



REACHING NEW HEIGHTS

2019 YEAR-END
REPORT

At IAEG[®], we have a unique vision to advance innovative environmental solutions for the aerospace and defense industry. We are collectively, creatively and strategically accomplishing more and more each year to achieve that vision.

In 2019, we have so much to be proud of, particularly the increased collaboration among IAEG members within and across our many work groups and committees. We have a growing and even more highly engaged membership, which demonstrates our collective and continued commitment to the ongoing success of IAEG. In 2019, IAEG welcomed three new member companies, completed activities in two work groups and created two new work groups. Many of our numerous accomplishments in 2019 are highlighted in this Year-End Report.

While IAEG has already accomplished so much, there is still a great deal more we want to and can accomplish in the coming years. In 2020, we will continue to look for opportunities to improve and enhance our operational efficiency so that we are positioned to respond quickly to emerging industry needs. We will also continue to look for opportunities to strategically expand our outreach within and outside IAEG, as well as grow our membership.

On behalf of IAEG, I want to express my deepest appreciation for the ongoing commitment and support by each IAEG member. Without your continued and engaged participation, and creative and strategic thinking, IAEG would not be the industry leader that it is. And, with your continued commitment and support, IAEG will continue to identify and tackle environmental challenges with creative solutions for the benefit of the aerospace and defense industry. We look forward to 2020 and many exciting years ahead for IAEG.



Sally Gestautas
Board Chair



✓ 2019 ACCOMPLISHMENTS

Materials and Substances Declaration

Replacement Technologies

REACH Authorization

Emerging Regulations

**Greenhouse Gas (GHG)
Management and Reporting**

**ISO 14001 and Environmental
Management System implementation**

Materials and Substances Declaration

2019 ACCOMPLISHMENTS



Published [Declaration Process Overview](#)



Published [Introduction to the Aerospace and Defense – Supplier Reporting Tool \(AD-SRT\)](#) and [Frequently Asked Questions \(FAQs\)](#)



Released [AD-SRT v1.1](#)

2020 GOALS

- ✓ Publish Aerospace and Defense – Declarable Substance List (AD-DSL) v4.0 and v5.0
- ✓ Publish AD-SRT 1.2
- ✓ Publish Phase 2 guidance on substance mass calculations



The tools created by WG1 help the global aerospace and defense industry and their supply chains gather required information more efficiently and effectively. Standardization enables the process to become more simple rather than companies trying to gather and communicate the same information in multiple, different formats with various requirements to meet customer needs. WG1’s ongoing focus is to engage industry, customers and supply chains in promoting and fostering declaration capabilities and to obtain and provide quality chemical composition data for industry products and, thus, support reporting and product compliance obligations.”

- Beth Miller, Pratt & Whitney
Work Group Leader

Replacement Technologies

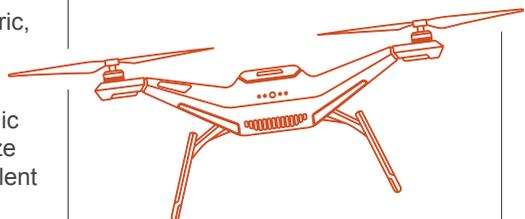
2019 ACCOMPLISHMENTS

NON-CHROME 6 ANODIZED SEAL

- Collected and tabulated data for corrosion resistance requirements and completed performance observation for major anodize types (Sulfuric, Thin-Film Sulfuric, Tartaric-Sulfuric)
- Largely completed tabulation and collection of data for organic finish adhesion to major anodize types, sealed with non-Hexavalent chromium anodic seals

BONDING PRIMER

Completed technical exchange phase and drafted summary report for early 2020 release



CADMIUM PLATING ON INDUSTRY STANDARD PARTS

Developed a specification for Zinc-Nickel plating as an alternative to cadmium, which is currently undergoing the AMS Standards Committee approval process

CHROMATE CONVERSION COATING

- Conducted a performance evaluation of 3 non-chromated chemical conversion coating solutions available on industrial-size lines using 6 different coating applicators
- Testing was performed by 3 project participants' internal labs for corrosion testing and electrical contact resistance measurements

HARD CHROME PLATING

Published a report on the existing technologies that have been reviewed

2020 GOALS

- ✓ Complete organic finish adhesion data review
- ✓ Prepare final report

- ✓ Launch follow-on collaboration project working with all suppliers to define application requirements for chromate-free bond primers and advance development of bond primer systems for aerospace applications

- ✓ Launch tests to assess the performance of electrical connectors coated with alternatives to cadmium

- ✓ Finish analysis and issue final report

- ✓ Publish a report on potential or upcoming technologies



WG2 helps manufacturers collaborate on a voluntary basis to efficiently investigate alternatives to technologies affected by REACH and other regulations and to ensure the continued delivery of safe and high performing products.”

- Laura Wilkinson, Rolls-Royce, Work Group leader

REACH Authorization



2019 ACCOMPLISHMENTS



Completed Bisphenol A (BPA) and Anhydrides (HHPA, MHPA) Supply Chain Mapping reports



Finalized a Preliminary Assessment of next 11 Substances of Very High Concern & Short Chain Chlorinated Paraffins (SCCP)

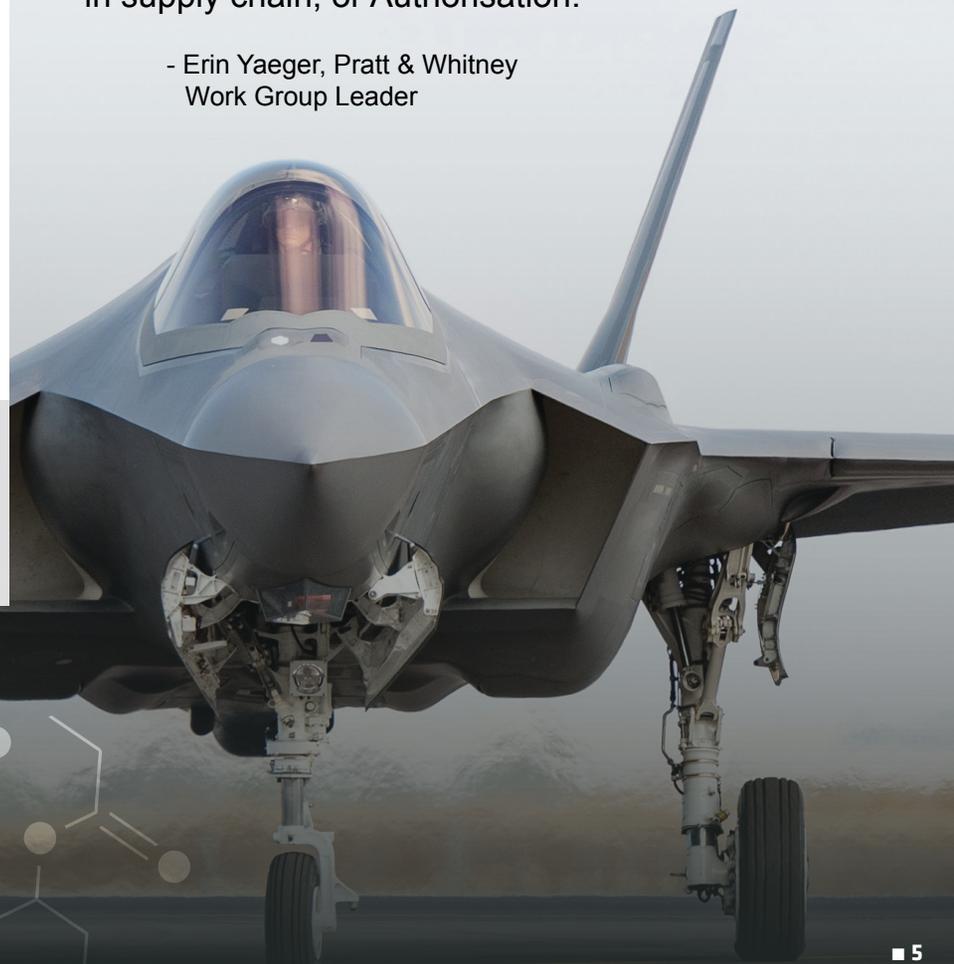
2020 GOALS

- ✓ Develop additional Supply Chain Mapping reports based on established priorities



The risk assessments conducted for BPA, HHPA and MHPA has saved individual companies the time and resources of conducting this research on their own and has helped companies gain insight into their own risk. Companies now have significant information from the WG5 activities to help them consider their risk mitigation plans, potentially including substitution activities, changes in supply chain, or Authorisation.”

- Erin Yaeger, Pratt & Whitney
Work Group Leader



Emerging Regulations

2019 ACCOMPLISHMENTS

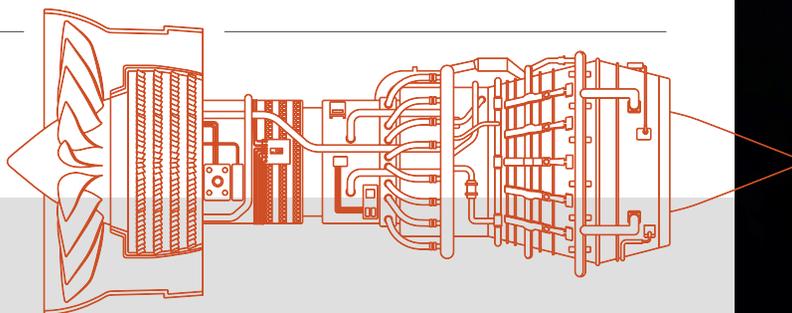
ISSUED REGULATORY ALERTS FOR:



South Korea REACH (K-REACH)



Restriction of Hazardous Substances (ROHS) Directive – Addition of phthalates



2020 GOALS

Issue Regulatory alerts for:

- ✓ U.K. REACH Regulation
- ✓ EU Waste Framework Directive
- ✓ Per- and Polyfluoroalkyl substances (PFAS) Family of Chemicals and Biocidal Products
- ✓ Additional alerts based on evaluation and established priorities

“Member companies directly benefit from leveraging information on emerging regulations provided by WG9 to complement, support and streamline the processes currently in place at their facilities.”

- Lisa Brown, Lockheed Martin
Work Group Leader

“The involvement of companies in WG9 helps to improve the Group’s understanding of and reaction to emerging regulations in “countries of interest.”

- Michel Renault, Thales Group
Deputy Work Group Leader

Greenhouse Gas (GHG) Management and Reporting

2019 ACCOMPLISHMENTS



Published GHG supplemental Guidance V3



Completed benchmarking of scope 3 methodologies for:

- Purchased Goods and Services (PG&S)
- Capital Goods (CG)



Developed methodology, guidance and tool for scope 3 categories Purchased Goods and Services and Capital Goods

2020 GOALS

- ✓ Publish methodology, guidance and tool for Scope 3 Greenhouse Gas Reporting for PG&S and CG
- ✓ Communicate and demonstrate Scope 3 PG&S, CG guidance to IAEG membership, the wider A&D community and value chain partners
- ✓ Engage member companies on emerging regulations and expectations for A&D industry on GHG reporting, management and reduction activities



Based on preliminary research, approximately 90 percent of IAEG’s full member companies publicly reported GHG emissions in 2018.

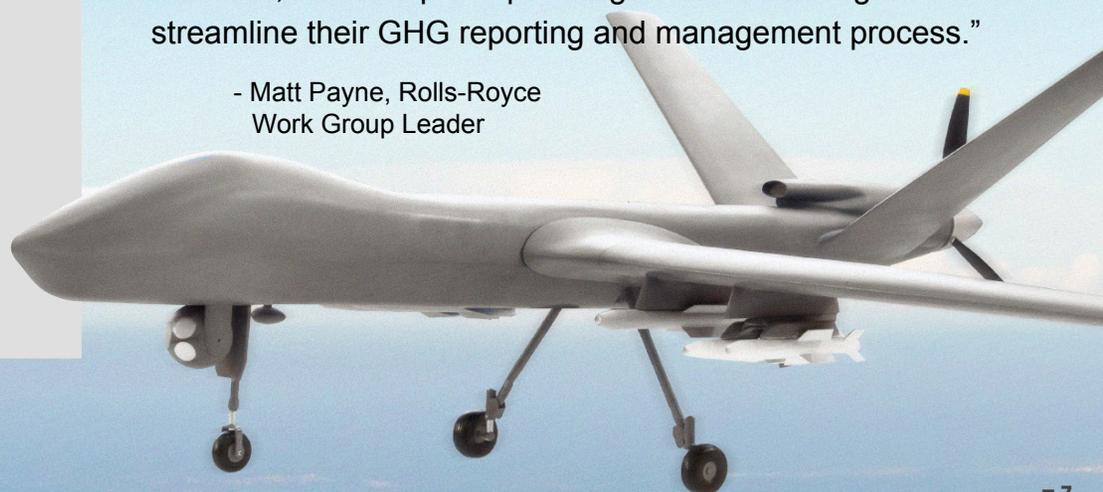
IAEG’s WG3 provides resources, tools and leadership on GHG reporting and management to support this focus on environmental sustainability practices throughout the aerospace and defense industry.”

- Erin Williamson, Northrop Grumman
Deputy Work Group leader



The IAEG organization places a heavy focus on efficiency – by bringing together the resources and expertise from the A&D companies involved in WG3, we have been able to produce a resource which, if utilized, could help companies gain valuable insights and streamline their GHG reporting and management process.”

- Matt Payne, Rolls-Royce
Work Group Leader



ISO 14001 and Environmental Management System implementation

2019 ACCOMPLISHMENTS



Published Environmental Management System (EMS) Maturity Framework



Developed EMS Maturity Framework – Implementation Examples and Resources



Published translated EMS value propositions in French, Spanish, German and Portuguese

2020 GOALS

- ✓ Publish translated EMS Maturity Framework in French, Spanish, German and Portuguese
- ✓ Publish EMS Framework – Implementation Examples and Resources, including translations
- ✓ Develop communication for EMS Maturity Framework Deployment



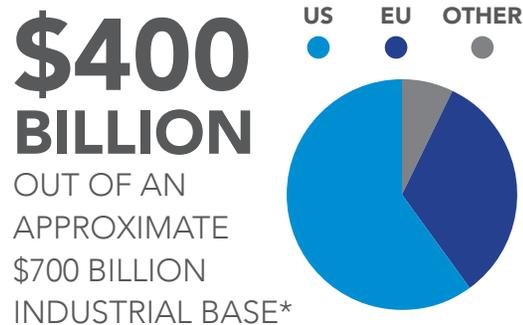
An effective Environmental Management System is extremely valuable in keeping abreast of regulatory requirements, improving environmental performance, managing risk and supporting business continuity and quality. However, many small and medium-sized suppliers may not feel prepared or have the level of resources necessary to establish an effective EMS that conforms to the ISO 14001:2015 Standard. WG7 has developed resources to support implementation of an EMS based on the size and level of risk of a given company. Companies can evaluate which maturity level their EMS corresponds to, or can use the framework to establish EMS requirements for themselves or their suppliers.”

- Cindy Kloehn, Airbus
Work group Leader

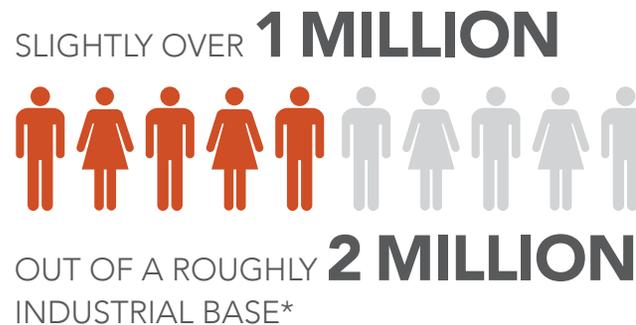
IAEG® was founded in 2011 with a vision to advance innovative environmental solutions for the aerospace and defence industry. Starting with 11 Founding members, now at 50 members, this collaboration forum is designed to address pertinent environmental issues that all member companies face. As we have grown, we have found tremendous value and synergy in working these non-proprietary issues together, for the betterment of the industry at large.

Sally Gestautas | Board Chair

REVENUE FOOTPRINT



EMPLOYMENT FOOTPRINT



*Deloitte, 2014 Global aerospace and defense sector financial report

SOLUTIONS

COMPLEX AND INNOVATIVE PRODUCTS THAT LAST **DECADES** IN THE MARKETPLACE



IAEG MEMBER COMPANIES (AS OF 12/31/2019)

IAEG Founding Members

Airbus Group
Boeing
Bombardier Aerospace
Dassault Aviation
Embraer
GE Aviation
Northrop Grumman
Rolls-Royce
SAFRAN
United Technologies Corporation (UTC)

IAEG Full Members

Arconic
BAE Systems
Cobham plc
GKN Aerospace
Gulfstream
L3HARRIS TECHNOLOGIES, Inc.
Honda Aircraft Company, LLC
Honeywell
Huntsman Advanced Materials
Israel Aerospace Industry, Ltd.

Lockheed Martin
Meggitt PLC
Mitsubishi Aircraft Co.
Raytheon
Rockwell Collins
SAAB AB
Spirit AeroSystems
Textron Aviation
Thales
3M Deutschland GmbH
Toray Advanced Composite Materials

IAEG Liaison Members

Airbus Defence & Space
Assent Compliance Inc.
Bergeson & Campbell
Dassault Systemes Enovia Corp
DXC.technology
ERM
Granta Design Ltd.
Haley & Aldrich, Inc.
Hangsterfer's Laboratories Inc.
National Quality Assurance
Ramboll Environment and Health
SAFECHM Europe GmbH
Souriau SAS
SR Technics Switzerland Ltd.
Tetra Tech Inc.
Zaki Surface Treatment Consulting