



ROYAL



ADHESIVES & SEALANTS

Hardman® Aerospace Adhesives & Sealants



Aerospace Sealant Qualification

- **WS 8020 B1/2, B-1, B-2 & B-4 Qualified to AMS-S-8802 & AMS 3276**
- **WS 8020 A-1/2 & A-2 Qualified to AMS-S-8802**
- **WS 8020RC B1/2 & B-2 Qualified to AMS-S-8802 & AMS3276**
- **WS 8030 B-2 Qualified to AMS3281 Type 1**
- **WS 8032 B-1/2 & B-2 Qualified to AMS3281 Type 2**
- **WS 8031 B-2 Qualified to AMS 3281 Ty 3**
- **WS 8010 B-1/2 & B-2 Qualified to AMS 3284**
- **WS 516 Qualified to Mil-S-8516 F/G**
- **WS 8070 B-1/2 & B-2 Qualified to MIL-PRF-81733 TY II CL 1 Grade A**
- **Wilmington Site Quality System Approved to AS 9100, ISO9001:2000 and Nadcap AS7003**

Rapid Cure Technology

<u>Specification</u>	<u>Standard</u>	<u>Rapid Cure</u>
AMS-S-8802	WS-8020 B & A	WS-8020RC B & A
AMS 3276	WS-8020 B	WS-8020RC B
AMS 3284	N/A	WS-8010 B
AMS 3281 Ty 2	N/A	WS-8032 B

Type	<u>Standard Cure</u>			<u>Rapid Cure</u>		
	Work Life	Tack Free	Cure	Work Life	Tack Free	Cure
B-1/2	1/2 Hour	10 Hrs	30 Hrs	1/2 Hour	<5 Hrs	<5 Hrs
B-2	2 Hours	40 Hrs	72 Hrs	2 Hour	<9 Hrs	<14 Hrs



Light Weight Technology



	Standard AMS 8802	AMS 3281 Ty 1	AMS 3281 Ty 2	AMS 3281 Ty 3
Max SPG	1.65	1.35	1.20	1.05
Wt/Gal	13.8	11.3	10.0	8.8
% Wt Savings	0	18%	27%	36%

Example: One 50 Gal Drum of WS-8031 would weigh 250 lbs less than Standard Sealant

Aerospace Sealant QPL Listing

Specification Standard	Specification Title	Product	QPL Listing Date	Class Designation	Type Designation	Type of Part
PRI-QPL-AMS-S-8802	Sealing Compound, Temperature-Resistant, Integral Fuel Tanks and Fuel Cell Cavities, High-Adhesion	WS8020	24-Mar-06	B-1/2	Type 2	
PRI-QPL-AMS-S-8802	Sealing Compound, Temperature-Resistant, Integral Fuel Tanks and Fuel Cell Cavities, High-Adhesion	WS8020	24-Mar-06	B-2	Type 2	
PRI-QPL-AMS-S-8802	Sealing Compound, Temperature-Resistant, Integral Fuel Tanks and Fuel Cell Cavities, High-Adhesion	WS8020	24-Mar-06	B-1	Type 2	
PRI-QPL-AMS-S-8802	Sealing Compound, Temperature-Resistant, Integral Fuel Tanks and Fuel Cell Cavities, High-Adhesion	WS8020	2-Oct-06	B-4	Type 2	
PRI-QPL-AMS-S-8802	Sealing Compound, Temperature-Resistant, Integral Fuel Tanks and Fuel Cell Cavities, High-Adhesion	WS8020	24-Sep-07	A-1/2	Type 2	
PRI-QPL-AMS-S-8802	Sealing Compound, Temperature-Resistant, Integral Fuel Tanks and Fuel Cell Cavities, High-Adhesion	WS8020	24-Sep-07	A-2	Type 2	
PRI-QPL-AMS-S-8802	Sealing Compound, Temperature-Resistant, Integral Fuel Tanks and Fuel Cell Cavities, High-Adhesion	WS8020RC	21-Apr-09	B-2	Type 2	
PRI-QPL-AMS-S-8802	Sealing Compound, Temperature-Resistant, Integral Fuel Tanks and Fuel Cell Cavities, High-Adhesion	WS8020RC	21-Apr-09	B-1/2	Type 2	

Aerospace Sealant QPL Listing (Cont.)

Specification Standard	Specification Title	Product	QPL Listing Date	Class Designation	Type Designation	Type of Part
PRI-QPL-AMS3276	Sealing Compound, Integral Fuel Tanks and General Purpose, Intermittent Use to 360 deg F (182 deg C)	WS8020	2-May-06	B-2		Type II
PRI-QPL-AMS3276	Sealing Compound, Integral Fuel Tanks and General Purpose, Intermittent Use to 360 deg F (182 deg C)	WS8020	2-Oct-06	B-1		Type II
PRI-QPL-AMS3276	Sealing Compound, Integral Fuel Tanks and General Purpose, Intermittent Use to 360 deg F (182 deg C)	WS8020	2-Oct-06	B-1/2		Type II
PRI-QPL-AMS3276	Sealing Compound, Integral Fuel Tanks and General Purpose, Intermittent Use to 360 deg F (182 deg C)	WS8020	2-Oct-06	B-4		Type II
PRI-QPL-AMS3276	Sealing Compound, Integral Fuel Tanks and General Purpose, Intermittent Use to 360 deg F (182 deg C)	WS8020RC	29-Sep-09	B-1/2		Type I
PRI-QPL-AMS3276	Sealing Compound, Integral Fuel Tanks and General Purpose, Intermittent Use to 360 deg F (182 deg C)	WS8020RC	29-Sep-09	B-2		Type I

Aerospace Sealant QPL Listing (Cont.)

Specification Standard	Specification Title	Product	QPL Listing Date	Class Designation	Type Designation	Type of Part
PRI-QPL-AMS3281	Sealing Compound, Polysulfide for Integral Fuel Tank Low Density (1.35 SP GR Max), for Intermittent Use to 360 deg F (182 deg C)	WS8030	18-Jun-08	B-2		Type 1
PRI-QPL-AMS3281	Sealing Compound, Polysulfide for Integral Fuel Tank Low Density (1.05 SP GR Max), for Intermittent Use to 360 deg F (182 deg C)	WS8031	3-Sep-09	B-2		Type 3
PRI-QPL-AMS3281	Sealing Compound, Polysulfide for Integral Fuel Tank Low Density (1.20 SP GR Max), for Intermittent Use to 360 deg F (182 deg C)	WS8032	26-May-09	B-2		Type 2
PRI-QPL-AMS3281	Sealing Compound, Polysulfide for Integral Fuel Tank Low Density (1.20 SP GR Max), for Intermittent Use to 360 deg F (182 deg C)	WS8032	25-Sep-09	B-1/2		Type 2
PRI-QPL-AMS3284	Sealing Compound, Low Adhesion, for Removal Panels and Fuel Tank Inspection Plates	WS8010	15-Oct-07	B-1/2	Type 1	
PRI-QPL-AMS3284	Sealing Compound, Low Adhesion, for Removal Panels and Fuel Tank Inspection Plates	WS8010	15-Oct-07	B-2	Type 1	
NAVY-QPD-MIL-PRF-81733	Sealing and Coating Compound, Corrosion Inhibitive	WS8070	3-Nov-09	B-1/2	Type II	Class 1 GradeA
NAVY-QPD-MIL-PRF-81733	Sealing and Coating Compound, Corrosion Inhibitive	WS8070	3-Nov-09	B-2	Type II	Class 1 GradeA

NSN Product Listing (Cont)

NSN #	Specification	Sealant Function	Description	Class	Size	QTY/Case
8030-00-753-5007	PRI-QPL-AMS-S-8802 B-1/2 TY II	Integral Fuel Tank Sealant (Non-Sag)	WS-8020 B-1/2	B-1/2	2.5 OZ INJ KIT	24
8030-00-080-1549	PRI-QPL-AMS-S-8802 B-1/2 TY II	Integral Fuel Tank Sealant (Non-Sag)	WS-8020 B-1/2	B-1/2	24 OZ QT KIT	9
8030-00-753-5004	PRI-QPL-AMS-S-8802 B-1/2 TY II	Integral Fuel Tank Sealant (Non-Sag)	WS-8020 B-1/2	B-1/2	3.5 OZ INJ KIT	24
8030-01-527-6518	PRI-QPL-AMS-S-8802 B-1/2 TY II	Integral Fuel Tank Sealant (Non-Sag)	WS-8020 B-1/2	B-1/2	4.5 OZ INJ KIT	24
8030-00-753-4597	PRI-QPL-AMS-S-8802 B-1/2 TY II	Integral Fuel Tank Sealant (Non-Sag)	WS-8020 B-1/2	B-1/2	6 OZ 1/2 PT KIT	24
8030-00-841-6831	PRI-QPL-AMS-S-8802 B-1/2 TY II	Integral Fuel Tank Sealant (Non-Sag)	WS-8020 B-1/2	B-1/2	96 OZ GAL KIT	4
8030-00-174-2599	PRI-QPL-AMS-S-8802 B-1/2 TY II	Integral Fuel Tank Sealant (Fast Cure)	WS-8020RC B-1/2	B-1/2	12 OZ PT KIT	16
8030-00-753-5007	PRI-QPL-AMS-S-8802 B-1/2 TY II	Integral Fuel Tank Sealant (Fast Cure)	WS-8020RC B-1/2	B-1/2	2.5 OZ INJ KIT	24
8030-00-080-1549	PRI-QPL-AMS-S-8802 B-1/2 TY II	Integral Fuel Tank Sealant (Fast Cure)	WS-8020RC B-1/2	B-1/2	24 OZ QT KIT	9
8030-00-753-5004	PRI-QPL-AMS-S-8802 B-1/2 TY II	Integral Fuel Tank Sealant (Fast Cure)	WS-8020RC B-1/2	B-1/2	3.5 OZ INJ KIT	24
8030-00-753-4597	PRI-QPL-AMS-S-8802 B-1/2 TY II	Integral Fuel Tank Sealant (Fast Cure)	WS-8020RC B-1/2	B-1/2	6 OZ 1/2 PT KIT	24
8030-00-841-6831	PRI-QPL-AMS-S-8802 B-1/2 TY II	Integral Fuel Tank Sealant (Fast Cure)	WS-8020RC B-1/2	B-1/2	96 OZ GAL KIT	4
8030-00-723-2746	PRI-QPL-AMS-S-8802 B-2 TY II	Integral Fuel Tank Sealant (Non-Sag)	WS-8020 B-2	B-2	12 OZ PT KIT	16
8030-00-753-5006	PRI-QPL-AMS-S-8802 B-2 TY II	Integral Fuel Tank Sealant (Non-Sag)	WS-8020 B-2	B-2	2.5 OZ INJ KIT	24
8030-00-685-0915	PRI-QPL-AMS-S-8802 B-2 TY II	Integral Fuel Tank Sealant (Non-Sag)	WS-8020 B-2	B-2	24 OZ QT KIT	9
8030-00-753-5005	PRI-QPL-AMS-S-8802 B-2 TY II	Integral Fuel Tank Sealant (Non-Sag)	WS-8020 B-2	B-2	3.5 OZ INJ KIT	24
8030-00-152-0013	PRI-QPL-AMS-S-8802 B-2 TY II	Integral Fuel Tank Sealant (Non-Sag)	WS-8020 B-2	B-2	4.5 OZ INJ KIT	24
8030-00-878-8428	PRI-QPL-AMS-S-8802 B-2 TY II	Integral Fuel Tank Sealant (Non-Sag)	WS-8020 B-2	B-2	5 GALLON PAIL	1
8030-00-432-9544	PRI-QPL-AMS-S-8802 B-2 TY II	Integral Fuel Tank Sealant (Non-Sag)	WS-8020 B-2	B-2	50 GALLON DRUM	1
8030-00-753-4599	PRI-QPL-AMS-S-8802 B-2 TY II	Integral Fuel Tank Sealant (Non-Sag)	WS-8020 B-2	B-2	6 OZ 1/2 PT KIT	24
8030-00-753-4599	PRI-QPL-AMS-S-8802 B-2 TY II	Integral Fuel Tank Sealant (Non-Sag)	WS-8020 B-2	B-2	6 OZ 1/2 PT KIT	24
8030-00-579-8453	PRI-QPL-AMS-S-8802 B-2 TY II	Integral Fuel Tank Sealant (Non-Sag)	WS-8020 B-2	B-2	96 OZ GAL KIT	4
8030-00-723-2746	PRI-QPL-AMS-S-8802 B-2 TY II	Integral Fuel Tank Sealant (Fast Cure)	WS-8020RC B-2	B-2	12 OZ PT KIT	16
8030-00-753-5006	PRI-QPL-AMS-S-8802 B-2 TY II	Integral Fuel Tank Sealant (Fast Cure)	WS-8020RC B-2	B-2	2.5 OZ INJ KIT	24
8030-00-685-0915	PRI-QPL-AMS-S-8802 B-2 TY II	Integral Fuel Tank Sealant (Fast Cure)	WS-8020RC B-2	B-2	24 OZ QT KIT	9
8030-00-753-5005	PRI-QPL-AMS-S-8802 B-2 TY II	Integral Fuel Tank Sealant (Fast Cure)	WS-8020RC B-2	B-2	3.5 OZ INJ KIT	24
8030-00-878-8428	PRI-QPL-AMS-S-8802 B-2 TY II	Integral Fuel Tank Sealant (Fast Cure)	WS-8020RC B-2	B-2	5 GALLON PAIL	1
8030-00-432-9544	PRI-QPL-AMS-S-8802 B-2 TY II	Integral Fuel Tank Sealant (Fast Cure)	WS-8020RC B-2	B-2	50 GALLON DRUM	1
8030-00-753-4599	PRI-QPL-AMS-S-8802 B-2 TY II	Integral Fuel Tank Sealant (Fast Cure)	WS-8020RC B-2	B-2	6 OZ 1/2 PT KIT	24
8030-00-579-8453	PRI-QPL-AMS-S-8802 B-2 TY II	Integral Fuel Tank Sealant (Fast Cure)	WS-8020RC B-2	B-2	96 OZ GAL KIT	4
8030-00-850-0759	PRI-QPL-AMS-S-8802 B-4 TY II	Integral Fuel Tank Sealant (Non-Sag)	WS-8020 B-4	B-4	2.5 OZ INJ KIT	24
8030-00-850-5717	PRI-QPL-AMS-S-8802 B-4 TY II	Integral Fuel Tank Sealant (Non-Sag)	WS-8020 B-4	B-4	24 OZ QT KIT	9
8030-00-850-0758	PRI-QPL-AMS-S-8802 B-4 TY II	Integral Fuel Tank Sealant (Non-Sag)	WS-8020 B-4	B-4	3.5 OZ INJ KIT	24

Wilmington Site Quality Certifications

Certificate of Registration

This is to certify that the Quality Management System of

Royal Adhesives & Sealants, LLC
800 E. Anaheim Street
Wilmington, CA 90744

has been assessed for conformance with the provisions set forth by

ISO 9001:2000
AS9100 Rev B

Scope of Registration

Design and Manufacture of Aerospace Adhesive and Sealants.

*The assessment was performed in accordance with the requirements of the AS9104 A.
ISA is accredited under the Aerospace Registrar Management Program.*

Certificate No. 1184 Initial Certification: 12/17/05 Recertification: 12/17/08 Expiration: 12/17/11



Such products, processes or services shall be manufactured or offered at or from, only the address given above. This registration is granted subject to the organization maintaining compliance to the noted standard. This Certificate is not transferable and remains the property of International Standards Authority, Inc.



President Kasim Jabbar
International Standards Authority, Inc.

www.isaregistrar.com
6191 Schaefer Avenue
Chino, CA 91710, USA
Tel: 909-628-2800



Wilmington Site Quality Certifications



In accordance with SAE Aerospace Standard AS7003, to the revision in effect at the time of the audit, this certificate is granted and awarded by the authority of the Nadcap Management Council to:

Royal Adhesives & Sealants LLC

800 E. Anaheim St
Wilmington, CA 90744

This certificate demonstrates conformance and recognition of accreditation for specific services, as listed in www.eAuditNet.com on the Qualified Manufacturers List (QML), to the revision in effect at the time of the audit for:

Sealants

This certificate expiration is updated based on periodic audits.
The current expiration date and scope of accreditation are listed at:
www.eAuditNet.com - Online QML (Qualified Manufacturer Listing)
Certified since: 06 April 2006

William G. Wagner, Vice President and General Manager

Performance Review Institute (PRI) 161 Thorn Hill Road Warrendale, PA 15086-7527

