



IPC-1754 WAM 1

# **Materials and Substances Declaration for Aerospace and Defense and Other Industries**

Developed by the Materials and Substances Declaration for the  
Aerospace, Defense, HE and Other Industries Task Group (2-18k)  
of the Supplier Declaration Subcommittee (2-18) of IPC

Users of this publication are encouraged to participate in the  
development of future revisions.

Contact:

IPC  
3000 Lakeside Drive, Suite 105N  
Bannockburn, Illinois  
60015-1249  
Tel 847 615.7100  
Fax 847 615.7105

## Acknowledgment

Any document involving a complex technology draws material from a vast number of sources. While the principal members of the Materials and Substances Declaration for the Aerospace, Defense, HE and Other Industries (2-18k) of the Supplier Declaration Subcommittee (2-18) are shown below, it is not possible to include all of those who assisted in the evolution of this standard. To each of them, the members of the IPC extend their gratitude.

---

### 2-18 Supplier Declaration Subcommittee

Chair  
Tord Dennis, WSP Parsons Brinckerhoff  
Walter Jager, Assent Compliance

### 2-18k Materials and Substances Declaration for the Aerospace, Defense, HE and Other Industries

Co-Chairs  
Walter Jager, Assent Compliance  
Rick Shanks, Pratt & Whitney

### Technical Liaison of the IPC Board of Directors

Bob Neves  
Microtek laboratoris

---

### A special note of thanks goes to the following for their major contributions and dedication to bringing this project to fruition.

Douglas Aylward, Raytheon  
Brenda Baney, B Cubed Consulting Inc  
David Billings, Rolls-Royce PLC  
James Calder, Assent Compliance  
Cindee Cognetta, Raytheon  
Francois Ducamp, Airbus  
Renato Da Nova Favarin, Embraer  
Linda Fetterman, Boeing  
Marelle Fogel, DXC  
Richard Forselius, Lockheed Martin  
Sikorsky Aircraft

Brenda Fukai-Allison, Boeing  
Andy Gbur, Tetra Tech  
Walter Jager, Assent Compliance  
Valerie Kuntz, Assent Compliance  
Chuck LePard, DXC  
Will Martin, Granta Material Intelligence  
Dr. N Nagaraj, Papros Inc.  
Manish Patel, Cummins Inc  
Mussie Pietros, GE Aviation  
Margaret Proul, Lockheed Martin  
Rick Shanks, Pratt & Whitney

Timothy Sheehan, Raytheon  
Thomas Sim, Boeing  
Eric Straw, Rockwell-Collins  
Gail Sutherland, ERI  
Raj Takhar, Assent Compliance  
Jean-Pierre Theret, Dassault Systemes  
John Wagner, Association of Equipment  
Manufacturers  
Michael Wurzman, RSJ  
Paul Ylioja, Granta Design

---

### Members of the 2-18k Task Group and Other Contributors

Doug Aylward, Raytheon  
Brenda Baney, B Cubed Consulting Inc  
David Bassetti, BASSETTI  
Christian Bergner, KRAUSS GmbH  
German Betances, Caterpillar Inc  
Dave Billings, Rolls-Royce PLC  
Carlos Bivins, Lockheed Martin  
Corporate Engineering  
Francis Bogeat, BASSETTI  
Karl Fredrik Bolstad, Rolls-Royce  
Marine AS  
Aliny Borges, Embraer  
Pete Brown, W.L Gore & Assoc.  
Bret Bruhn, TTM Technologies  
James Calder, Assent Compliance  
Philip Carey, Boeing  
Melisa Carpenter, Spirit AeroSystems Inc  
Dick Casali, Intel Corporation

Mike Cazaz, Werner Aero Services  
Candice Charritte, Dassault Aviation  
Youjiang Chen, Intel Corporation  
Jason T. Cherney, Caterpillar Inc  
John Chivers, Kulite Semiconductor  
Products, Inc.  
Forrest W. Christian, Innovation Machine  
Ltd  
CT Chuah, ALPHA Precision Turning &  
Engineering Sdn. Bhd.  
Justin Chumita, Tetra Tech  
Marc Church, iPoint Inc  
Tom Clow, John Deere  
Cindee M. Cognetta, Raytheon  
Glynis Coulter, Raytheon  
Jim Cramer, WSP  
Phil Crawley, Haimer UK  
Nicole Curcija, John Deere  
Anthony Delengaigne, ComplianceMap

Tord W. Dennis, WSP USA  
Mark DeGiambattista, Terex  
Francois Ducamp, Airbus  
Wesam Elsaid, SiliconExpert  
Technologies  
Myra Fah, John Deere  
Renato da Nova Favarin, Embraer  
Jim Farrell  
Linda Fetterman, Boeing  
Randall Flinders, GreenSoft Technology,  
Inc.  
Marelle Fogel, DXC  
Richard Forselius, Lockheed Martin  
Sikorsky Aircraft  
Mark R.Frimann, Texas Instruments  
Dennis D.Fritz, SAIC  
Michael Fry, Assent Compliance  
Brenda Fukai-Allison, Boeing  
Andy Gbur, Tetra Tech

Sally Gestautas, Raytheon	Land Systems	Timothy J. Sheehan, Raytheon
Jason Gooden, Anthesis	Jim Kohlbach, Amphenol	Emeline Silvestre, BASSETTI
Carlos Moacir Grandi, Embraer	Valerie Kuntz, Assent Compliance	Thomas Sim, Boeing
Ariel Grinberg, Israel Aerospace Industries (IAI)	Romain Labastrou, Dassault Aviation	Randeep Singh, PLM Logix
Aline Guerato, Embraer	Alan Leibowitz, EHS System Solutions	Eric Smith, iPoint Systems
Dave Guernsey, PeerAspect	Chuck LePard, DXC	Neil Smith, Isola
Guillermo Guerrero Smith, Rolls-Royce Marine AS	Nicholas Lesur, Safran	Russell Stark, Parker Aerospace
Rémi Guidolin, BASSETTI	Michele Lewis, UTAS	Eric Straw, Rockwell-Collins
William R. Haas	David Lindecamp, Volvo Construction Equipment	Palaniappan Subbaiyan, MAG Engine Systems Pte Ltd
Mary Hammerer, NAVAIR	Will Martin, Granta Material Intelligence	Gail Sutherland, ERI
Emma Hammerton, Yusen Logistics (UK) Ltd	Anne Martlew, TE Connectivity UK Ltd	Raj S.Takhar, Assent Compliance
Reon Hartner, Bombardier Aerospace	Marcos Medalla, IPoint Systems	Jean-Pierre Theret, Dassault Systemes
Jens Hermann, FAG Aerospace	Sarah Medearis, ERM	Stephen Tisdale
John Hetherington, Spirit AeroSystems Inc	John Montgomery, TE Connectivity	Robert Townsend, Denso International
Eddie Hofer, Rockwell Collins	Dr. N. Nagaraj, Papros Inc.	Bryan Tran, Qorvo
JB Hollister, Apple Inc.	Renato da Nova Favarin, Embraer S.A.	Costa Triantafyllidis, Harris Corporation
Donavan Hornsby, Gensuite	Lars Olsson, Saab AB	Aidan Turnbull, BomCheck
Thanh Huynh, Dassault Systemes	Alexandre Oliveira Pasin, Embraer S.A.	Larisa Vishkovetsky, Seagate Technology
Josh Inman, Cummins Inc	Manish Patel, Cummins Inc	Bakerl Wadgaonkan, Bose Corp
Alexandru Iordan, Bombardier	Jon Pelis, Aviall Services, Inc.	John Wagner, Association of Equipment Manufacturers
Walter Jager, Assent Compliance	Yvonne Pierce, Boeing Company	Debbi Walker, GE Aviation
Anita Jain, PPG Aerospace	Mussie Pietros, GE Aviation	Mark Walmsley, Micross Components
Nikki N.Johnson, Total Parts Plus, Inc.	David Pinsky, Raytheon	Bryan Walz, WSP
Colin Jones, Cobham Mission Equipment	Nick Potts, Printech Circuit Laboratories Ltd	Peter Wan, BAe Systems
Fernanda Kalvala, Embraer	Revati Pradhan-Kasmalkar,	Julien Weber, Astrium
Koshi Kamigaki, Canon Inc.	Margaret Proul, Lockheed Martin	Tedie West, Siemens
James Kandler, RoHS Ready LLC	Christophe Remy, Fingermind	Adam Wheeler, Anthesis Group
Therese Karlsson Sundqvist, Saab AB	Lydia Riesch, Association of Equipment Manufacturer's	Jim White, Dassault Systemes
Marcus Khoo, Altera Corporation	Todd Riley, RoHS Ready LLC	Chad Williams, Navistar
SL Khor, ALPHA Precision Turning & Engineering Sdn. Bhd.	Gary Schmalfeld, Raytheon	Michael Wurzman, RSJ
John Klijn, 3M	M. Schneider, Hewlett-Packard	Paul Ylioja, Granta Design
Anita Knipper, John Deere	William Schemiege	Michael J. Zepp, Dassault Systemes
Linda M. Knisley, General Dynamics	Darrell Sensing, BAE Systems	
	Rick Shanks, Pratt & Whitney	

# Table of Contents

<b>1</b>	<b>SCOPE</b> .....	1	5.2.3	Use Descriptor List .....	7
1.1	Purpose .....	1	5.3.1	Requester .....	7
<b>2</b>	<b>APPLICABLE DOCUMENTS</b> .....	1	5.3.2	Supplier .....	7
2.2	Other References .....	1	5.3.4	Material .....	7
2.2.2	REACH .....	1	5.3.5	Substance .....	8
<b>3</b>	<b>TERMS AND DEFINITIONS</b> .....	1	5.3.6	Product Group .....	8
3.1	Article .....	1	5.3.7	Substances in Product .....	8
3.2	Bill of Material (BOM) .....	1	5.3.8	Process .....	8
3.3	CAGE Code .....	2	5.3.9	Substances in Process .....	8
3.4	Declarable Substance List (DSL) .....	2	5.3.10	Character set .....	8
3.5	Due Diligence .....	2	5.3.11	Date Format .....	8
3.6	DUNS® Number .....	2	5.4	Use Cases .....	8
3.7	Full Substance Declaration (FSD) .....	2	5.4.1	Declaration Modes .....	8
3.8	Homogeneous Material .....	2	5.4.2	Single Product Use Case .....	8
3.9	Maintenance .....	2	5.4.3	Multiple Product Use Cases .....	8
3.10	Material .....	2	5.4.4	Product Unit Types .....	9
3.11	Product .....	2	5.4.5	Declaration of Subproducts .....	9
3.12	Overhaul/Refurbishment .....	2	5.4.6	BOM Level Declaration .....	10
3.13	Product Group .....	2	5.4.7	Declaration of Materials: .....	10
3.14	Product Operations .....	2	5.4.8	Article Flag .....	10
3.15	Production Process .....	2	5.4.9	Substance Mass Reporting .....	10
3.16	Query List .....	2	<b>6</b>	<b>DATA MODEL AND SCHEMA</b> .....	11
3.17	Repair .....	3	6.1	Overview of the Data Schema: .....	11
3.18	Requester .....	3	6.1.1	Conceptual Data Model .....	11
3.19	Subproduct .....	3	6.1.2	Principles of the Schema .....	12
3.20	Substances .....	3	6.1.3	Design of the Schema .....	12
3.21	Supplier .....	3	6.1.4	Subsectional Structure .....	13
3.22	Threshold Level .....	3	6.1.5	Product Group .....	13
3.23	Use Descriptor List .....	3	6.2	Data Exchange Schema Definition .....	13
<b>4</b>	<b>OVERVIEW OF MATERIALS AND SUBSTANCES DECLARATION</b> .....	3	<b>7</b>	<b>DESCRIPTION OF THE DATA FIELDS</b> .....	13
4.1	IPC-175x Family of Standards .....	3	7.1.1	Query List .....	13
4.2	Overview of Declaration Classes .....	3	7.1.2	Declarable Substance List .....	14
4.3	Visual Representation of Materials and Substances Declarations .....	4	7.1.3	Use Descriptor List .....	15
<b>5</b>	<b>REQUIREMENTS</b> .....	4	7.2	Requester .....	15
5.1	Declaration Classes .....	5	7.3	Supplier .....	17
5.1.1	Product Statement Declaration (Class E) .....	5	7.3.3	Supplier Authorizer .....	18
5.1.2	Declarable Substance Declaration (Class F) .....	6	7.4	Product .....	19
5.1.3	Extended Substance Declaration (Class G) .....	6	7.5.1	Authorization Acceptance .....	20
5.2	Data Requirements for Lists .....	6	7.6	Attachments .....	20
5.2.1	Declarable Substance List .....	6	7.6.1	Attachment Name .....	20
5.2.2	Query List .....	6	7.6.2	File Type .....	20
			7.6.3	Data File .....	20
			7.7	Product Statement .....	20