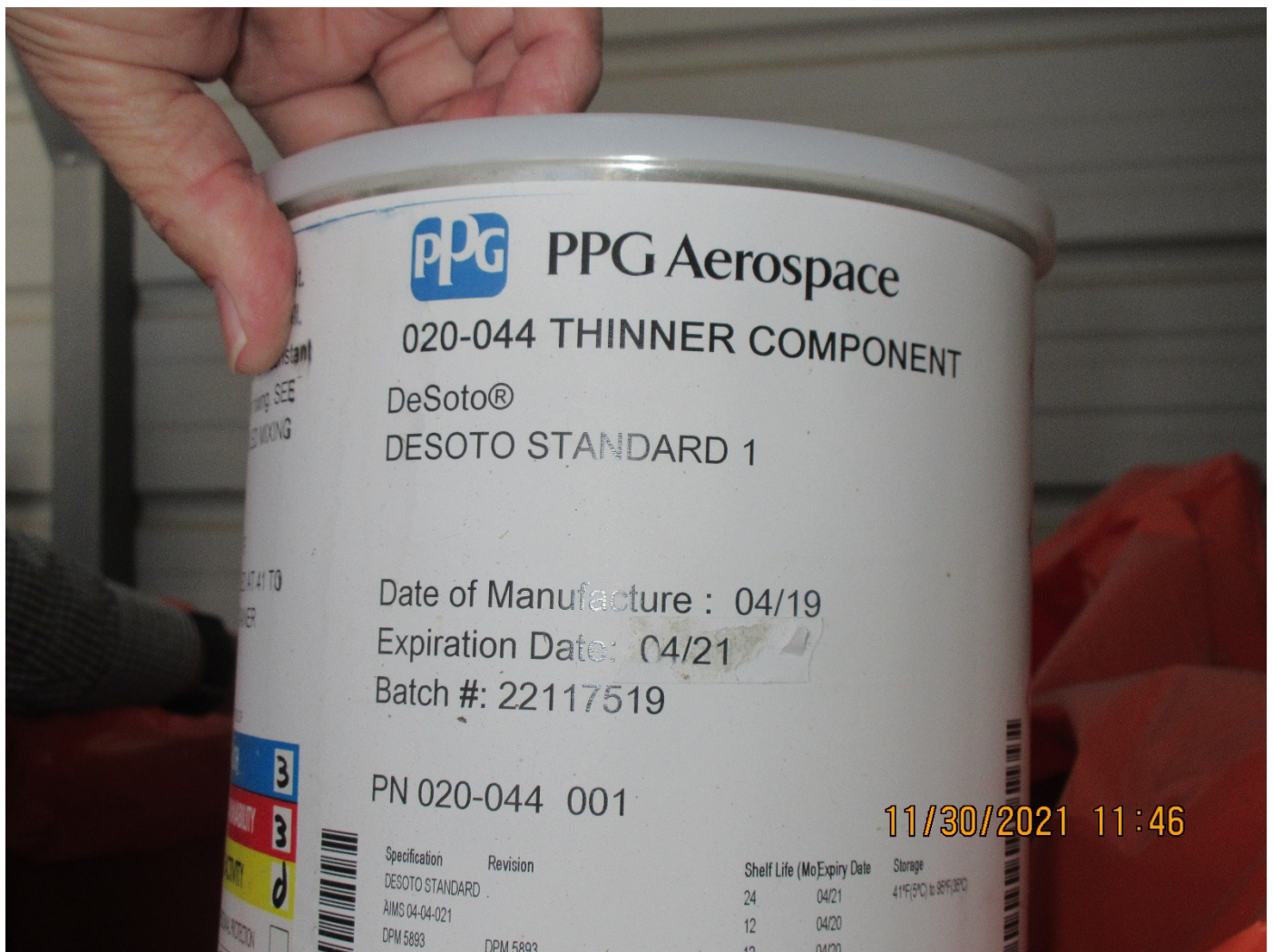


Photo 26 – One of several paint wastes observed within a box in the 90-day Hazardous Waste Accumulation Building



Photo 27 – One of several paint wastes observed within a box in the 90-day Hazardous Waste Accumulation Building

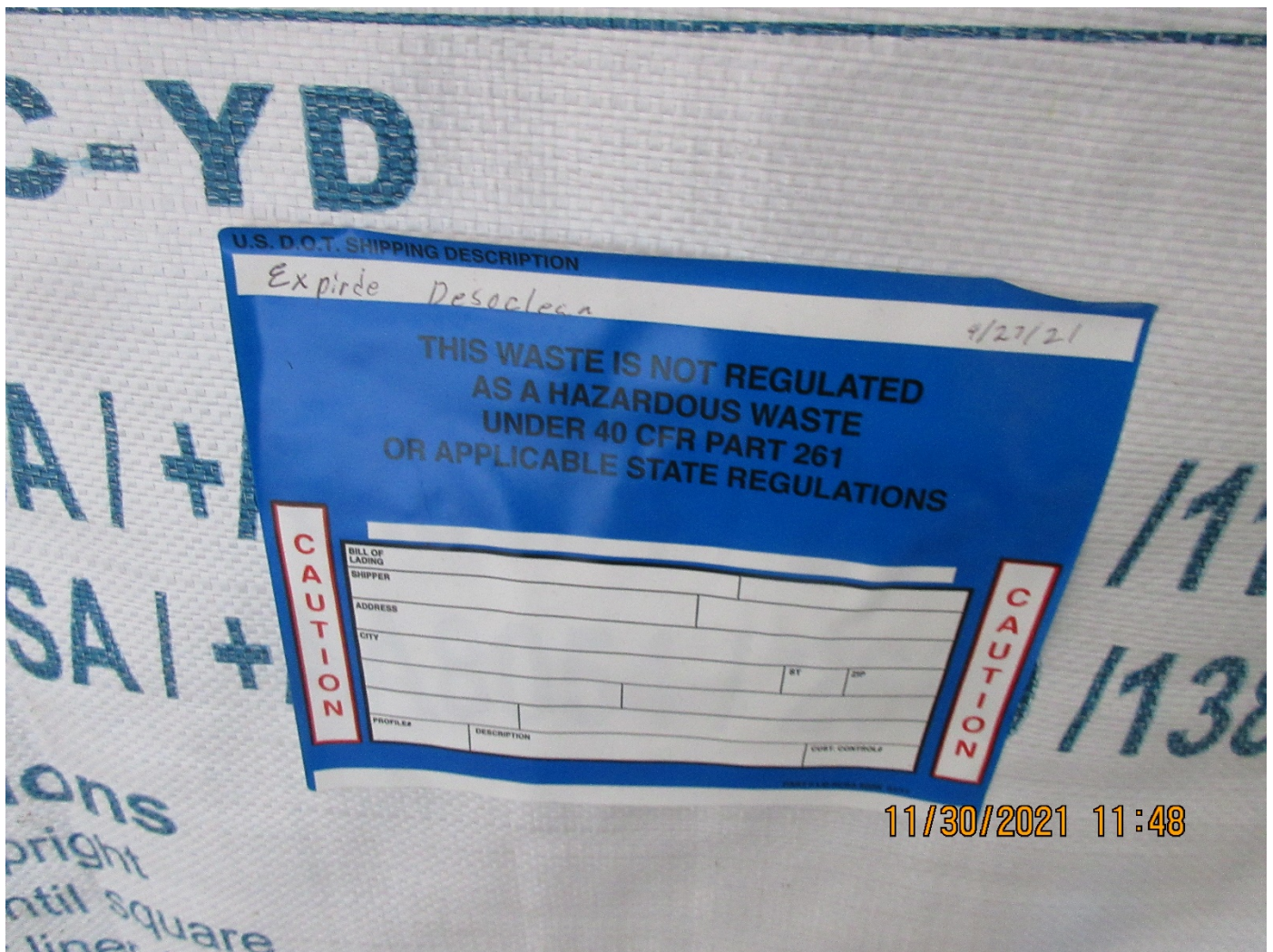


Photo 28 – Nonhazardous paint filters



Photo 29 – Nonhazardous paint filters



Photo 30 – Nonhazardous paint filters



Photo 31 – Universal Waste Batteries in 90-day accumulation area