DEPARTMENT OF DEFENSE

Defense Acquisition Regulations System

48 CFR Parts 223 and 252

RIN 0750–AG35

Defense Federal Acquisition Regulation Supplement; Minimizing the Use of Materials Containing Hexavalent Chromium (DFARS Case 2009–D004)

AGENCY: Defense Acquisition Regulations System, Department of Defense (DoD).

ACTION: Final rule.

SUMMARY: DoD is issuing a final rule amending the Defense Federal Acquisition Regulation Supplement (DFARS) to implement the requirements for minimizing the use of materials containing hexavalent chromium in items acquired by DoD (deliverables and construction materials hereafter referred to as deliverables). Hexavalent chromium is a chemical that has been used in numerous DoD weapons systems and platforms due to its corrosion protection properties. However, hexavalent chromium is a known carcinogen. This rule codifies a DoD policy for addressing the serious human health and environmental risks related to the use of hexavalent chromium. The rule prohibits the delivery of items containing more than 0.1 percent by weight hexavalent chromium in any homogeneous material under DoD contracts unless there is no acceptable alternative to the use of hexavalent chromium.

DATES: *Effective Date:* May 5, 2011.

FOR FURTHER INFORMATION CONTACT: Ms. Amy Williams, 703–602–0328.

SUPPLEMENTARY INFORMATION:

I. Background

DoD published a proposed rule on hexavalent chromium in the **Federal Register** at 75 FR 18041 on April 8, 2010. This final rule amends the DFARS to implement requirements to minimize the delivery of materials containing hexavalent chromium in DoD acquisitions. The DFARS governs only DoD procurements, therefore, this action establishes requirements that DoD personnel must follow when making acquisitions for new systems.

Hexavalent chromium is a chemical that has been used in numerous DoD weapons systems and platforms due to its corrosion protection properties. However, hexavalent chromium is recognized as an inhalation carcinogen. The National Toxicology Program's Report on Carcinogens, Eleventh Edition, lists hexavalent chromium compounds as known human carcinogens. (See *http://ntp.niehs.nih.gov/ntp/roc/eleventh/known.pdf.*) The Environmental Protection Agency (EPA) classifies hexavalent chromium as a known human carcinogen by the inhalation route of exposure. (See *http://www.epa.gov/iris/subst/0144.htm.*)

In response to the serious human health and environmental risks associated with the use of hexavalent chromium, there has been an increase in national and international restrictions and controls. For example, in 2006, the Occupational Safety and Health Administration (OSHA) lowered the permissible exposure limit (PEL) ten-fold from 52 to 5 micrograms-per-cubic-meter, making it among the most stringently regulated materials used in manufacturing and maintenance operations. Similarly, the European Union Restriction of Hazardous Substances Directive restricts the use of hexavalent chromium in the manufacturing of certain types of electronic and electrical equipment. Finally, a number of defense-related industries are minimizing or eliminating the use of hexavalent chromium where proven substitutes are available.

Such restrictions and industry practices have decreased the availability of materials containing hexavalent chromium and have increased the regulatory burden and life cycle costs for DoD. Indeed, DoD and the industry have made substantial investments in finding suitable replacements for hexavalent chromium. To protect future access for critical applications and to implement its commitments pursuant to Executive Orders 13514 and 13423, on April 8, 2009, the Under Secretary of Defense (Acquisition, Technology and Logistics) issued a policy memorandum to minimize the use of materials containing hexavalent chromium in the acquisition of new systems throughout DoD. Among other things, the policy memorandum directed DoD personnel (specifically the Program Executive Offices in conjunction with the Military Department's Corrosion Control and Prevention Executive) to certify that "no acceptable alternative" exists before using any material containing hexavalent chromium on a new system and directed the Defense Acquisition Regulation Council to develop a clause for defense contracts that prohibits the use of materials containing hexavalent chromium in all future procurements unless specifically approved by the Government. This final rule implements those aspects of the policy memorandum. The final rule adds a new DFARS subpart and a corresponding contract clause to minimize hexavalent chromium in deliverables acquired under DoD contracts.

II. Analysis of Public Comments

Eleven respondents submitted comments on the proposed rule. A discussion of those comments and the revisions made to the rule as a result of those comments is provided below. The comments are organized and presented in ten overall categories. Some comments did not pertain to the DFARS rule itself; however, they are addressed to assist in further clarifying the rule. Six of the eleven respondents supported the objective of minimizing the use of hexavalent chromium or indicated that they were already compliant. The remaining five respondents did not express support or object to the rule, but provided implications and examples of actions that will be required to minimize hexavalent chromium in deliverables. Three respondents questioned the need for the rule since DoD and industry have been working for years to develop substitutes. Despite reservations about the need for the rule, these respondents provided recommendations for improving the rule. A number of the most significant recommendations have been incorporated in the revised rule as discussed in more detail below.

A. Clarification of Definitions, Terms, or Language

Comment: Two respondents requested clarification of contractor responsibility for identifying alternatives or obtaining approvals for hexavalent chromium use.

DoD Response: A DoD solicitation for a new deliverable may contain specifications for approved hexavalent chromium substitutes. In other solicitations, or for other components in the same solicitation, DoD may provide specifications that require hexavalent chromium where its use is deemed necessary to meet performance requirements and/or where proven substitutes are not available. Consideration of substitutes will include evaluation of the factors described in the DoD policy memo including—

- Cost effectiveness of alternative materials or processes;
- Technical feasibility of alternative materials or processes;
- Environment, safety, and occupational health risks associated with the use of the hexavalent

chromium or substitute materials in each specific application;

• Achieving a DoD Manufacturing Readiness Level of at least eight (8) for any qualified alternative;

• Materiel availability of hexavalent chromium and the proposed alternatives over the projected life span of the system; and

• Corrosion performance difference of alternative materials or processes as determined by agency corrosion subject matter experts.

A performance-based solicitation may not provide specifications for a substitute or pre-approval for hexavalent chromium. In such cases, the contractor is responsible for either providing a substitute that meets performance requirements or providing a request to the contracting officer for providing a deliverable containing hexavalent chromium. The contracting officer will forward the request to the authorized approving official (DFARS 223.7305(a)) for decision.

The Advanced Surface Engineering Technologies for a Sustainable Defense (ASETSDefense) Web site at *http://www.assetsdefense.org* has been established to provide information about hexavalent chromium substitutes. The site has a database that can be searched by type of process for substitute information. The site also contains briefings and summary reports from DoD-industry workshops on sustainable coatings and processes. The site helps reduce duplication in testing for the same or similar applications.

Comment: Two respondents requested that "legacy system" be defined, with one respondent stating that it should be any system that is past Material Development Decision, as the milestone defined in DoD Instruction 5000.02.

DoD Response: A "legacy system" means any program that has passed Milestone A, as defined in DoD Instruction 5000.02. At the Material Development Decision (MDD) stage in the acquisition process, far too little is known about a system. The MDD simply indicates that an acquisition of a system, equipment, or item will be required to satisfy a military capability. Milestone A occurs after the MDD. At Milestone A, the system concept has been refined and technology development can begin. Milestone A represents a very early stage in the acquisition process. Thus, by defining a legacy system as one that has already passed Milestone A, it provides a phase-in period for the rule to take effect. In other words, the rule affects only new systems that are pre-Milestone A. This provides a sufficient period, typically two years or more, for companies that contract with DoD to make any necessary adjustments.

Comment: Two respondents requested clarification of the term "homogeneous material." One respondent stated that the definition proposed is overly broad and appears to be taken verbatim from the European Union Restriction of Hazardous Substances Directive. Another respondent suggested that the definition be abandoned as unusable or be clarified by naming common types of materials to be considered homogeneous and those which should be excluded from the definition.

DoD Response: The definition of "homogeneous material" was adopted from the European Union Restriction of Hazardous Substances Directive because it is widely understood by industry given the global nature of supply chains. The definition was supplemented by providing examples to assist the contracting activity and the offeror. The intent of the examples is not to be extensive or all inclusive. "Homogeneous material" means a material that cannot be mechanically disjointed into different materials and is of uniform composition throughout. This definition can be applied to any material or article in order to determine the percent by weight of hexavalent chromium in the material. Surface coatings are considered to be a separate homogeneous material from the underlying material such as aluminum. The painted aluminum article as a whole is not a homogenous material because the paint can be mechanically disjointed (sanded or grinded) from the underlying aluminum. Also, the paint and aluminum are each of separate, uniform compositions. Conversion coatings are not considered homogeneous materials because they bond with and chemically modify the underlying material and cannot be mechanically disjointed.

Comment: Two respondents requested that the prohibition of hexavalent chromium not apply to "use" but only to products that "contain" hexavalent chromium. Two respondents requested that the phrase "or use materials [that contain hexavalent chromium] in performance of this contract" in 252.223–7XXXX (b) be deleted, so that the restriction would only apply to deliverables that contain hexavalent chromium.

DoD Response: DFARS 223.7303 was revised to provide clarity that hexavalent chromium may be used in manufacturing or testing of an article, as long as it will not appear as hexavalent chromium in the final product. As an example, in chrome plating, only the metallic form of chromium remains. Thus, articles plated with the metal chromium are acceptable and the rule will have minimum affect on businesses that plate chromium. Based on an industry comment, DoD modified the rule to indicate that the "prohibition does not apply to hexavalent chromium produced as a by-product of manufacturing processes" such as hard chrome plating. This was a primary concern of one of the industry associations. The phrase "or use materials in performance of this contract" in paragraph (b) of the clause at 252.223–7XXX has been deleted.

Comment: Two respondents requested clarification of the definitions of "unapproved" and "damages" in paragraph (c) of the clause 252.223–7XXX.

DoD Response: Paragraph (c) of the clause 252.223–7XXX was deleted in its entirety (see section II.I. of this preamble addressing contractor liability).

Comment: One respondent expressed an opinion that the title of proposed DFARS Subpart 223.73 is at variance with other parts of the rule. Specifically: "The proposed subpart 223.73 is entitled 'Minimizing the use of hexavalent chromium', but paragraphs 223.7302, 223–7303, and the proposed clause 252.223–7XXX use the term 'prohibition.'"

DoD Response: Review of the rule as a whole does not support a finding of a conflict and edits have been made to clarify this. While proposed DFARS 223.7302 and the proposed clause at DFARS 252.223–7XXX use the term "prohibition," the prohibition exists only where proven substitutes are available that provide acceptable performance for the application. Consideration of cost effectiveness, technical feasibility, corrosion control performance, and other factors described in the DoD policy memo must be taken into account. Read in its entirety, proposed DFARS Subpart 223.73 and the clause at proposed DFARS 252.223–7XXX do not impose an absolute ban on the use of hexavalent chromium. Rather, DFARS Subpart 223.73 minimizes the incorporation of hexavalent chromium into deliverables to the extent practicable, considering all the factors described in the DoD policy memo.

B. Limitation to Not More Than 0.1 Percent Hexavalent Chromium

Comment: One respondent indicated that their products are already compliant with the prohibition on hexavalent chromium in the European Union Restriction of Hazardous Substances Directive. The respondent

further noted that trace amounts of hexavalent chromium remain in the products but are well below the 0.1% threshold noted in the rule.

DoD Response: No change in the rule is necessary to address this comment. The decision to allow trace amounts of hexavalent chromium of less than 0.1 percent is consistent with worldwide standards, including Europe's Restriction of Hazardous Substances; thus these products will also be compliant with the this rule.

Comment: One respondent noted that the proposal does not reference any background or guidance document for testing for hexavalent chromium percent by weight.

DoD Response: There are a number of test procedures that could be used for testing for hexavalent chromium and the choice is dependent on the material being tested. Listing test methods is beyond the scope of the rule. Providers will have flexibility to choose the test method best suited to their application. International standard IEC 62321 "Determination of levels of six regulated substances (lead, mercury, cadmium, hexavalent chromium, polybrominated biphenyls, polybrominated diphenyl ethers) is the most widely used and was finalized in May 2009. ISO Standard 3613 for metallic and organic coatings was updated in November 2010 and is also widely used.

C. Need for the Rule and Adequacy of Current Regulations

Comment: Three respondents questioned the need for the rule. One respondent stated that existing environmental, safety, and health regulations provide adequate safeguards. Another stated that it considered the rule to be premature without additional study, testing, and proof of performance and since it is limited to one federal department, it should be withdrawn. Another respondent suggested that DoD should consider a phased-in approach.

DoD Response: The rule will help to facilitate DoD's compliance with the requirements established in Executive Orders 13514 and 13423 to reduce the use of toxic and hazardous substances. In addition, it allows for the codification of the policy outlined in the DoD policy memo for the acquisition community to effectively implement the guidance in contract requirements. This rule is intended for DoD program managers and contracting officers by prohibiting the use of a DoD specification or solicitation that will result in a deliverable containing hexavalent chromium unless authorized by a senior level DoD official. This addresses a key complaint from industry that DoD specifications are preventing them from eliminating hexavalent chromium despite their desire to do so.

The rule also provides incentive for industry to adopt substitutes for hexavalent chromium. The rule has been modified to provide that a "legacy system" means a program that has passed Milestone A in the defense acquisition management system, as defined in DoD Instruction 5000.02, prior to the effective date of the rule. This is an early entry point into the defense acquisition system and, as noted in section II.A. of this preamble, provides a phasing in of the mandatory requirements of the rule for new acquisitions still only in the development phases. In regard to the need for further testing, DoD and industry have spent years testing substitutes and will continue to do so. The DoD policy does not require use of substitutes unless they can meet a DoD Manufacturing Readiness Level (MRL) of at least eight. Essentially, this means that the substitute has been proven to meet performance requirements. An item at MRL eight must have detailed designs and/or specifications, proven manufacturing and quality processes, and an established and stable supply chain.

D. Cost to Industry and Mission Readiness

Comment: Seven respondents stated that this rule will increase costs but did not provide substantiation. In one case, the respondent indicated that "elimination of hexavalent chromium compounds * * * might result in increased level of performance risk and increased procurement costs." Another respondent referred to an increase in life cycle costs but did not appear to account for savings in using safer chemicals or the fact that substitutes must perform as well.

DoD Response: It should be noted that cost-related comments were made before revisions in the rule that address the most significant concerns such as plating, conversion coatings, and hexavalent chromium as a by-product of manufacturing. The final rule will not affect these activities. Only one respondent provided an estimate. That estimate is instructive and is discussed further below.

Based on numerous conversations with industry and small businesses, DoD believes that the rule will have a positive impact on industry and small business profits and, at worst, be revenue neutral over time. Web sites maintained under DoD's Strategic Environmental Research and Development Program (SERDP) contain briefings describing DoD and industry efforts to develop hexavalent chromium substitutes. For example, the 2010 SERDP conference had a special session on hexavalent chromium minimization. One of the presentations by the Aerospace Industries Association described the aerospace industry's minimization strategy. (Reference: *http://symposium.serdp-estcp.org/Technical-Sessions/2B*). The Web site at *asetsdefense.org* also contains briefings and summaries of DoD-industry conferences.

A number of small businesses have developed non-chromate processes but have been hindered in their ability to market these processes to DoD by existing DoD specifications. In one example, a small manufacturer of fasteners told DoD that they can provide non-chromate fasteners that can meet DoD performance requirements but the DoD specification calls for chromate and the requiring military office sees no reason to change it. The rule will help to remedy this problem. Subpart 223.7203 of the rule provides direction for DoD contracting officers. It prohibits contracts that include a specification or standard that results in a deliverable or construction material containing more than 0.1% hexavalent chromium by weight. In another example, a small family-run business has developed a non-chromate coating for aircraft. While the company has had success with marketing the process to commercial airlines and the Air Force, it has had limited success DoD-wide. Apparently, further motivation is needed for DoD program managers to change existing requirements for use of materials containing hexavalent chromium. The rule implements the DoD policy memo in the procurement world and will thus increase the adoption of this non-chromate coating and similar paints and coatings by small businesses DoD-wide. The rule will also help make businesses more competitive in the world market. Many large companies are requiring suppliers to provide products with a smaller "environmental footprint" by using lifecycle assessment of human health and environmental impacts. For example, over 1800 organizations are now reporting their sustainability status under the Global Reporting Initiative. (See *http://www.globalreporting.org/Home.*)

Non-hexavalent chromium processes should be less costly over the lifecycle of the process due to the use of less hazardous materials and related control and disposal cost. (See examples of documented cost savings in Section III.) The rule was modified so that plating

and anodizing are not covered by the rule. Thus, capital costs for conversions are *de minimis.* For the most part, compliance with the rule will only require switching to non-chromate paints and primers.

The one respondent that provided an estimate indicated a cost of $384,000 to convert to non-hexavalent processes. The company produces lightweight shelters for the military and customers that are primarily Government agencies. The company's main processes are metal surface "cleaning and chemical conversion." The rule, as revised, will not affect cleaning and chemical conversion (conversion coatings) and thus there will be no cost to convert related to these processes. However, the respondent's main concern was not the conversion cost but the concern that one branch of the military will require a hexavalent chromium conversion coating and other branches will require non-hexavalent conversion coatings. The DoD policy and this rule are designed to reduce this problem of maintaining dual systems because they will cause DoD-wide changes in specifications to non-hexavalent processes. While this rule does not affect the respondent's conversion coating process, DoD has other initiatives underway to eliminate inconsistent requirements by DoD program managers by modifying DoD-wide specifications where hexavalent chromium has been required and suitable substitutes are available. As an example, DoD has qualified a non-hexavalent conversion coating for wide federal use (Reference Military Standard MIL–DTL–81706).

Comment: Four respondents stated that the rule will increase lifecycle cost due to less corrosion protection.

DoD Response: The rule does not necessarily require the use of substitutes for hexavalent chromium if lifecycle costs are higher. Lifecycle costs must be considered when deciding if proven substitutes exist (see factors listed in Section II A. above).

Many often overlooked costs (e.g., costs associated with the use of restrictive protective equipment and related productivity losses, air monitoring, reporting, medical surveillance programs, collection and treatment systems, and hazardous waste disposal) can be avoided with the use of less toxic chemicals.

Comment: Three respondents stated that the rule will decrease corrosion protection thereby adversely impacting mission readiness.

DoD Response: This rule does not decrease mission readiness as this factor must be considered when determining if proven substitutes exist. To eliminate any confusion, the factors to be considered have been added to DFARS 223.7305.

Comment: One respondent inquired about the funding strategy for research and development.

DoD Response: This comment is outside of the scope of this case. DoD has a robust program for developing and testing substitutes. (See the program area "Weapons Systems and Platforms" at *http://www.serdp.org.*)

Comment: Two respondents recommended that DoD limit review time of the waiver to not more than 30 days.

DoD Response: DoD assumes the respondent meant "authorization" for the use of hexavalent chromium vice "waiver." DoD program managers are establishing efficient procedures for reviewing and granting authorizations for programs they manage. Timing for reviews and authorizations will depend on the complexity of the system but program managers have an incentive to ensure that schedules are not adversely affected by the review process.

E. Legacy Systems

Comment: Three respondents requested clarification of the exceptions at DFARS 223.7303 (now 223.7304), regarding the repair or replacement of legacy systems.

DoD Response: The exception for legacy systems has been clarified. Legacy system is now defined and an exception has been added for sustainment related contracts (e.g., parts and services) for existing systems with hexavalent chromium. However, Section 223.7304(a) of the rule requires program managers to consider alternatives during system modifications, follow-on procurements of legacy systems, or maintenance procedure updates if it is deemed feasible and needed to achieve the objectives of the DoD policy. Consideration of alternatives will require analysis of the factors described in the DoD policy memo.

Comment: One respondent requested that DoD clarify that there is no expectation to sample and analyze legacy systems and their related parts, subsystems, and components for the sole purpose of identifying hexavalent chromium.

DoD Response: DFARS does not have a requirement that legacy systems and their related parts, subsystems, and components be sampled or analyzed for the purpose of identifying hexavalent chromium. Legacy systems are clearly excepted from the rule.

F. Exceptions

Comment: Four respondents requested clarification of the process for approval of exemptions.

DoD Response: Exemption is not a term used in the rule. The respondent evidently means the process for obtaining authorizations to provide a deliverable or construction material with hexavalent chromium as described at DFARS 223.7305. Military departments have established or are establishing internal procedures for processing authorizations for use of hexavalent chromium. These procedures are necessitated by the individual needs of the Service and/or each program office. The approval process will be provided as part of the solicitation. It is in the best interest of DoD and individual program managers to have speedy, efficient processes for handling hexavalent chromium authorizations.

Comment: One respondent noted that it would be difficult to achieve the specification requirement under MIL–DTL–38999 for circular connectors if hexavalent chromium is removed from the sealer used in manufacturing circular connectors, noting that current test data suggests that replacing hexavalent chromium with trivalent chromium is not effective for circular connectors with cadmium-free plating.

DoD Response: Given the wide range of applications and the longstanding use of hexavalent chromium, DoD recognizes that the transition to proven substitutes will take time and recognizes that it will need to make exceptions to this rule while adequate alternatives continue to be developed. This amendment to the DFARS is one component of DoD's overall strategy to minimizing the use of materials containing hexavalent chromium in Defense acquisitions. As stated in the DoD policy memo, to adequately address the environmental and health concerns associated with the use of materials containing hexavalent chromium, DoD is going beyond its established hazardous materials management processes. In fact, this change to the DFARS specifically acknowledges that there may be particular specifications, such as MIL–DTL–38999, that require case-by-case authorizations for materials that contain hexavalent chromium. Section 223.7305 allows the appropriate DoD official to authorize the use of materials that contain hexavalent chromium when necessary, and if consistent with DoD policy. Any one that seeks such an authorization should follow the procedures in the DFARS Procedures,

Guidance, and Information (PGI) at 223.7305.

Furthermore, DoD appreciates the information regarding the performance of circular connectors using trivalent chromium. DoD continues to make major investments to minimize the use of hexavalent chromium in defense acquisitions. DoD has sponsored efforts that range from fundamental research through advanced development to testing and evaluation for proven substitutes. As discussed earlier, the Strategic Environmental Research and Development Program (SERDP) and the Environmental Security Technology Certification Program (ESTCP) sponsor the Advanced Surface Engineering Technologies for a Sustainable Defense (ASETSDefense), which is a database that facilitates the implementation of new, environmentally friendly technologies for surface engineering (coatings and surface treatments) by providing ready access to background information and technical data from research, development, test, and evaluation efforts as well as the status of approvals and implementations. This database is continually growing as more documents are added, concentrating on coatings that avoid the use of hexavalent chromium. DoD will continue these efforts to provide proven substitutes for an ever increasing range of applications and materials to foster the widespread implementation of alternatives to hexavalent chromium. ASETSDefense's relational database is designed with a search capability to provide access to the available information needed to make informed decisions on the use of alternatives to materials and technologies for surface engineering that pose environmental or health hazards. This information includes detailed engineering data, background documents, and information on processes and products that have been validated, authorized, or implemented. For more information and to access the database go to: *http://www.assetsdefense.org/databasedescription.aspx.*

Comment: One respondent requested an exception for all commercial items.

DoD Response: To provide an exception for all commercial items will jeopardize the intent of the rule and be contrary to DoD policy. It is the responsibility of the prime contractor to require suppliers to provide content information. There is currently a requirement to provide content information for articles that contain hazardous substances such as hexavalent chromium in Material Safety Data Sheets (see FAR 52.223–3, Hazardous Material Identification and Material Safety Data).

Comment: One respondent stated that paragraph (d) of the clause requires that the prohibition will always flow down to the subcontractor and does not provide for a situation where the subcontractor's items qualify for an exemption.

DoD Response: Similar to change order requests and other types of approvals, subcontractors may submit proposals for approvals of necessary hexavalent chromium use through the prime contractor for approval. Since the clause flows down, the same approval process for exemptions applies to the subcontractor as well.

Comment: One respondent asked if the liability language exempts legacy systems/or components.

DoD Response: The paragraph on liability was deleted from the final text of the clause because existing law is sufficient.

Comment: One respondent stated that data such as cost effectiveness and corrosion protection be considered in rendering exemptions.

DoD Response: The respondent is correct. The DoD policy of April 8, 2009, contains requirements for weighing hexavalent chromium versus substitutes. The following factors, at a minimum, must be considered—

- Cost effectiveness of alternative materials or processes;
- Technical feasibility of alternative materials or processes;
- Environment, safety, and occupational health risks associated with the use of the hexavalent chromium or substitute materials in each specific application;
- Achieving a DoD Manufacturing Readiness Level of at least eight (8) for any qualified alternative;
- Materiel availability of hexavalent chromium and the proposed alternatives over the projected life span of the system; and
- Corrosion performance difference of alternative materials or processes as determined by agency corrosion subject matter experts.

Section 223.7305 has been revised to include the above factors from the DoD policy memo.

Comment: One respondent inquired if another exception is required if an exception has been allowed under the original contract. Another respondent asked about exemptions for follow-on procurements, or maintenance procedures.

DoD Response: The rule has an exception for legacy systems, which are now defined. An exception has been added for sustainment related contracts (e.g., parts, services) for existing systems with hexavalent chromium approved.

G. Dollar Threshold

Comment: One respondent requested that a dollar threshold be established for waiver of the rule.

DoD Response: Cost effectiveness will be considered in deciding whether to prohibit hexavalent chromium or authorize a deliverable containing hexavalent chromium.

H. Statutes, Regulations, and Government-Wide Application

Comment: One respondent stated that the rule is contrary to existing statutes such as the Resource Conservation and Recovery Act (RCRA), which sets strict requirements for manifesting and disposing of hazardous waste but does not prohibit use of materials such as hexavalent chromium.

DoD Response: The rule is not contrary to existing statutes. The rule is consistent with the 1984 Federal Hazardous and Solid Waste Amendments to RCRA that focused on waste minimization. RCRA prescribes "that the manifest required by subsection (a)(5) shall contain a certification by the generator that the generator of the hazardous waste has a program in place to reduce the volume or quantity and toxicity of such waste to the degree determined by the generator to be economically practicable."

Comment: Two respondents stated that the rule is not consistent with national and international regulations because laws such as the Clean Water Act and the Clean Air Act, and regulations such as OSHA and the European Union's Restriction on Hazardous Substances control the release of hexavalent chromium but do not prohibit its use.

DoD Response: As with the referenced statutes and regulations, the objective of this rule is the protection of human health and the environment while balancing other considerations. Protection of human health and the environment has historically been accomplished through the reduction of releases and/or managing exposure. This rule reduces releases and exposure by minimizing the incorporation of hexavalent chromium into products acquired by DoD. The DoD approach to minimizing hexavalent chromium does consider factors such as cost effectiveness and technical feasibility as described at 223.7305. Since this rule does not address the use of hexavalent chromium in the manufacturing process or completely ban the use of hexavalent chromium in end items delivered to DoD, other statutes and regulations

addressing releases and managing human exposure will complement this rule when hexavalent chromium is used in or is a byproduct of the manufacturing process or is incorporated into the end item.

Comment: One respondent stated that the rule should be applicable Governmentwide.

DoD Response: The rule is only applicable to DoD. It is based on the April 8, 2009, policy memorandum, issued by the Under Secretary of Defense (AT&L).

I. Contractor Liability

Comment: Two respondents requested the removal of the liability provisions of the clause because existing law is sufficient. These respondents stated that the proposed paragraph (c) of 252.223–7XXX poses an unreasonable legal and financial risk.

DoD Response: DoD agrees with the respondents. Existing law is sufficient to address any issues regarding deliverables with hexavalent chromium. Paragraph (c) of the clause was removed from the final rule.

J. Alternatives, List of Preapproved Products, and Government or Third-Party Furnished Components

Comment: One respondent stated that where there are "viable and effective alternatives available," the respondent encourages the use of such alternatives. The respondent provided trivalent chromium processes as an example. Another respondent stated that the prohibition clause will "inadvertently prohibit the use of hexavalent chromium solutions that convert to trivalent chromium or other environmentally friendly compounds."

DoD Response: The rule does not prohibit the use of trivalent chromium. The rule is designed to encourage the use of environmentally friendly alternatives as authorization is required to use hexavalent chromium.

Comment: Two respondents requested a list or matrix of preapproved hexavalent chromium products. One respondent recommended that the Government and the contractor manage a list of classes of exemptions based on the current state of the art.

DoD Response: A comprehensive list of applications that are approved for the use of hexavalent chromium is not feasible for the rule. Such a list will be outdated immediately. However, individual solicitations will contain pre-approved uses of hexavalent chromium for specific applications where its use is deemed necessary to meet performance requirements and/or proven substitutes, considering relevant factors, do not exist. DoD program managers will maintain lists of pre-approved applications based on the criteria for approving substitutes pursuant to the April 8, 2009, memorandum, while taking into consideration the current state of art.

Comment: One respondent stated that contractors may be required to incorporate Government-furnished components or equipment in the final products assembled. Therefore, the contractor should not be held liable or responsible for screening such items if the finished product contains hexavalent chromium content in the supplied items from a third party or Government.

DoD Response: If any Government-furnished component contains hexavalent chromium, the use will be authorized by the Government. With regard to components supplied by a third party to a prime contractor, it is the responsibility of the prime contractor to know what subcontractors and suppliers provide and comply with the rule. The prime contractor should require subcontractors and suppliers to provide information regarding the content of hazardous and toxic materials. In most cases, Material Safety Data Sheets can be used to provide such information.

K. Regulatory Flexibility Analysis

Comment: Two respondents stated that the rule will have significant impact on small entities.

DoD Response: As mentioned above, since the rule was modified such that plating and anodizing are not covered by the rule, capital costs for conversions are *de minimis.* For the most part, compliance with the rule will only require switching to non-chromate paints and primers. As noted and described more thoroughly in section II.C. of this preamble, based on conversations with industry and small businesses, DoD believes that the rule will have a positive impact on industry and small business profits and at worst, be revenue neutral over time. A number of small businesses have developed non-chromate processes but have been hindered in their ability to market these processes to DoD by existing DoD specifications. The rule will also help make businesses more competitive in the world market. Non-hexavalent chromium processes should be less costly over the lifecycle of the process due to the use of less hazardous materials and related control and disposal costs.

Comment: Four respondents stated that the rule will increase lifecycle cost due to less corrosion protection.

DoD Response: The rule does not necessarily require the use of substitutes for hexavalent chromium if lifecycle costs are higher or if performance requirements for corrosion control are not met. As described in Section II.E of this preamble, the DoD policy of April 8, 2009, contains factors for considering substitutes. These factors include lifecycle costs.

L. Meeting With Industry and Stakeholders

Comment: Two respondents recommended that DoD should meet with industry and stakeholders prior to proceeding with proposed rule.

DoD Response: The DoD Strategic Environmental Research and Development Program (SERDP) has held and participated in several workshops with industry related to the use of hexavalent chromium and substitutes. The results of these workshops and related research are available on the SERDP Web site at *http://www.serdp.org* and *asetsdefense.org*). In addition, DoD representatives briefed attendees at the 2010 meeting of the National Association for Surface Finishing (NASF). DoD also provided a worldwide briefing concerning the rule on a Web-cast hosted by the NASF. During the Webcast, no negative comments were received (A transcript of the Webcast is available at a cost at *http://www.nasf.org/staticcontent/Dec14Recording.pdf*).

III. Executive Order 12866 and Executive Order 13563

Executive Orders 12866 and 13563 direct agencies to assess all costs and benefits of available regulatory alternatives and, if regulation is necessary, to select regulatory approaches that maximize net benefits (including potential economic, environmental, public health and safety effects, distributive impacts, and equity). Executive Order 13563 emphasizes the importance of quantifying both costs and benefits, of reducing costs, of harmonizing rules, and of promoting flexibility. This rule has been designated a "significant regulatory action" although not economically significant under section 3(f) of Executive Order 12866. Accordingly, the rule has been reviewed by the Office of Management and Budget. This rule is not a major rule under 5 U.S.C. 804.

IV. Regulatory Flexibility Act

DoD certifies that this rule will not have a significant economic impact on a substantial number of small entities

within the meaning of the Regulatory Flexibility Act, 5 U.S.C. 601, *et seq.*

The rule has been revised to minimize effects on small businesses in particular. The rule only affects deliverables that contain greater than 0.1% hexavalent chromium, not in-plant hexavalent chromium processes or deliverables containing the metal chromium. The rule is primarily aimed at coatings. Consequently, the rule has no effect on—

- Conversion coatings;
- Hard chrome plating;
- Chromic acid anodizing;
- Most chromated metallic ceramics; and
- Chromate washes, etches, pickling, etc.

The primary coatings used by DoD affected by the rule are—

- Chromated primers (for aircraft skins);
- Chromated primers (for components);
- Aircraft fuel tank internal coatings;
- Wet install fastener sealants (used on Naval aircraft);
- Other chromated sealants (used to seal panels, covers, electronics, etc.); and
- Chromated metallic-ceramic paints used in turbine engines.

With respect to deliverables provided to DoD, the above materials are used primarily by the large aerospace companies such as—

- Airframe manufacturers;
- Engine manufacturers; and
- Missile and spacecraft manufacturers.

The suppliers to these large manufacturers will be affected primarily by the requirement to supply components painted with non-chrome primers and chrome-free sealants. Some of these suppliers are large corporations but many are small businesses. However, the substitution of non-chromated products does not require a capital investment but rather a substitution of one coating formulation for another. For the most part, the same coating application equipment can be used and, as stated earlier, the rule will be positive for many of the small businesses that have developed non-hexavalent products.

Some commercial aerospace companies have already adopted chromate-free finish systems. This is being accomplished to meet commercial client desires for more sustainable products, but it also results in a reduction in operating costs. A Boeing press release on the initial testing of non-chromate primers on commercial aircraft states:

"In addition to simplified health and safety monitoring requirements, a chrome-free primer reduces the environmental impact of the paint and stripping process. Removing chrome from the paint and primer eliminates the need for special handling of paint waste, clean up and designated offsite disposal areas."

(Reference *http://www.boeing.com/apachenews/2009/issue_01/news_s7_p2.html*).

In one military example, significant cost avoidance was achieved by eliminating the extensive chromate control requirements involved in bonding attach points for wiring on the production line. Meeting the federal Permissible Exposure Level (PEL) requirements when using chromated primers requires blocking off the area during sanding operations, which interferes with all other work and reduces the efficiency of the production process.

The examples below provide evidence that in most cases, companies will achieve savings when replacing hexavalent chromium with an alternative.

At one maintenance facility, a side-by-side cost comparison was developed for a hexavalent chromium process and a non-hexavalent chromium process developed by a small business. The report shows that—

- The non-chromate process replaced three steps which dramatically reduced labor costs and also eliminated the need to purchase three other chemicals;
- The non-chromate process used ⅔ less rinse water resulting in water and wastewater cost savings and environmental benefit;
- There was a significant reduction in hazardous waste disposal costs;
- The equipment used for the non-chromate product was the same as the standard process (with hexavalent chromium); therefore there were no capital costs for the conversion; and
- Less personal protection equipment (PPE) was required when converting to the non-chromate process (e.g., full mask, hazardous materials suit, respirator cartridges, etc.).

At another facility, there was a savings of $6,000 per aircraft with $1.3 million in documented operational savings at the time of the report due to switching to a non-chromate process. The process also eliminated 500,000 gallons of wastewater per year.

A large maintenance facility in Ohio switched to a non-chromate process and significantly reduced pollutant discharges, improved worker safety, cut process time, and reported savings in excess of $200,000 just due to reduction in state and federal compliance requirements.

Another facility reported a savings of approximately $120,000 per year in water consumption and treatment costs alone and reduced production times by 4,400 man-hours per year.

Fact sheets and detailed cost and performance reports for numerous non-hexavalent chromium processes can be found by searching for "hexavalent chromium" at *http://www.serdp-estcp.org*.

V. Paperwork Reduction Act

The rule does not contain any information collection requirements that require the approval of the Office of Management and Budget under the Paperwork Reduction Act (44 U.S.C. chapter 35).

List of Subjects in 48 CFR Parts 223 and 252

Government procurement.

Mary Overstreet,

Editor, Defense Acquisition Regulations System.

Therefore, 48 CFR parts 223 and 252 are amended as follows:

■ 1. The authority citation for 48 CFR parts 223 and 252 continues to read as follows:

Authority: 41 U.S.C. 1303 and 48 CFR chapter 1.

PART 223—ENVIRONMENT, ENERGY AND WATER EFFICIENCY, RENEWABLE ENERGY TECHNOLOGIES, OCCUPATIONAL SAFETY, AND DRUG-FREE WORKPLACE

■ 2. Add subpart 223.73 to read as follows:

Subpart 223.73—Minimizing the Use of Materials Containing Hexavalent Chromium

Sec.

Subpart 223.73—Minimizing the Use of Materials Containing Hexavalent Chromium

223.7300 Definition.

Legacy system, as used in this subpart, means any program that has passed Milestone A in the defense acquisition management system, as defined in DoD Instruction 5000.02.

223.7301 Policy.

It is DoD policy to minimize hexavalent chromium (an anti-corrosive) in items acquired by DoD

(deliverables and construction material), due to the serious human health and environmental risks related to its use. Executive Order 13423, section 3, paragraph (a) requires that the heads of agencies reduce or eliminate the acquisition and use of toxic or hazardous chemicals. Executive Order 13514 requires that the heads of agencies are responsible for "reducing and minimizing the quantity of toxic and hazardous chemicals and materials acquired, used, or disposed of."

223.7302 Authorities.

(a) Executive Order 13423 of January 24, 2007, Strengthening Federal Environmental, Energy, and Transportation Management.

(b) Executive Order 13514 of October 5, 2009, Federal Leadership in Environmental, Energy, and Economic Performance.

223.7303 Prohibition.

(a) Except as provided in 223.7304 and 223.7305, no contract may include a specification or standard that results in a deliverable or construction material containing more than 0.1 percent hexavalent chromium by weight in any homogeneous material in the deliverable or construction material where proven substitutes are available that provide acceptable performance for the application.

(b) This prohibition is in addition to any imposed by the Clean Air Act regardless of the place of performance.

223.7304 Exceptions.

The prohibition in 223.7303 does not apply to—

(a) Legacy systems and their related parts, subsystems, and components that already contain hexavalent chromium. However, alternatives to hexavalent chromium shall be considered by the appropriate official during system modifications, follow-on procurements of legacy systems, or maintenance procedure updates; and

(b) Additional sustainment related contracts (e.g., parts, services) for a system in which use of hexavalent chromium was previously approved.

223.7305 Authorization and approval.

(a) The prohibition in 223.7303 does not apply to critical defense applications if no substitute can meet performance requirements. The DoD policy of April 8, 2009, "Minimizing the Use of Hexavalent Chromium," contains requirements for weighing hexavalent chromium versus substitutes. DoD Program Managers must consider the following factors—

(1) Cost effectiveness of alternative materials or processes;

(2) Technical feasibility of alternative materials or processes;

(3) Environment, safety, and occupational health risks associated with the use of the hexavalent chromium or substitute materials in each specific application;

(4) Achieving a DoD Manufacturing Readiness Level of at least eight for any qualified alternative;

(5) Materiel availability of hexavalent chromium and the proposed alternatives over the projected life span of the system; and

(6) Corrosion performance difference of alternative materials or processes as determined by agency corrosion subject matter experts.

(b) However, unless an exception in 223.7304 applies, the incorporation of hexavalent chromium in items acquired by DoD shall be specifically authorized at a level no lower than a general or flag officer or a member of the Senior Executive Service from the Program Executive Office or equivalent level, in coordination with the component Corrosion Control and Prevention Executive. Follow the procedures in PGI 223.7305.

223.7306 Contract clause.

Unless an exception in 223.7304 applies, or use has been authorized in accordance with 223.7305, use the clause at 252.223–7008, Prohibition of Hexavalent Chromium, in solicitations and contracts for supplies, maintenance and repair services, or construction.

PART 252—SOLICITATION PROVISIONS AND CONTRACT CLAUSES

■ 3. Add section 252.223–7008 as follows:

252.223–7008 Prohibition of Hexavalent Chromium.

As prescribed in 223.7306, use the following clause:

Prohibition of Hexavalent Chromium (MAY 2011)

(a) *Definitions.* As used in this clause—

Homogeneous material means a material that cannot be mechanically disjointed into different materials and is of uniform composition throughout.

(1) Examples of homogeneous materials include individual types of plastics, ceramics, glass, metals, alloys, paper, board, resins, and surface coatings.

(2) Homogeneous material does not include conversion coatings that chemically modify the substrate. *Mechanically disjointed* means that the materials can, in principle, be separated by mechanical actions such as unscrewing, cutting, crushing, grinding, and abrasive processes.

(b) *Prohibition.* (1) Unless otherwise specified by the Contracting Officer, the Contractor shall not provide any deliverable or construction material under this contract that—

(i) Contains hexavalent chromium in a concentration greater than 0.1 percent by weight in any homogenous material; or

(ii) Requires the removal or reapplication of hexavalent chromium materials during subsequent sustainment phases of the deliverable or construction material.

(2) This prohibition does not apply to hexavalent chromium produced as a by-product of manufacturing processes.

(c) If authorization for incorporation of hexavalent chromium in a deliverable or construction material is required, the Contractor shall submit a request to the Contracting Officer.

(d) *Subcontracts.* The Contractor shall include the substance of this clause, including this paragraph (d), in all subcontracts for supplies, maintenance and repair services, or construction materials.

(End of clause)

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DEPARTMENT OF TRANSPORTATION

Pipeline and Hazardous Materials Safety Administration

49 CFR Part 195

[Docket PHMSA–2008–0186; Amdt. 195–96]

RIN 2137–AE36

Pipeline Safety: Applying Safety Regulations to All Rural Onshore Hazardous Liquid Low-Stress Lines

AGENCY: Pipeline and Hazardous Materials Safety Administration (PHMSA), Department of Transportation (DOT).

ACTION: Final rule.

SUMMARY: PHMSA is amending its pipeline safety regulations to apply safety regulation to rural low-stress hazardous liquid pipelines that were not covered previously by safety regulations. This change complies with a mandate in the Pipeline Inspection, Protection, Enforcement, and Safety Act of 2006 (PIPES Act).

DATES: This final rule takes effect October 1, 2011.

FOR FURTHER INFORMATION CONTACT: For technical contents of the final rule contact Mike Israni by phone at 202–366–4571 or by e-mail at *Mike.Israni@dot.gov.* For all other information contact Tewabe Asebe by phone at 202–366–4595 or by e-mail at *tewabe.asebe@dot.gov.*

SUPPLEMENTARY INFORMATION: