CHEMICAL COMPATIBILITY GUIDE

Bal Seal® PTFE, Filled PTFE and Polyethylene Seal Materials

Technical Report
TR-60A (Rev. K; 03-01-23)
(100-27)

Bal Seal Engineering
19650 Pauling
Foothill Ranch CA 92610
Toll Free (800) 366-1006
Tel (949) 460-2100
Fax (949) 460-2300
Email: sales@balseal.com

Bal Seal Engineering Europe B.V.
VIDA Building, 1st Floor
Kabelweg 57
1014 BA Amsterdam
The Netherlands
Tel +31 20 638 6523
Fax +31 20 625 6018
Email: info@balseal.nl

Bal Seal Asia Limited
Suite 901, Chinachem Century Tower
178 Gloucester Road
Wanchai, Hong Kong
Tel +(852)-28681869
Fax +(852)-22956753
Email: sales@balseal.com.hk

Bal Seal Engineering is certified to ISO 9001 and TS 16949

TABLE OF CONTENTS

1.0 Overview

2.0 Discussion

3.0 Table of Various Bal Seal® Materials

4.0 Guide to Compatibility Key

5.0 List of Chemicals and Bal Seal Materials

The information, descriptions, recommendations and opinions set forth herein are offered solely for your consideration, inquiry, and verification and are not, in part or in whole, to be construed as constituting a warranty, expressed or implied, nor shall they form or be a part of the basis of any bargain with Bal Seal Engineering. If any sample or model was shown to or provided by Buyer/User, such sample or model was used merely to illustrate the general description and type of goods. Such use is not to be construed as a warranty that the goods will conform to the sample or model. Furthermore, THE IMPLIED WARRANTY OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE AND ALL OTHER WARRANTIES, IMPLIED OR EXPRESSED, ARE EXCLUDED AND SHALL NOT APPLY. This document provides product options for further investigation by Buyers/Users having technical expertise. The Buyer/User, through its own analysis and testing, is solely responsible for making the final selection of the products and for assuming that all performance, safety and warning requirements for the application are met. It is recommended that Buyers/Users run evaluation testing under actual service conditions to determine whether proposed Bal Seal products are suitable for the intended purpose. Nothing contained herein or in any of our literature shall be considered a license or recommendation for any use that may infringe patent rights. (LE-17)

PATENTS: The items described in this report include products that are the subject of the following issued United States patents: 5,979,904; 5,992,856; 6,050,572; 5,984,316; 6,161,838 and others, as well as foreign patents or products where patents are pending. (LE-88G)

©Copyright 2014 Bal Seal Engineering. U.S.A.

TR-60A Rev.J, 12-6-13 (RR# 100-27)

Bal Seal Engineering, Inc.: 19650 Pauling • Foothill Ranch, CA 92610-2610 • Tel: (949) 460-2100 • Fax: (949) 460-2300
Bal Seal Engineering Europe B.V.: VIDA Building, 1st floor • Kabelweg 57 • 1014 BA Amsterdam, The Netherlands • Telephone: 31 20 638 65 23 • Telefax: 31 20 625 60 18
Bal Seal Asia Limited: Suite 901, Chinachem Century Tower 178 Gloucester Road, Wanchai, Hong Kong • Telephone: +(852) 28681860 • Telefax: +(852) 22956753

1.0 OVERVIEW

The information in this report is a guideline to determine the static corrosive effects of certain liquids and gases with our standard materials at ambient temperatures (73°F/23°C). In addition, data for material P 40, P 41, P 43 and P 69D, high performance polymers, includes chemical compatibility at moderate to high temperatures (212°F/100°C).

2.0 DISCUSSION

Although industry sources provided the source data, this chart should be use as a reference only. Though some materials are rated acceptable (A), other conditions such as pressure, temperature, speed, lubricating properties and surface tension have an effect in dynamic situations. Testing under actual service conditions is most important in determining material and design suitability.

It is essential that the customer run evaluation testing under actual service conditions with a sufficient safety factor to determine if the proposed, supplied or purchased Bal Seal Engineering products are suitable for the intended purpose and to confirm expected results. Bal Seal Engineering shall not be liable for any loss or damage of any kind or nature that may result from the use of, reference to, or reliance on the information contained herein, including but not limited to consequential, special (including loss of profits) direct, indirect, incidental or similar damages, even if Bal Seal Engineering has been advised of the possibility of such damages. Products described herein may be covered all or in part by various existing and/or pending U.S. Patents.

Bal Seal defines “FDA Compliant” as materials that have been found by the FDA to be “safe for use in food contact” or “acceptable for use in food contact.”

“FDA Compatible” is defined by Bal Seal as: “compositions where the majority (97% or more) of the ingredients have received an FDA “safe for use in food contact” and contain no ingredient listed in the California Code of Regulations Hazardous Substance List.

Use or disclosure of data contained on this sheet is subject to the restrictions contained in the disclaimer located in the Table of Contents of this report.
Bal Seal Engineering, Inc.: 19650 Pauling • Foothill Ranch, CA 92610-2610 • Tel: (949) 460-2100 • Fax: (949) 460-2300
Bal Seal Engineering Europe B.V.: VIDA Building, 1st floor • Kabelweg 57 • 1014 BA Amsterdam, The Netherlands • Telephone: 31 20 638 65 23 • Telefax: 31 20 625 60 18
Bal Seal Asia Limited: Suite 901, Chinachem Century Tower 178 Gloucester Road, Wanchai, Hong Kong • Telephone: +(852) 28681860 • Telefax: +(852) 22956753

3.0 TABLE OF VARIOUS BAL SEAL® MATERIALS

NOTE: If the application requires it, all the materials listed below can be also obtained as heat treated, adding the code HT after the material code.

FC 10	Filled PTFE; FDA compliant; primarily for dry applications.
G	Graphite-filled PTFE; general purpose use; greater extrusion and wear resistance than PTFE. Diameters below 22 in. (558.8 mm) OD.
G 5	Graphite-filled PTFE; general purpose use; greater extrusion and wear resistance than PTFE. Diameters above 22 in. (558.8 mm) OD.
GC	Graphite-carbon-filled PTFE; high chemical resistance; moderate duty service. Diameters below 22 in. (558.8 mm) OD.
GC 5	Graphite-carbon-filled PTFE; high chemical resistance; moderate duty service. Diameters above 22 in. (558.8 mm) OD.
GF	Graphite Fiber Reinforced PTFE; good wear resistance in liquids and humid conditions; moderate duty service. Diameters below 22 in. (558.8 mm) OD.
GF 5	Graphite Fiber Reinforced PTFE; good wear resistance in liquids and humid conditions; moderate duty service. Diameters above 22 in. (558.8 mm) OD.
GFP 55	Graphite-fiber-filled PTFE; high-pressure, temperatures, speeds, and long-term performance. Replacement material for GFP.
GFPM 55	Molydisulfide-filled PTFE; vacuum/inert gas service; excellent wear resistance; high extrusion resistance.
GLMO 4	Glass-fiber-filled PTFE with lubricant; good wear resistance in severe conditions, including vacuum and inert gas, but abrasive to counter surface.
MOS	Self-lubricating Molydisulfide filled PTFE. Good wear resistance.
P 170	High performance PEEK blend designed for high temperature glue dispensers. Good chemical resistance.
P 40 / P 41/ P43	High performance polymer with and without blended lubricants with good chemical resistance, high temperature, excellent wear and scraping resistance.
P 69D	Fiber Reinforced High Performance Polymer; lubricated for improved wear resistance in high temperature, high pressure applications. Normally used as a backup or support material.

Use or disclosure of data contained on this sheet is subject to the restrictions contained in the disclaimer located in the Table of Contents of this report.
Bal Seal Engineering, Inc.: 19650 Pauling • Foothill Ranch, CA 92610-2610 • Tel: (949) 460-2100 • Fax: (949) 460-2300
Bal Seal Engineering Europe B.V.: VIDA Building, 1st floor • Kabelweg 57 • 1014 BA Amsterdam, The Netherlands • Telephone: 31 20 638 65 23 • Telefax: 31 20 625 60 18
Bal Seal Asia Limited: Suite 901, Chinachem Century Tower 178 Gloucester Road, Wanchai, Hong Kong • Telephone: +(852) 28681860 • Telefax: +(852) 22956753

PTFE	Virgin PTFE; low friction; very good chemical resistance; FDA compliant; light-duty service.
SP 191	Polyimide-filled PTFE compound designed for gas compressor systems and oxygen intensifier systems. FDA compliant. Extremely low seal wear.
SP 23	Polymer-filled PTFE; general industrial applications; low wear to shaft/bore; not suitable with strong acids and high pH liquids.
SP 36	Polymer-filled PTFE; recommended for low to high sped applications when running against soft metals. Diameters below 22 in. (558.8 mm) OD.
SP 45	Polymer-filled PTFE; good wear resistance in liquid or dry environments. Low abrasion to dynamic mating surfaces. Suitable for high speed low pressure and vacuum service. FDA compatible.
SP 5	Polymer-filled PTFE; recommended for low to high speed applications when running against soft metals. Diameters above 22 in. (558.8 mm) OD.
SP 50 / SP 59	Polymer-filled PTFE high wear resistance, low wear to shaft/bore. FDA compatible.
SP 83	Polymer-reinforced PTFE. Excellent compatibility with most fluids and gases. Limited compatibility with acids at high temperatures.
T 6	PTFE certified to USP Class VI.
TA	Low permeability/deformation; superior mechanical properties with good surface finishes, good sealing ability in gases and vacuum. Suitable for semiconductor applications. FDA compliant.
TFM	Modified PTFE Fluoropolymer for light-duty service.
UP 30	UHMW Polyethylene Blend. Suitable for very high pressure low speed reciprocating applications such as HPLC. FDA compatible.
UPC	UHMW Polyethylene material for a variety of light and medium-duty applications.
UPC 15	UHMW polyethylene-based material. FDA compliant. Performs well in water and other aqueous solutions.
UPC 16	UHMW polyethylene-based material manufactured in a clean room for purity. Excellent wear resistance in water and other aqueous applications. FDA compliant.
UPC 25	High temperature resistant filled UHMWPE material. Compatible with most fluids and gases. FDA compliant. Higher temperature range than standard UHMWPE.

4.0 GUIDE TO COMPATIBILITY KEY

A = Acceptable

Q = Questionable – The Bal Seal® material has limited resistance to this chemical; use of the material depends on the conditions of the application.

NR = Not Recommended – The Bal Seal material is not compatible with this chemical; its use is not recommended.

NA = Not Available – Chemical compatibility information is not available at this time.

Use or disclosure of data contained on this sheet is subject to the restrictions contained in the disclaimer located in the Table of Contents of this report.
Bal Seal Engineering, Inc.: 19650 Pauling • Foothill Ranch, CA 92610-2610 • Tel: (949) 460-2100 • Fax: (949) 460-2300
Bal Seal Engineering Europe B.V.: VIDA Building, 1st floor • Kabelweg 57 • 1014 BA Amsterdam, The Netherlands • Telephone: 31 20 638 65 23 • Telefax: 31 20 625 60 18
Bal Seal Asia Limited: Suite 901, Chinachem Century Tower 178 Gloucester Road, Wanchai, Hong Kong • Telephone: +(852) 28681860 • Telefax: +(852) 22956753

5.0 LIST OF CHEMICALS AND BAL SEAL® MATERIALS

CHEMICAL	PTFE TA TFM T6	G G 5	GC GC 5 GF GF5	GFP 55	GFPM 55	GLMO4 MOS	SP 50 SP 59 SP 5 SP 36	SP 45 SP 23 SP 191 SP83	FC 10	UPC UP 30 UP 15 UP 16 UPC25	P 40 / P 41/ P170 P43 / P69D	
											73°F (23°C)	212°F (100°C)
Acetaldehyde	A	A	A	A	NR	A	A	A	Q	A	A	A
Acetate Solvents	A	A	A	NA	A	A	A	A	Q	NA	NA	NA
Acetic Anhydride	A	A	A	A	A	A	A	A	Q	NA	NA	NA
Acetone, Dry	A	A	A	A	NR	A	A	A	Q	A	A	A
Acetone, Wet	A	A	A	A	NR	A	A	A	Q	A	A	A
Acetonitrile	A	A	A	A	NR	A	A	A	Q	A	NA	NA
Acetylene Gas	A	A	A	A	A	A	A	A	Q	A	A	A
Acid, Acetic (Ethanoic Acid)	A	A	A	A	NR	A	A	A	Q	A	A	A
Acid, Acetic and Propionic	A	A	A	A	NR	A	A	A	Q	NA	A	A
Acid, Arsenic, Ortho-	A	A	A	A	NR	NA	A	A	Q	A	NA	NA
Acid, Benzoic	A	A	A	NA	NR	A	A	A	Q	A	A	A
Acid, Boric	A	A	A	NA	NR	A	A	A	Q	A	A	A
Acid, Butyric (Butanoic Acid)	A	A	A	NA	NR	A	A	A	Q	A	NA	NA
Acid, Carbolic (Phenol)	A	A	A	A	NR	A	A	A	Q	A	A	NA
Acid, Carbonic, Aqueous	A	A	A	NA	NR	A	A	A	Q	A	A	A
Acid, Chloroacetic	A	A	A	A	NR	A	A	A	Q	NA	A	A
Acid, Chlorosulphonic	A	A	A	NR	NR	A	A	A	Q	NR	NR	NR
Acid, Chromic, Aqueous	A	NR	NR	NR	NR	A	A	A	Q	A	A	NA
Acid, Citric, Aqueous	A	A	A	A	NR	A	A	A	A	A	A	A
Acid, Coconut, Fatty	A	A	A	NA	NR	A	A	A	A	A	A	A
Acid, Cresylic	A	A	A	NA	NR	A	A	A	Q	A	NA	NA
Acid, Cresylic (Alkyl Phenols)	A	A	A	A	NR	A	A	A	Q	NA	NA	NA
Acid, Fatty, Oleic	A	A	A	NA	NR	A	A	A	Q	A	A	NA
Acid, Formic (Methanoic Acid)	A	A	A	A	NR	A	A	A	Q	A	Q	Q
Acid, Fruit	A	A	A	NA	NR	A	A	A	A	NA	A	A
Acid, Hydrobromic	A	Q	Q	NA	NR	A	A	A	Q	A	NR	NR
Acid, Hydrochloric (Hydrogen Chloride)	A	A	A	A	NR	A	A	A	Q	A	A	A
Acid, Hydrocyanic (Prussic)	A	A	A	NA	NR	A	A	A	Q	A	A	Q
Acid, Hydrofluoric, Aqueous (HF Acid)	A	Q	Q	Q	NR	NR	A	A	Q	A	NR	NR
Acid, Hydrofluosilicic	A	Q	Q	NA	NR	A	A	A	Q	A	NA	NA
Acid, Hypochlorous	A	Q	Q	NA	NR	A	A	A	Q	A	NA	NA
Acid, Lactic	A	A	A	A	NR	A	A	A	Q	A	A	A
Acid, Maleic	A	A	A	NA	NR	A	A	A	Q	A	A	A
Acid, Mine Water	A	A	A	A	NR	A	NR	A	Q	NA	A	A
Acid, Mixed, Sulphuric and Nitric	A	NR	NR	NR	NR	A	NR	NR	Q	NA	NA	NA
Acid, Monochloro Acetic	A	A	A	NA	NR	A	A	A	Q	A	NA	NA
Acid, Muriatic	A	A	A	A	NR	A	A	A	Q	A	NA	NA
Acid, Napthenic	A	A	A	NA	NR	A	A	A	Q	NA	NA	NA
Acid, Nitric 65%	A	A	A	A	A	A	NR	NR	Q	NR	NR	NR
Acid, Nitric 100%	A	NR	NR	Q	NR	A	NR	NR	Q	Q	NR	NR
Acid, Nitric (Fuming)	A	A	NR	Q	NR	A	NR	NR	Q	NA	NR	NR

Use or disclosure of data contained on this sheet is subject to the restrictions contained in the disclaimer located in the Table of Contents of this report.
Bal Seal Engineering: 19650 Pauling • Foothill Ranch, CA 92610-2610 • Tel: (949) 460-2100 • Fax: (949) 460-2300
Bal Seal Engineering Europe B.V.: VIDA Building, 1st floor • Kabelweg 57 • 1014 BA Amsterdam • The Netherlands • Telephone: 31 20 638 65 23 • Telefax: 31 20 625 60 18
Bal Seal Asia Limited: Suite 901, Chinachem Century Tower 178 Gloucester Road, Wanchai, Hong Kong • Telephone: +(852) 28681860 • Telefax: +(852) 22956753

5.0 LIST OF CHEMICALS AND BAL SEAL® MATERIALS

CHEMICAL	PTFE TA TFM T6	G G 5	GC GC 5 GF GF5	GFP 55	GFPM 55	GLMO4 MOS	SP 50 SP 59 SP 5 SP 36	SP 45 SP 23 SP 191 SP83	FC 10	UPC UP 30 UP 15 UP 16 UPC25	P 40 / P 41/ P170 P43 / P69D	
											73°F (23°C)	212°F (100°C)
Acid, Ortho-Phosphoric	A	A	A	NA	NR	A	A	A	Q	A	NA	NA
Acid, Oxalic (Ethanedioic Acid)	A	A	A	NA	NR	A	A	A	Q	A	A	A
Acid, Palmitic (Hexadecanoic Acid)	A	A	A	NA	NR	A	A	A	Q	A	NA	NA
Acid, Phosphoric	A	A	A	A	NR	A	A	A	Q	A	A	A
Acid, Picric, (Aqueous)	A	NR	NR	NR	NR	A	NA	NA	Q	NA	A	A
Acid, Picric, Molten	A	NR	NR	NR	NR	A	NA	NA	Q	NA	A	A
Acid, Pyroligneous	A	A	A	NA	NR	A	A	A	Q	NA	NA	NA
Acid, Stearic and Oleic	A	A	A	NA	NR	A	A	A	Q	A	NA	NA
Acid, Stearic (Octadecanoic Acid)	A	A	A	NA	NR	A	A	A	Q	A	NA	NA
Acid, Sulfonic	A	NR	NR	A	NR	A	A	A	Q	NR	NA	NA
Acid, Sulfuric	A	Q	NR	Q	NR	A	A	Q	Q	Q	Q	Q
Acid, Sulfuric, Fuming (Oleum)	A	Q	NR	Q	NR	A	Q	Q	Q	NR	NR	NR
Acid, Sulfurous, Wet	A	A	A	NA	NR	A	A	A	Q	A	A	A
Acid, Tannic	A	A	A	NA	NR	A	A	A	Q	A	A	A
Acid, Tartaric, Aqueous	A	A	A	NA	NR	A	A	A	Q	A	A	A
Acid, Terephthalic	A	A	A	NA	NR	A	A	A	Q	A	NA	NA
Acrylonitrile	A	A	A	NA	NR	A	A	A	Q	A	NA	NA
Aldehyde	A	A	A	NA	NR	A	A	A	Q	NA	NA	NA
Alkanes	A	A	A	NA	NR	A	A	A	Q	NA	NA	NA
Alkali Metals	Q	Q	Q	Q	NR	Q	NR	NR	Q	Q	NA	NA
Alkali Metals (Molten i.e. Elevated Temperatures)	NR	NR	NR	NR	NR	NR	NR	NR	Q	NR	NA	NA
Alkyl Benzene	A	A	NA	NA	NR	A	A	A	Q	NA	NA	NA
Alkyl Chloride	A	A	A	A	A	A	A	A	Q	A	NA	NA
Alkylate, Light	A	A	A	A	A	A	A	A	Q	NA	NA	NA
Alkyl-Arylsulphonics	A	A	A	NA	A	A	A	A	Q	NA	NA	NA
Allyl Acetone	A	A	A	NA	A	A	A	A	Q	NA	NA	NA
Allyl Alcohol	A	A	A	NA	A	A	A	A	Q	A	A	A
Allyl Amine	A	A	A	NA	A	A	A	A	Q	A	NA	NA
Alpha Picoline	A	A	A	NA	A	A	A	A	Q	NA	NA	NA
Alum Solution	A	A	A	NA	A	A	A	A	Q	A	A	NA
Aluminum Chloride	A	A	A	A	A	A	A	A	Q	A	A	A
Aluminum Sulphate, Aqueous	A	A	A	A	A	A	A	A	Q	NA	A	A
Aluminum Hydroxide (Boehmite)	A	A	A	NA	A	A	A	A	Q	A	A	A
Amine, Fat Condensate	A	A	A	NA	A	A	A	A	Q	NA	A	A
Ammonia, Anhydrous	A	A	A	A	A	A	A	A	Q	A	A	NA

Use or disclosure of data contained on this sheet is subject to the restrictions contained in the disclaimer located in the Table of Contents of this report.
Bal Seal Engineering: 19650 Pauling • Foothill Ranch, CA 92610-2610 • Tel: (949) 460-2100 • Fax: (949) 460-2300
Bal Seal Engineering Europe B.V.: VIDA Building, 1st floor • Kabelweg 57 • 1014 BA Amsterdam • The Netherlands • Telephone: 31 20 638 65 23 • Telefax: 31 20 625 60 18
Bal Seal Asia Limited: Suite 901, Chinachem Century Tower 178 Gloucester Road, Wanchai, Hong Kong • Telephone: +(852) 28681860 • Telefax: +(852) 22956753

5.0 LIST OF CHEMICALS AND BAL SEAL® MATERIALS

CHEMICAL	PTFE TA TFM T6	G G 5	GC GC 5 GF GF5	GFP 55	GFPM 55	GLMO4 MOS	SP 50 SP 59 SP 5 SP 36	SP 45 SP 23 SP 191 SP83	FC 10	UPC UP 30 UP 15 UP 16 UPC25	P 40 / P 41/ P170 P43 / P69D	
											73°F (23°C)	212°F (100°C)
Ammonia, Aqua	A	A	A	A	A	Q	A	A	Q	A	A	A
Ammonium Bicarbonate	A	A	A	NA	A	A	A	A	Q	NA	NA	NA
Ammonium Bifluoride	A	A	A	A	A	A	A	A	Q	NA	NA	NA
Ammonium Carbonate	A	A	A	NA	A	A	A	A	Q	NA	NA	NA
Ammonium Chloride (Sal Ammoniac)	A	A	A	A	A	A	A	A	Q	A	A	A
Ammonium Hydroxide	A	A	A	A	A	A	A	A	Q	A	A	NA
Ammonium Nitrate	A	Q	Q	A	A	A	A	A	Q	A	A	A
Ammonium Phosphate (Di-Basic)	A	A	A	NA	A	A	A	A	Q	A	NA	NA
Ammonium Phosphate (Mono-Basic)	A	A	A	NA	A	A	A	A	Q	A	NA	NA
Ammonium Phosphate (Tri-Basic)	A	A	A	NA	A	A	A	A	Q	A	NA	NA
Ammonium Sulphate (Aqueous)	A	A	A	A	A	A	A	A	Q	A	NA	NA
Ammonium Thiocyanate	A	A	A	A	A	A	A	A	Q	A	NA	NA
Amyl Acetate	A	A	A	A	A	A	A	A	Q	A	A	A
Amyl Alcohol	A	A	A	A	A	A	A	A	Q	A	A	A
Amyl Nitrate	A	A	A	NA	A	A	A	A	Q	NA	NA	NA
Aniline Hydrochloride	A	A	A	NA	A	A	A	A	Q	A	NA	NA
Aniline (Aminobenzene)	A	A	A	A	A	A	A	A	Q	A	NA	NA
Anti-Freeze (Water, Alcohol or Glycol)	A	A	A	A	A	A	A	A	NR	A	A	A
Aqua Regia	A	A	NR	NR	A	NA	NR	A	NR	NR	NR	NR
Argon Gas	A	Q	Q	NA	A	A	A	A	Q	NA	A	A
Arochlor 1248	A	A	A	NA	A	A	A	A	Q	NA	NA	NA
Aromatic Fuels	A	A	A	NA	A	A	A	A	Q	NA	A	A
Asphalt	A	A	A	A	A	A	A	A	Q	A	A	A
Barium Chloride (Aqueous)	A	A	A	A	NR	A	A	A	Q	A	A	NA
Barium Nitrate (Aqueous)	A	A	A	NA	NR	A	A	A	Q	A	NA	NA
Beer	A	A	A	NA	NR	A	Q	A	A	A	A	A
Beer Wort	A	A	A	NA	NR	A	Q	A	A	NA	A	A
Beet Juice	A	A	A	NA	NR	A	Q	A	A	NA	A	A
Beet Pulp	A	A	A	NA	NR	A	Q	A	A	NA	A	A
Beet Sugar Solution	A	A	A	NA	NR	A	Q	A	A	NA	A	A
Benzene (Coal Tar Product) (Benzol)	A	A	A	A	A	A	A	A	Q	Q	A	A
Benzine (Petroleum Product)	A	A	A	A	A	A	A	A	Q	Q	NA	NA
Benzol	A	A	A	NA	A	A	A	A	Q	NA	NA	NA
Bichloride of Mercury	A	NA	NA	NA	A	A	A	A	Q	NA	A	A
Bittern	A	Q	Q	NA	NR	NA	A	A	Q	NA	A	A
Black Liquor	A	A	A	NA	NR	A	A	A	A	NA	A	A

Use or disclosure of data contained on this sheet is subject to the restrictions contained in the disclaimer located in the Table of Contents of this report.
Bal Seal Engineering: 19650 Pauling • Foothill Ranch, CA 92610-2610 • Tel: (949) 460-2100 • Fax: (949) 460-2300
Bal Seal Engineering Europe B.V.: VIDA Building, 1st floor • Kabelweg 57 • 1014 BA Amsterdam • The Netherlands • Telephone: 31 20 638 65 23 • Telefax: 31 20 625 60 18
Bal Seal Asia Limited: Suite 901, Chinachem Century Tower 178 Gloucester Road, Wanchai, Hong Kong • Telephone: +(852) 28681860 • Telefax: +(852) 22956753

5.0 LIST OF CHEMICALS AND BAL SEAL® MATERIALS

CHEMICAL	PTFE TA TFM T6	G G 5	GC GC 5 GF GF5	GFP 55	GFPM 55	GLMO4 MOS	SP 50 SP 59 SP 5 SP 36	SP 45 SP 23 SP 191 SP83	FC 10	UPC UP 30 UP 15 UP 16 UPC25	P 40 / P 41/ P170 P43 / P69D	
											73°F (23°C)	212°F (100°C)
Bleach Solutions	A	Q	Q	NA	NR	A	A	A	Q	NR	A	A
Bleaching Liquor	A	A	A	A	NR	NA	A	A	Q	Q	A	A
Blood	A	Q	Q	Q	NR	NA	A	A	NR	A	A	A
Boiler Feed Water	A	A	A	NA	A	A	A	A	Q	NA	A	A
Bonderite Solution	A	A	A	NA	A	NA	A	A	Q	NA	NA	NA
Boron Trichloride	A	A	A	NA	A	A	A	A	Q	A	NA	NA
Brine, Calcium PH8	A	A	A	A	A	A	A	A	Q	NA	A	A
Brine, Calcium and Magnesium Chloride	A	A	A	A	A	A	A	A	Q	NA	NA	NA
Brine, Sea Water	A	A	A	A	A	A	A	A	NR	NA	A	A
Brine, Sodium Chloride	A	A	A	A	A	A	A	A	NR	A	A	A
Bromine Fumes	A	NR	NR	NR	NR	NA	A	A	Q	NR	NR	NR
Bromine Liquid	A	NA	NA	NR	NR	NA	A	A	Q	NA	NA	NA
Bromine, Wet	A	A	A	A	NR	A	A	A	Q	A	NR	NR
Bromo Methane	A	A	A	NA	NR	A	A	A	Q	NA	NA	NA
Bunker C Fuel Oil	A	A	A	A	A	A	A	A	Q	NA	A	A
Butadiene	A	A	A	A	A	A	A	A	Q	NA	NA	NA
Butane (LPG)	A	A	A	A	A	A	A	A	Q	A	A	A
Butanol-1	A	A	A	A	A	A	A	A	Q	A	A	A
Butanol-2	A	A	A	A	A	A	A	A	Q	A	A	A
Butyl Acetate	A	A	A	A	A	A	A	A	Q	A	A	NA
Butyl Alcohol (Butanol)	A	A	A	A	A	A	A	A	Q	A	A	NA
Butylamine	A	A	A	Q	A	A	A	A	Q	NA	NA	NA
Butyl Phthalate	A	A	A	A	A	A	A	A	Q	NA	NA	NA
Butylene (Butene)(Ethylethylene)	A	A	A	A	A	A	A	A	Q	NA	NA	NA
Calcium Bisulphite	A	A	A	NA	A	A	A	A	Q	NA	A	A
Calcium Carbonate (Aragonite)	A	A	A	NA	A	A	A	A	Q	A	A	NA
Calcium Chlorate (Aqueous)	A	A	A	NA	A	A	A	A	A	A	A	NA
Calcium Chloride (Wet)	A	A	A	A	A	A	A	A	Q	A	A	A
Calcium Hydroxide (Aqueous) (Lime Water)	A	A	A	A	A	A	A	A	Q	A	A	NA
Calcium Hypochlorite	A	Q	Q	A	A	A	A	A	Q	A	A	A
Calcium Magnesium Chloride	A	A	A	A	A	A	A	A	Q	NA	NA	NA
Calcium Phosphate	A	A	A	NA	A	A	A	A	Q	A	NA	NA
Cane Juice	A	A	A	NA	NR	A	Q	A	A	NA	A	A
Carbon Bisulphide	A	A	A	NA	A	A	A	A	Q	NA	NA	NA
Carbon Dioxide (Dry)	A	A	A	A	A	A	A	A	Q	A	A	NA
Carbon Dioxide (Wet)	A	A	A	A	A	A	A	A	Q	A	NA	NA
Carbon Disulphide	A	A	A	A	A	A	A	A	Q	Q	NA	NA
Carbon Monoxide Gas	A	A	A	NA	A	A	A	A	Q	A	A	NA
Carbon Tetrachloride (Anhydrous)	A	A	A	A	A	A	A	A	Q	Q	A	A

Use or disclosure of data contained on this sheet is subject to the restrictions contained in the disclaimer located in the Table of Contents of this report.
Bal Seal Engineering: 19650 Pauling • Foothill Ranch, CA 92610-2610 • Tel: (949) 460-2100 • Fax: (949) 460-2300
Bal Seal Engineering Europe B.V.: VIDA Building, 1st floor • Kabelweg 57 • 1014 BA Amsterdam • The Netherlands • Telephone: 31 20 638 65 23 • Telefax: 31 20 625 60 18
Bal Seal Asia Limited: Suite 901, Chinachem Century Tower 178 Gloucester Road, Wanchai, Hong Kong • Telephone: +(852) 28681860 • Telefax: +(852) 22956753

5.0 LIST OF CHEMICALS AND BAL SEAL® MATERIALS

CHEMICAL	PTFE TA TFM T6	G G 5	GC GC 5 GF GF5	GFP 55	GFPM 55	GLMO4 MOS	SP 50 SP 59 SP 5 SP 36	SP 45 SP 23 SP 191 SP83	FC 10	UPC UP 30 UP 15 UP 16 UPC25	P 40 / P 41/ P170 P43 / P69D	
											73°F (23°C)	212°F (100°C)
Carbonate of Soda (Aqueous)	A	A	A	A	A	A	Q	A	Q	NA	A	A
Catsup	A	A	A	NA	NR	A	Q	A	A	NA	A	A
Caustic Cyanogen	A	A	A	NA	A	A	A	A	Q	NA	NA	NA
Caustic Manganese	A	A	A	NA	A	NA	A	A	Q	NA	NA	NA
Caustic Potash (Aqueous)	A	A	A	NA	A	Q	A	A	Q	A	NA	NA
Caustic Soda (Aqueous)	A	A	A	NA	A	Q	A	A	Q	A	NA	NA
Chloride of Lime	A	A	A	NA	A	A	A	A	Q	NA	NA	NA
Chlorinated Solvents (Wet)	A	A	A	NA	A	A	A	A	Q	NA	NA	NA
Chlorine (Dry)	A	A	A	Q	NR	A	A	A	Q	Q	NR	NR
Chlorine (Wet)	A	Q	Q	Q	NR	A	A	A	Q	Q	NR	NR
Chlorine Trifluoride	Q	Q	Q	Q	NR	Q	A	A	Q	Q	NR	NR
Chlorine Trifluoride (Elevated Temperature)	NR	NR	NR	NR	NR	NA	NR	NR	Q	NR	NR	NR
Chloroacetone	A	A	A	NA	NR	A	A	A	Q	NA	NA	NA
Chlorobenzene	A	A	A	A	NR	A	A	A	Q	Q	A	A
Chloroform	A	A	A	A	NR	A	A	A	Q	Q	A	A
Chloronaphthalene	A	A	A	A	A	A	A	A	Q	NR	A	NA
Chloropicrin	A	A	A	NA	A	A	A	A	Q	Q	NA	NA
Chrome Alum	A	A	A	NA	A	A	A	A	Q	A	NA	NA
Chromic Oxide (Aqueous)	A	Q	Q	NA	A	A	A	A	Q	NA	NA	NA
Chromium Potassium Sulphate (Aqueous)	A	A	A	NA	A	A	A	A	Q	NA	NA	NA
Cocoa Butter	A	A	A	NA	NR	A	A	A	A	NA	A	A
Coconut Oil	A	A	A	NA	NR	A	A	A	A	A	A	A
Cod liver Oil	A	A	A	NA	NR	A	A	A	A	A	A	A
Condensate (Water)	A	A	A	A	A	A	A	A	NR	NA	A	A
Copper Acetate (Blue Verdigris)	A	A	A	NA	A	A	A	A	Q	NA	A	A
Copper Ammonium Acetate (Aqueous)	A	A	A	NA	A	A	A	A	Q	NA	NA	NA
Copper Chloride	A	A	A	NA	A	A	A	A	Q	A	A	A
Copper Cyanide	A	A	A	NA	A	A	A	A	Q	A	A	A
Copper Nitrate	A	A	A	NA	A	A	A	A	Q	A	A	A
Copper Sulphate (Blue Vitriol) (Aqueous)	A	A	A	A	A	A	A	A	Q	A	A	A
Copperas (Green)	A	A	A	NA	A	A	A	A	Q	NA	NA	NA
Corn Oil	A	A	A	NA	NR	A	A	A	A	A	A	NA
Cottonseed Oil	A	A	A	A	NR	A	A	A	A	A	A	NA
Creosote (Coal Tar)	A	A	A	NA	NR	A	A	A	Q	A	A	NA
Cresol, Meta	A	A	A	A	NR	A	A	A	Q	A	A	NA
Crude Oil	A	A	A	A	A	A	A	A	Q	A	A	NA
Cupric Sulphate (Aqueous)	A	A	A	NA	A	A	A	A	Q	NA	A	A
Cupros Ammonia Acetate (Aqueous)	A	NA	NA	NA	A	A	A	A	Q	NA	NA	NA

Use or disclosure of data contained on this sheet is subject to the restrictions contained in the disclaimer located in the Table of Contents of this report.
Bal Seal Engineering: 19650 Pauling • Foothill Ranch, CA 92610-2610 • Tel: (949) 460-2100 • Fax: (949) 460-2300
Bal Seal Engineering Europe B.V.: VIDA Building, 1st floor • Kabelweg 57 • 1014 BA Amsterdam • The Netherlands • Telephone: 31 20 638 65 23 • Telefax: 31 20 625 60 18
Bal Seal Asia Limited: Suite 901, Chinachem Century Tower 178 Gloucester Road, Wanchai, Hong Kong • Telephone: +(852) 28681860 • Telefax: +(852) 22956753

5.0 LIST OF CHEMICALS AND BAL SEAL® MATERIALS

CHEMICAL	PTFE TA TFM T6	G G 5	GC GC 5 GF GF5	GFP 55	GFPM 55	GLMO4 MOS	SP 50 SP 59 SP 5 SP 36	SP 45 SP 23 SP 191 SP83	FC 10	UPC UP 30 UP 15 UP 16 UPC25	P 40 / P 41/ P170 P43 / P69D	
											73°F (23°C)	212°F (100°C)
Cutting Oil	A	A	A	NA	A	A	A	A	Q	NA	NA	NA
Cyanogen in Water	A	A	A	NA	A	A	A	A	NR	NA	NA	NA
Cyclohexane (Hexahydrobenzene)	A	A	A	A	A	A	A	A	Q	A	A	A
Cyclohexene (Tetrahydrobenzene)	A	A	A	NA	A	A	A	A	Q	A	A	A
Cyclohexanone	A	A	A	A	A	A	A	A	Q	A	NA	NA
DDT Solution (Kerosene Solv.)	A	A	A	NA	A	A	A	A	Q	A	NA	NA
DDT Solution (Toluene Solv.)	A	A	A	NA	A	A	A	A	Q	A	NA	NA
De-Ethanizer Charge	A	A	A	NA	A	A	A	A	Q	NA	NA	NA
De-Propanizer Reflux	A	A	A	NA	A	A	A	A	Q	NA	NA	NA
Diacetone Alcohol	A	A	A	NA	A	A	A	A	Q	NA	NA	NA
Dibromoethyl Benzene	A	A	A	NA	A	A	A	A	Q	NA	NA	NA
Dibutyl Amine	A	A	A	NA	A	A	A	A	Q	NA	NA	NA
Dibutyl Cellusolve Adipate	A	A	A	NA	A	A	A	A	Q	NA	NA	NA
Dibutyl Phthalate	A	A	A	NA	A	A	A	A	Q	A	A	NA
Dibutyl Ether	A	A	A	NA	A	A	A	A	Q	Q	NA	NA
Dichlorobenzene	A	A	A	NA	A	A	A	A	Q	Q	A	NA
Dichloroethane	A	A	A	NA	A	A	A	A	Q	Q	A	NA
Dichloroethylene	A	A	A	NA	A	A	A	A	Q	Q	NA	NA
Diesel Fuel	A	A	A	A	A	A	A	A	Q	A	NA	NA
Diethanolamine (DEA)	A	A	A	NA	A	A	A	A	Q	A	NA	NA
Diethyl Carbonate (Ethyl Carbonate)	A	A	A	NA	A	A	A	A	Q	NA	NA	NA
Diethyl Ether	A	A	A	NA	A	A	A	A	Q	Q	NA	NA
Diethylene Glycol	A	A	A	NA	A	A	A	A	Q	A	NA	NA
Diethyleneytriamine	A	A	A	NA	A	A	A	A	Q	NA	NA	NA
Dimethyl Formaldehyde	A	A	A	NA	A	A	A	A	Q	NA	NA	NA
Dimethyl Formamide (DMF)	A	NA	NA	A	A	A	A	A	Q	A	A	NA
Dimethyl Hydrazine	A	A	A	NA	A	A	A	A	Q	NA	NA	NA
Dimethyl Phthalate	A	A	A	A	A	A	A	A	Q	NA	A	NA
Dimethyl Terephthalate	A	A	A	NA	A	A	A	A	Q	NA	NA	NA
Dinitrochloro Benzene and Styrene	A	A	A	NA	A	A	A	A	Q	NA	NA	NA
Dinitrochloro Benzene (DNCB)	A	Q	Q	NA	A	A	A	A	Q	NA	NA	NA
Dinitrotoluene	A	Q	Q	NA	A	A	A	A	Q	NA	NA	NA
Dioctyl-Amine	A	A	A	NA	A	A	A	A	Q	NA	NA	NA
Dioctyl Phthalate	A	A	A	A	A	A	A	A	Q	A	A	NA
Dioxane	A	A	A	A	A	A	A	A	Q	A	NA	NA
Diphenyl sulfone	A	A	A	NA	A	A	A	A	Q	NA	Q	NA
Dish Water	A	A	A	A	NR	A	A	A	NR	A	A	A
Di-Isobutyl Ketone	A	A	A	NA	A	A	A	A	Q	A	NA	NA

Use or disclosure of data contained on this sheet is subject to the restrictions contained in the disclaimer located in the Table of Contents of this report.
Bal Seal Engineering: 19650 Pauling • Foothill Ranch, CA 92610-2610 • Tel: (949) 460-2100 • Fax: (949) 460-2300
Bal Seal Engineering Europe B.V.: VIDA Building, 1st floor • Kabelweg 57 • 1014 BA Amsterdam • The Netherlands • Telephone: 31 20 638 65 23 • Telefax: 31 20 625 60 18
Bal Seal Asia Limited: Suite 901, Chinachem Century Tower 178 Gloucester Road, Wanchai, Hong Kong • Telephone: +(852) 28681860 • Telefax: +(852) 22956753

5.0 LIST OF CHEMICALS AND BAL SEAL® MATERIALS

CHEMICAL	PTFE TA TFM T6	G G 5	GC GC 5 GF GF5	GFP 55	GFPM 55	GLMO4 MOS	SP 50 SP 59 SP 5 SP 36	SP 45 SP 23 SP 191 SP83	FC 10	UPC UP 30 UP 15 UP 16 UPC25	P 40 / P 41/ P170 P43 / P69D	
											73°F (23°C)	212°F (100°C)
Di-Isopropyl Ketone	A	A	A	NA	A	A	A	A	Q	NA	NA	NA
Dow Corning Silicone Fluid	A	A	A	NA	A	A	A	A	Q	NA	NA	NA
Dowtherm "A" (Dry)	A	A	A	A	A	A	A	A	Q	NA	NA	NA
Dowtherm "E" (Dry)	A	A	A	A	A	A	A	A	Q	NA	NA	NA
Ethane	A	A	A	NA	A	A	A	A	Q	A	A	NA
Ethanol Amine	A	A	A	A	A	A	A	A	Q	NA	A	NA
Ethanol (Ethyl Alcohol)	A	A	A	A	A	A	A	A	Q	A	A	NA
Ether	A	A	A	A	A	A	A	A	Q	Q	NA	NA
Ethyl Acetate	A	A	A	A	A	A	A	A	Q	A	A	NA
Ethyl Benzene	A	A	A	NA	A	A	A	A	Q	Q	NA	NA
Ethyl Benzoate	A	A	A	NA	A	A	A	A	Q	NA	NA	NA
Ethyl Cellosolve	A	A	A	NA	A	A	A	A	Q	NA	NA	NA
Ethyl Chloride (Dry)(Chloroethane)	A	A	A	A	A	A	A	A	Q	Q	NA	NA
Ethyl Chlorocarbonate	A	A	A	NA	A	A	A	A	Q	NA	NA	NA
Ethyl Chloroformate	A	A	A	NA	A	A	A	A	Q	NA	NA	NA
Ethyl Chlorohydrin	A	A	A	NA	A	A	A	A	Q	NA	NA	NA
Ethyl Ether (Ethyl Oxide)	A	A	A	NA	A	A	A	A	Q	Q	NA	NA
Ethyl Formate	A	A	A	NA	A	A	A	A	Q	NA	NA	NA
Ethyl Hexanol	A	A	A	NA	A	A	A	A	Q	A	NA	NA
Ethyl Pyridine	A	A	A	NA	A	A	A	A	Q	NA	NA	NA
Ethylene (Ethene)	A	A	A	NA	A	A	A	A	Q	A	NA	NA
Ethylene Chloride (Ethylene Dichloride)	A	A	A	A	A	A	A	A	Q	NA	NA	NA
Ethylene Glycol	A	A	A	NA	A	A	A	A	Q	A	A	A
Ethylene Oxide	A	A	A	NA	A	A	A	A	Q	Q	A	NA
Ethylene Trichloride	A	A	A	NA	A	A	A	A	Q	NA	NA	NA
Ferric Chloride (Aqueous)	A	Q	Q	Q	A	A	A	A	Q	A	Q	Q
Ferric Sulphate (Aqueous)	A	A	A	NA	A	A	A	A	Q	NA	A	NA
Fluorine	Q	Q	Q	Q	NR	Q	Q	Q	Q	Q	NR	NR
Fluorine (Elevated Temperature)	NR	NR	NR	NR	NR	NR	NR	NR	NR	NA	NA	NA
Fluorolube	A	A	A	NA	A	A	A	A	Q	NA	NA	NA
Formaldehyde (Methanal)	A	A	A	A	A	A	A	A	Q	A	NA	NA
Formalin	A	A	A	NA	A	A	A	A	Q	NA	A	NA
Freon 11 and Refrig. Oil	A	A	A	A	A	A	A	A	Q	NA	NA	NA
Freon 12	A	A	A	A	A	A	A	A	Q	Q	A	NA
Freon 22	A	A	A	A	A	A	A	A	Q	NA	A	NA
Freon 113	A	A	A	A	A	A	A	A	Q	NA	A	NA
Freon 114	A	A	A	A	A	A	A	A	Q	NA	NA	NA
Freon 121	A	A	A	A	A	A	A	A	Q	NA	NA	NA
Freons, Liquid	A	A	A	A	A	A	A	A	Q	NA	NA	NA
Fruit Juices	A	A	A	NA	A	A	A	A	A	A	A	A
Fuel Oil	A	A	A	A	A	A	A	A	Q	A	A	NA

Use or disclosure of data contained on this sheet is subject to the restrictions contained in the disclaimer located in the Table of Contents of this report.
Bal Seal Engineering: 19650 Pauling • Foothill Ranch, CA 92610-2610 • Tel: (949) 460-2100 • Fax: (949) 460-2300
Bal Seal Engineering Europe B.V.: VIDA Building, 1st floor • Kabelweg 57 • 1014 BA Amsterdam • The Netherlands • Telephone: 31 20 638 65 23 • Telefax: 31 20 625 60 18
Bal Seal Asia Limited: Suite 901, Chinachem Century Tower 178 Gloucester Road, Wanchai, Hong Kong • Telephone: +(852) 28681860 • Telefax: +(852) 22956753

5.0 LIST OF CHEMICALS AND BAL SEAL® MATERIALS

CHEMICAL	PTFE TA TFM T6	G G 5	GC GC 5 GF GF5	GFP 55	GFPM 55	GLMO4 MOS	SP 50 SP 59 SP 5 SP 36	SP 45 SP 23 SP 191 SP83	FC 10	UPC UP 30 UP 15 UP 16 UPC25	P 40 / P 41/ P170 P43 / P69D	
											73°F (23°C)	212°F (100°C)
Fuel Oil, #6	A	NA	NA	NA	A	A	A	A	Q	NA	A	NA
Fuel Oil, Acidic	A	NA	NA	NA	A	A	A	A	Q	NA	A	NA
Furfural	A	A	A	A	A	A	A	A	Q	A	NA	NA
Gas Oil	A	A	A	NA	A	A	A	A	Q	NA	NA	NA
Gasoline 100, and 130 OCT.	A	A	A	A	A	A	A	A	Q	A	A	NA
Gasoline, Aromatic	A	A	A	A	A	A	A	A	Q	A	A	NA
Gasoline, High Test W/ Mercaptan, H_2S	A	A	A	A	A	A	A	A	Q	NA	A	NA
Glaubers Salt (Aqueous)(Sodium Sulfate)	A	A	A	NA	A	A	A	A	Q	A	NA	NA
Glucose	A	A	A	NA	A	A	A	A	Q	A	A	A
Glue	A	A	A	NA	A	A	A	A	Q	A	NA	NA
Glue Sizing	A	A	A	NA	A	A	A	A	Q	A	NA	NA
Glycerine (Glycerol)	A	A	A	NA	A	A	A	A	Q	A	A	NA
Glycols	A	A	A	NA	A	A	A	A	Q	A	A	NA
Glyme	A	NA	NA	NA	A	A	A	A	Q	NA	NA	NA
Grape Juice	A	A	A	NA	NR	A	Q	A	A	NA	A	A
Grease	A	A	A	NA	A	A	A	A	Q	N A	NA	NA
Green Sulphate Liquor	A	A	A	NA	NR	A	A	A	Q	NA	NA	NA
Helium	A	A	A	NA	A	A	A	A	Q	NA	NA	NA
Heptane	A	A	A	A	A	A	A	A	Q	A	A	NA
Hexachloroacetone	A	A	A	NA	A	A	A	A	Q	NA	NA	NA
Hexane	A	A	A	A	A	A	A	A	Q	A	A	NA
Hexene (Butylethylene)	A	A	A	NA	A	A	A	A	Q	NA	NA	NA
Hexone	A	A	A	NA	A	A	A	A	Q	NA	NA	NA
Hexyl alcohol (Hexanol)	A	A	A	NA	A	A	A	A	Q	NA	NA	NA
Hydrazine	A	Q	Q	NA	A	A	A	A	Q	NA	NA	NA
Hydrochoto Peroxide ($HCLO_4$)	A	A	A	A	A	A	Q	Q	NA	NA	NA	NA
Hydrogen Fluoride (HF Acid) Anhydrous	A	A	A	A	A	NR	A	A	Q	NA	NA	NA
Hydrogen Peroxide	A	Q	Q	Q	A	A	A	A	Q	A	A	A
Hydrogen Sulphide (Dry)	A	A	A	A	A	A	A	A	Q	A	A	A
Hydrogen Sulphide (Wet)	A	A	A	A	A	A	A	A	Q	A	NA	NA
Ink	A	A	A	A	A	A	A	A	A	A	NA	NA
Insecticides (Aromatic)	A	A	A	NA	A	A	A	A	Q	NA	NA	NA
Insecticides (Nonaromatic)	A	A	A	NA	A	A	A	A	Q	NA	NA	NA
Iodine (Wet)	A	Q	Q	NA	NR	A	A	A	Q	A	NA	NA
Iodoform	A	Q	Q	NA	A	A	A	A	Q	NA	Q	NA
Isobutane	A	A	A	NA	A	A	A	A	Q	NA	NA	NA
Isobutyl Alcohol	A	A	A	NA	A	A	A	A	Q	A	NA	NA
Isobutyl Methyl Ketone	A	A	A	NA	A	A	A	A	Q	NA	NA	NA
Isobutylene	A	A	A	NA	A	A	A	A	Q	NA	NA	NA

Use or disclosure of data contained on this sheet is subject to the restrictions contained in the disclaimer located in the Table of Contents of this report.
Bal Seal Engineering: 19650 Pauling • Foothill Ranch, CA 92610-2610 • Tel: (949) 460-2100 • Fax: (949) 460-2300
Bal Seal Engineering Europe B.V.: VIDA Building, 1st floor • Kabelweg 57 • 1014 BA Amsterdam • The Netherlands • Telephone: 31 20 638 65 23 • Telefax: 31 20 625 60 18
Bal Seal Asia Limited: Suite 901, Chinachem Century Tower 178 Gloucester Road, Wanchai, Hong Kong • Telephone: +(852) 28681860 • Telefax: +(852) 22956753

5.0 LIST OF CHEMICALS AND BAL SEAL® MATERIALS

CHEMICAL	PTFE TA TFM T6	G G 5	GC GC 5 GF GF5	GFP 55	GFPM 55	GLMO4 MOS	SP 50 SP 59 SP 5 SP 36	SP 45 SP 23 SP 191 SP83	FC 10	UPC UP 30 UP 15 UP 16 UPC25	P 40 / P 41/ P170 P43 / P69D	
											73°F (23°C)	212°F (100°C)
Isooctane	A	A	A	NA	A	A	A	A	Q	A	A	NA
Isododecane	A	A	A	NA	A	A	A	A	Q	NA	NA	NA
Isopentane	A	A	A	NA	A	A	A	A	Q	NA	NA	NA
Isopropanol	A	A	A	NA	A	A	A	A	Q	A	A	NA
Isopropylacetate	A	A	A	NA	A	A	A	A	Q	A	NA	NA
Isopropylacetone	A	A	A	NA	A	A	A	A	Q	NA	NA	NA
Isopropyl Alcohol	A	A	A	NA	A	A	A	A	Q	A	NA	NA
Isopropylamine	A	A	A	NA	A	A	A	A	Q	NA	NA	NA
Isopropylchloride	A	A	A	NA	A	A	A	A	Q	NA	NA	NA
Isohexanes	A	A	A	A	A	A	A	A	A	NA	NA	NA
Jet fuel JP-3	A	A	A	A	A	A	A	A	Q	NA	NA	NA
Jet fuel JP-4	A	A	A	A	A	A	A	A	Q	NA	NA	NA
Jet fuel JP-5	A	A	A	A	A	A	A	A	Q	NA	NA	NA
Jet fuel JP-6	A	A	A	A	A	A	A	A	Q	NA	NA	NA
Jet fuel JP-X	A	A	A	A	A	A	A	A	Q	NA	NA	NA
Kerosene	A	A	A	A	A	A	A	A	Q	A	A	NA
Ketones	A	A	A	A	A	NA	A	A	Q	Q	A	NA
Lacquer (MEK Solv.)	A	A	A	NA	A	A	A	A	Q	NA	NA	NA
Lard (Animal Fat)	A	A	A	NA	A	A	A	A	A	NA	A	NA
Latex	A	A	A	NA	A	A	A	A	Q	A	NA	NA
Lavender Oil	A	A	A	A	A	A	A	A	A	A	A	NA
Lead Acetate	A	A	A	NA	A	A	A	A	Q	A	A	A
Lead Sulphamate	A	A	A	A	A	A	A	A	A	NR	NA	NA
Lead Nitrate	A	A	A	NA	A	A	A	A	Q	NA	NA	NA
Lime Bleach	A	A	A	NA	NR	A	A	A	Q	NA	NA	NA
Lime Water (Calcium Hydroxide)	A	A	A	NA	A	A	Q	A	Q	A	NA	NA
Lindol	A	A	A	NA	A	A	A	A	Q	NA	NA	NA
Linseed Oil	A	A	A	NA	A	A	A	A	A	A	A	NA
Liquid Oxygen	A	NR	NR	NA	NR	A	A	A	Q	NA	NA	NA
Liquid Petroleum Gas (LPG)	A	A	A	A	A	A	A	A	Q	NA	NA	NA
Liquor, Pulpmill	A	A	A	NA	A	A	A	A	Q	NA	NA	NA
Lithium	Q	Q	Q	Q	A	Q	A	A	Q	Q	NA	NA
Lithium (Elevated Temperature)	NR	NR	NR	NR	A	NR	NR	NR	Q	NR	NA	NA
Lithium Bromine Brine	A	A	A	NA	NR	A	A	A	Q	A	NA	NA
Lithium Chloride (Aqueous)	A	A	A	NA	A	A	A	A	Q	NA	NA	NA
Magnesium Chloride (Bischofite)	A	A	A	A	A	A	A	A	Q	A	A	A
Magnesium Hydroxide (Brucite)	A	A	A	A	A	A	A	A	Q	A	A	NA
Magnesium Nitrate	A	Q	Q	NA	A	A	A	A	Q	A	NA	NA

Use or disclosure of data contained on this sheet is subject to the restrictions contained in the disclaimer located in the Table of Contents of this report.
Bal Seal Engineering: 19650 Pauling • Foothill Ranch, CA 92610-2610 • Tel: (949) 460-2100 • Fax: (949) 460-2300
Bal Seal Engineering Europe B.V.: VIDA Building, 1st floor • Kabelweg 57 • 1014 BA Amsterdam • The Netherlands • Telephone: 31 20 638 65 23 • Telefax: 31 20 625 60 18
Bal Seal Asia Limited: Suite 901, Chinachem Century Tower 178 Gloucester Road, Wanchai, Hong Kong • Telephone: +(852) 28681860 • Telefax: +(852) 22956753

5.0 LIST OF CHEMICALS AND BAL SEAL® MATERIALS

CHEMICAL	PTFE TA TFM T6	G G 5	GC GC 5 GF GF5	GFP 55	GFPM 55	GLMO4 MOS	SP 50 SP 59 SP 5 SP 36	SP 45 SP 23 SP 191 SP83	FC 10	UPC UP 30 UP 15 UP 16 UPC25	P 40 / P 41/ P170 P43 / P69D	
											73°F (23°C)	212°F (100°C)
Magnesium Sulphate (Epsom Salt) (Aqueous)	A	A	A	A	A	A	A	A	Q	A	A	A
Magnesium Sulphite (Aqueous)	A	A	A	NA	A	A	A	A	Q	A	NA	NA
Maleic Anhydride	A	A	A	NA	A	A	A	A	Q	NA	A	A
Maleic Hydrazide	A	A	A	NA	A	A	A	A	Q	NA	A	A
Manganese Chloride (Aqueous)	A	A	A	NA	A	A	A	A	Q	NA	NA	NA
Manganese Sulphate (Aqueous)	A	A	A	NA	A	A	A	A	Q	A	NA	NA
Marsh, Anti-Biotic Fermentation, No Solv.	A	A	A	A	A	A	A	A	Q	NA	NA	NA
Mayonnaise	A	A	A	NA	NR	A	A	A	Q	A	A	NA
MEA (Mono-Exhanol-Amine)	A	A	A	NA	A	A	A	A	Q	NA	NA	NA
Melamine Resins	A	A	A	NA	A	A	A	A	Q	NA	NA	NA
Mercaptan	A	A	A	NA	A	A	A	A	Q	NA	A	A
Mercuric Chloride	A	A	A	NA	A	A	A	A	Q	A	A	A
Mercury	A	A	A	NA	A	A	A	A	Q	A	A	A
Mercury Salts	A	A	A	NA	A	A	A	A	Q	A	NA	NA
Mercury Vapors	A	A	A	NA	A	A	A	A	Q	NA	NA	NA
Mesityl Oxide	A	A	A	NA	A	A	A	A	Q	NA	NA	NA
Methane (Marsh Gas)	A	A	A	NA	A	A	A	A	Q	NA	A	A
Methanol (Methyl Alcohol)	A	A	A	A	A	A	A	A	Q	A	A	A
Methyl Acetate	A	A	A	NA	A	A	A	A	Q	NA	NA	NA
Methyl Acrylate	A	A	A	NA	A	A	A	A	Q	A	NA	NA
Methyl Bromide (Bromomethane)	A	A	A	NA	A	A	A	A	Q	Q	NA	NA
Methyl Butyl Ketone	A	A	A	NA	A	A	A	A	Q	NA	NA	NA
Methyl Cellosolve	A	A	A	NA	A	A	A	A	Q	NA	NA	NA
Methyl Chloride (Chloromethane)(Anhydrous)	A	A	A	NA	A	A	A	A	Q	Q	NA	NA
Methyl Chlorosilanes	A	A	A	NA	A	A	A	A	Q	NA	NA	NA
Methyl Cyclopentane	A	A	A	NA	A	A	A	A	Q	NA	NA	NA
Methyl Dichloride	A	A	A	NA	A	A	A	A	Q	NA	NA	NA
Methyl Ether	A	A	A	NA	A	A	A	A	Q	NA	NA	NA
Methyl Ethyl Ketone(MEK)	A	A	A	A	A	A	A	A	Q	A	A	NA
Methyl Formate	A	A	A	NA	A	A	A	A	Q	NA	NA	NA
Methyl Isobutyl Ketone	A	A	A	A	A	A	A	A	Q	A	NA	NA
Methyl Isopropyl Ketone	A	A	A	NA	A	A	A	A	Q	NA	NA	NA
Methyl N-Propyl Ketone	A	NA	A	NA	A	A	A	A	Q	A	NA	NA
Methyl T-Butyl Ether	A	A	A	A	A	A	A	A	Q	NA	NA	NA

Use or disclosure of data contained on this sheet is subject to the restrictions contained in the disclaimer located in the Table of Contents of this report.
Bal Seal Engineering: 19650 Pauling • Foothill Ranch, CA 92610-2610 • Tel: (949) 460-2100 • Fax: (949) 460-2300
Bal Seal Engineering Europe B.V.: VIDA Building, 1st floor • Kabelweg 57 • 1014 BA Amsterdam • The Netherlands • Telephone: 31 20 638 65 23 • Telefax: 31 20 625 60 18
Bal Seal Asia Limited: Suite 901, Chinachem Century Tower 178 Gloucester Road, Wanchai, Hong Kong • Telephone: +(852) 28681860 • Telefax: +(852) 22956753

5.0 LIST OF CHEMICALS AND BAL SEAL® MATERIALS

CHEMICAL	PTFE TA TFM T6	G G 5	GC GC 5 GF GF5	GFP 55	GFPM 55	GLMO4 MOS	SP 50 SP 59 SP 5 SP 36	SP 45 SP 23 SP 191 SP83	FC 10	UPC UP 30 UP 15 UP 16 UPC25	P 40 / P 41/ P170 P43 / P69D	
											73°F (23°C)	212°F (100°C)
Methyl Pyrrolidone	A	A		A	A	A	A	Q	Q	Q	NA	NA
Methylbenzene	A	A	A	A	A	A	A	A	Q	Q	NA	NA
Methylcyclohexane	A	A	A	A	A	A	A	A	Q	Q	NA	NA
Methylene Chloride (Dichloromethane)	A	A	A	NA	A	A	A	A	Q	Q	A	NA
Milk	A	A	A	NA	NR	A	Q	A	A	A	A	NA
Milk of Lime	A	A	A	NA	NR	A	Q	A	A	NA	NA	NA
Mil 0-8515	A	A	A	NA	NR	A	A	A	Q	NA	NA	NA
Mil O-8200 (Hydr)	A	A	A	NA	NR	A	A	A	Q	NA	NA	NA
Mil F-25558 (RJ-1)	A	A	A	NA	NR	A	A	A	Q	NA	NA	NA
Mil H-5606 (HFA)	A	A	A	NA	NR	A	A	A	Q	NA	NA	NA
Mil H-5606 (J43)	A	A	A	NA	NR	A	A	A	Q	NA	NA	NA
Mil L-7808	A	A	A	NA	NR	A	A	A	Q	NA	NA	NA
Mineral spirits	A	A	A	NA	NR	A	A	A	A	Q	A	NA
Miscella (20% soya oil)	A	A	A	NA	NR	A	A	A	Q	NA	NA	NA
Molasses	A	A	A	NA	NR	A	A	A	A	A	A	A
Mono Ethanolamine	A	A	A	NA	NR	A	A	A	Q	NA	NA	NA
Monochlorobenzene	A	A	A	NA	NR	A	A	A	Q	Q	NA	NA
Mustard	A	A	A	NA	NR	A	A	A	A	A	A	NA
Naphtha	A	A	A	A	NR	A	A	A	Q	A	A	A
Naphtha, Crude	A	A	A	A	A	A	A	A	Q	A	A	A
Naphthalene	A	A	A	A	A	A	A	A	Q	A	A	A
Natural Gas Liquid	A	A	A	NA	A	A	A	A	Q	NA	A	NA
Neatsfoot Oil	A	A	A	NA	NR	A	A	A	Q	NA	NA	NA
Nickel Acetate	A	A	A	NA	A	A	A	A	Q	NA	A	A
Nickel Chloride	A	A	A	NA	A	A	A	A	Q	A	A	A
Nickel Cobalt Sulphate, 5% H_2S0_4	A	NA	NA	NA	A	A	A	A	Q	NA	NA	NA
Nickel Salt	A	A	A	NA	A	A	A	A	Q	NA	A	A
Nickel Sulphate	A	A	A	NA	A	A	A	A	Q	A	A	A
Nitrobenzene	A	A	A	A	A	A	A	A	Q	NA	A	NA
Nirtrobenzine	A	A	A	NA	A	A	A	A	Q	A	NA	NA
Nitrochloroform	A	Q	Q	NA	A	A	A	A	Q	NA	NA	NA
Nitroethane	A	Q	Q	NA	A	A	A	A	Q	NA	NA	NA
Nitrogen Gas	A	A	A	NA	A	A	A	A	Q	NA	NA	NA
Nitromethane	A	Q	Q	Q	A	A	A	A	Q	NA	NA	NA
Nitropropane	A	Q	Q	NA	A	A	A	A	Q	NA	NA	NA
Oakite	A	A	A	NA	A	A	A	A	Q	A	NA	NA
Oil and Ammonia	A	A	A	A	A	A	A	A	Q	Q	A	NA
Oil, Animal, Bone	A	A	A	A	NR	A	A	A	A	A	A	NA
Oil, Animal, Cod	A	A	A	A	NR	A	A	A	A	A	A	NA
Oil, Animal, Lard	A	A	A	A	NR	A	A	A	A	A	A	NA
Oil, Animal, Menhadden	A	A	A	A	NR	A	A	A	A	A	A	NA

Use or disclosure of data contained on this sheet is subject to the restrictions contained in the disclaimer located in the Table of Contents of this report.
Bal Seal Engineering: 19650 Pauling • Foothill Ranch, CA 92610-2610 • Tel: (949) 460-2100 • Fax: (949) 460-2300
Bal Seal Engineering Europe B.V.: VIDA Building, 1st floor • Kabelweg 57 • 1014 BA Amsterdam • The Netherlands • Telephone: 31 20 638 65 23 • Telefax: 31 20 625 60 18
Bal Seal Asia Limited: Suite 901, Chinachem Century Tower 178 Gloucester Road, Wanchai, Hong Kong • Telephone: +(852) 28681860 • Telefax: +(852) 22956753

5.0 LIST OF CHEMICALS AND BAL SEAL® MATERIALS

CHEMICAL	PTFE TA TFM T6	G G 5	GC GC 5 GF GF5	GFP 55	GFPM 55	GLMO4 MOS	SP 50 SP 59 SP 5 SP 36	SP 45 SP 23 SP 191 SP83	FC 10	UPC UP 30 UP 15 UP 16 UPC25	P 40 / P 41/ P170 P43 / P69D	
											73°F (23°C)	212°F (100°C)
Oil, Animal, Neatsfoot	A	A	A	A	NR	A	A	A	A	A	A	NA
Oil, Animal, Whale	A	A	A	A	NR	A	A	A	A	A	A	NA
Oil, Bunker "C"	A	A	A	A	A	A	A	A	Q	NA	A	NA
Oil, Coal Tar	A	A	A	A	A	A	A	A	Q	A	A	NA
Oil, Creosote, Sweet	A	A	A	A	NR	A	A	A	Q	NA	A	NA
Oil, Crude, Sweet	A	A	A	A	NR	A	A	A	Q	NA	A	NA
Oil, Diesel, #2D	A	A	A	NA	NR	A	A	A	Q	NA	A	A
Oil, Diesel, #3D	A	A	A	NA	A	A	A	A	Q	NA	A	A
Oil, Diesel, #4D	A	A	A	NA	A	A	A	A	Q	NA	A	A
Oil, Diesel, #5D	A	A	A	NA	A	A	A	A	Q	NA	A	A
Oil, Essential	A	A	A	NA	A	A	A	A	Q	Q	A	A
Oil, Fed. Spec. #20	A	A	A	A	A	A	A	A	Q	NA	A	A
Oil, Fed. Spec. #30	A	A	A	A	A	A	A	A	Q	NA	A	A
Oil, Fed. Spec. #9170	A	A	A	A	A	A	A	A	Q	NA	A	A
Oil, Fed. Spec. #9250	A	A	A	A	A	A	A	A	Q	NA	A	A
Oil, Fed. Spec. #9370	A	A	A	A	A	A	A	A	Q	NA	A	A
Oil, Fed. Spec. #9500	A	A	A	A	A	A	A	A	Q	NA	A	A
Oil, Fed. Spec. SAE 140	A	A	A	A	A	A	A	A	Q	NA	A	A
Oil, Fed. Spec. SAE 20	A	A	A	A	A	A	A	A	Q	NA	A	A
Oil, Fed. Spec. SAE 250	A	A	A	A	A	A	A	A	Q	NA	A	A
Oil, Fed. Spec. SAE 30	A	A	A	A	A	A	A	A	Q	NA	A	A
Oil, Fed. Spec. SAE 40	A	NA	NA	NA	A	A	A	A	Q	NA	A	A
Oil, Fed. Spec. SAE 50	A	NA	NA	NA	A	A	A	A	Q	NA	A	A
Oil, Fed. Spec. SAE 60	A	NA	NA	NA	A	A	A	A	Q	NA	A	A
Oil, Fed. Spec. SAE 70	A	NA	NA	NA	A	A	A	A	Q	NA	A	A
Oil, Fed. Spec. SAE 90	A	NA	NA	NA	A	A	A	A	Q	NA	A	A
Oil, Fuel #1	A	A	A	A	A	A	A	A	Q	A	A	A
Oil, Fuel #2	A	A	A	A	A	A	A	A	Q	A	A	A
Oil, Fuel #3	A	A	A	A	A	A	A	A	Q	A	A	A
Oil, Fuel #5A	A	A	A	A	A	A	A	A	Q	A	A	A
Oil, Fuel #5B	A	A	A	A	A	A	A	A	Q	A	A	A
Oil, Fuel #6	A	A	A	A	A	A	A	A	Q	A	A	A
Oil, Insulating	A	A	A	NA	A	A	A	A	Q	A	A	NA
Oil, Kerosene	A	A	A	A	A	A	A	A	Q	A	A	NA
Oil, Lean	A	A	A	NA	A	A	A	A	Q	NA	A	A
Oil, Linseed	A	A	A	NA	A	A	A	A	Q	A	A	NA
Oil, Lubricating Diesel #9110	A	NA	NA	NA	A	A	A	A	Q	A	A	NA
Oil, Lubricating #8	A	NA	NA	A	A	A	A	A	Q	A	A	NA
Oil, Mineral Lard Cutting, Fed. Spec. #1	A	NA	NA	A	A	A	A	A	Q	NA	A	NA
Oil, Mineral Lard Cutting, Fed. Spec. #2	A	NA	NA	A	A	A	A	A	Q	NA	A	NA

Use or disclosure of data contained on this sheet is subject to the restrictions contained in the disclaimer located in the Table of Contents of this report.
Bal Seal Engineering: 19650 Pauling • Foothill Ranch, CA 92610-2610 • Tel: (949) 460-2100 • Fax: (949) 460-2300
Bal Seal Engineering Europe B.V.: VIDA Building, 1st floor • Kabelweg 57 • 1014 BA Amsterdam • The Netherlands • Telephone: 31 20 638 65 23 • Telefax: 31 20 625 60 18
Bal Seal Asia Limited: Suite 901, Chinachem Century Tower 178 Gloucester Road, Wanchai, Hong Kong • Telephone: +(852) 28681860 • Telefax: +(852) 22956753

5.0 LIST OF CHEMICALS AND BAL SEAL® MATERIALS

CHEMICAL	PTFE TA TFM T6	G G 5	GC GC 5 GF GF5	GFP 55	GFPM 55	GLMO4 MOS	SP 50 SP 59 SP 5 SP 36	SP 45 SP 23 SP 191 SP83	FC 10	UPC UP 30 UP 15 UP 16 UPC25	P 40 / P 41/ P170 P43 / P69D	
											73°F (23°C)	212°F (100°C)
Oil, Mineral SAE 10	A	NA	NA	A	A	A	A	A	Q	A	A	NA
Oil, Navy Spec., Navy II	A	A	A	NA	A	A	A	A	Q	NA	A	NA
Oil, Quenching	A	A	A	NA	A	A	A	A	Q	NA	A	NA
Oil, Rich	A	A	A	NA	A	A	A	A	Q	NA	A	NA
Oil, Turbine Lube	A	A	A	NA	A	A	A	A	Q	NA	A	NA
Oil, Vegetable, Castor	A	A	A	A	NR	A	A	A	A	A	A	A
Oil, Vegetable, Chinawood	A	A	A	NA	NR	A	A	A	A	A	A	A
Oil, Vegetable, Coconut	A	A	A	NA	NR	A	A	A	A	A	A	A
Oil, Vegetable, Corn	A	A	A	NA	NR	A	A	A	A	A	A	A
Oil, Vegetable, Cottonseed	A	A	A	A	NR	A	A	A	A	A	A	A
Oil, Vegetable, Linseed	A	A	A	NA	NR	A	A	A	A	A	A	A
Oil, Vegetable, Palm	A	A	A	NA	NR	A	A	A	A	A	A	A
Oil, Vegetable, Peanut	A	A	A	NA	NR	A	A	A	A	A	A	A
Oil, Vegetable, Rapeseed	A	A	A	NA	NR	A	A	A	A	A	A	A
Oil, vegetable, Rosin	A	NA	NA	NA	NR	A	A	A	A	A	A	A
Oil, Vegetable, Sesame	A	NA	NA	NA	NR	A	A	A	A	A	A	A
Oil, Vegetable, Soya Bean	A	A	A	NA	NR	A	A	A	A	A	A	A
Olefin, Crude	A	A	A	NA	NR	A	A	A	Q	NA	NA	NA
Oleums	A	A	NR	Q	NR	A	Q	Q	Q	NR	NR	NR
Ortho-Dichlorobenzene	A	A	A	NA	A	A	A	A	Q	NA	NA	NA
Ortho-Xylene	A	NA	NA	NA	A	A	A	A	Q	NA	NA	NA
OS 45 Type IV	A	Q	Q	NA	A	A	A	A	Q	NA	NA	NA
Oxygen, Liquid	A	NR	NR	NA	A	A	A	A	Q	NA	A	NA
Paracymene	A	A	A	NA	A	A	A	A	Q	NA	NA	NA
Paraffin, Liquid	A	A	A	NA	A	A	A	A	Q	NA	A	A
Pectin, Liquor	A	A	A	NA	NR	A	A	A	Q	NA	NA	NA
Penicillin, Liquid	A	A	A	NA	NR	A	A	A	A	NA	NA	NA
Pentachlorophenol	A	A	A	NA	A	A	A	A	Q	NA	NA	NA
Pentane	A	A	A	NA	A	A	A	A	Q	NA	A	NA
Pentasol	A	A	A	NA	A	A	A	A	Q	NA	NA	NA
Perchloroethylene	A	A	A	A	A	A	A	A	Q	Q	A	NA
Petrolatum	A	A	A	NA	A	A	A	A	Q	NA	NA	NA
Petroleum Ether	A	A	A	NA	A	A	A	A	Q	A	A	NA
Phenol (Carbolic Acid)	A	A	A	A	A	A	A	A	Q	A	NR	NR
Phenol, Formaldehyde Mix	A	A	A	A	A	A	A	A	Q	NA	A	NA
Phosphorous Trichloride (Dry)	A	Q	Q	Q	A	A	A	A	Q	A	NA	NA
Photographic Developers	A	A	A	NA	A	A	A	A	Q	A	NA	NA
Phthalic Anhydride	A	A	A	NA	A	A	A	A	Q	NA	NA	NA
Phthalic Esters	A	A	A	NA	A	A	A	A	Q	A	NA	NA
Plasticizer	A	A	A	NA	A	A	A	A	Q	A	NA	NA
Plating Solutions, Chrome	A	Q	Q	Q	A	A	A	A	Q	NA	NA	NA
Plating Solutions, Others	A	A	A	Q	A	A	A	A	Q	NA	NA	NA

Use or disclosure of data contained on this sheet is subject to the restrictions contained in the disclaimer located in the Table of Contents of this report.
Bal Seal Engineering: 19650 Pauling • Foothill Ranch, CA 92610-2610 • Tel: (949) 460-2100 • Fax: (949) 460-2300
Bal Seal Engineering Europe B.V.: VIDA Building, 1st floor • Kabelweg 57 • 1014 BA Amsterdam • The Netherlands • Telephone: 31 20 638 65 23 • Telefax: 31 20 625 60 18
Bal Seal Asia Limited: Suite 901, Chinachem Century Tower 178 Gloucester Road, Wanchai, Hong Kong • Telephone: +(852) 28681860 • Telefax: +(852) 22956753

5.0 LIST OF CHEMICALS AND BAL SEAL® MATERIALS

CHEMICAL	PTFE TA TFM T6	G G 5	GC GC 5 GF GF5	GFP 55	GFPM 55	GLMO4 MOS	SP 50 SP 59 SP 5 SP 36	SP 45 SP 23 SP 191 SP83	FC 10	UPC UP 30 UP 15 UP 16 UPC25	P 40 / P 41/ P170 P43 / P69D	
											73°F (23°C)	212°F (100°C)
Poly Glycols	A	A	A	NA	A	A	A	A	Q	A	NA	NA
Poly Vinyl Acetate	A	A	A	NA	A	A	A	A	Q	NA	NA	NA
Polyester Resins	A	A	A	A	A	A	A	A	Q	Q	NA	NA
Potash Alum (Aqueous)	A	A	A	NA	A	A	A	A	Q	A	NA	NA
Potash Sulphide	A	A	A	NA	A	A	A	A	Q	NA	NA	NA
Potash (Plant Liquor)	A	A	A	A	A	A	A	A	Q	A	NA	NA
Potassium	Q	Q	Q	Q	NR	Q	A	A	Q	Q	NA	NA
Potassium (Elevated Temperature)	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NA	NA
Potassium, Bichromate (aqueous)	A	Q	Q	NA	NR	A	A	A	Q	NA	NA	NA
Potassium Bromide	A	A	A	NA	NR	A	A	A	Q	A	A	A
Potassium Carbonate (aqueous)	A	A	A	NA	NR	Q	A	A	Q	A	A	A
Potassium Chlorate	A	NR	NR	NR	NR	A	NR	NR	Q	A	A	A
Potassium Chloride (Aqueous)(Sylvite)	A	A	A	A	NR	A	A	A	Q	A	A	NA
Potassium Cyanides (Aqueous)	A	A	A	NA	NR	A	A	A	Q	A	NA	
Potassium Dichromate	A	Q	Q	Q	NR	A	A	A	Q	A	A	NA
Potassium Hydroxide (Aqueous)	A	A	A	A	NR	Q	A	A	Q	A	A	NA
Potassium Nitrate (Aqueous)(Saltpeter)	A	Q	Q	NA	NR	A	A	A	Q	A	A	A
Potassium Perflouro Acetate	A	A	A	NA	NR	NA	A	A	Q	NA	NA	NA
Potassium Permanganate	A	A	A	A	NR	NA	A	A	Q	A	A	NA
Potassium Phosphate	A	A	A	NA	NR	NA	A	A	Q	NA	NA	NA
Potassium Sulphate (Aqueous)(Arconite)	A	A	A	NA	NR	A	A	A	Q	A	A	A
Propane	A	A	A	NA	A	A	A	A	Q	NA	A	NA
Propanol-1	A	A	A	NA	A	A	A	A	Q	A	A	NA
Propanol-2	A	A	A	NA	A	A	A	A	Q	A	A	NA
Propiolactone, Beta	A	A	A	A	A	A	A	A	Q	A	NA	NA
Propionaldehyde (Propanal)	A	A	A	NA	A	NA	A	A	Q	NA	NA	NA
Propylene Carbonate	A	A	A	NA	A	A	A	A	Q	NA	NA	NA
Propylene Dichloride	A	A	A	A	A	A	A	A	Q	NR	NA	NA
Propylene Glycol	A	A	A	NA	A	A	A	A	Q	A	NA	NA
Propylene Oxide	A	A	A	NA	A	A	A	A	Q	A	NA	NA
Propylene (Propene)	A	A	A	NA	A	A	A	A	Q	NA	NA	NA
Pseudocumene	A	A	A	A	A	A	A	A	Q	Q	NA	NA
Pyridine	A	A	A	A	A	A	A	A	Q	A	A	A
Raffinate	A	A	A	NA	A	A	A	A	Q	NA	NA	NA
Rosin	A	A	A	NA	A	A	A	A	Q	NA	NA	NA
Sal Ammoniac (Ammonium Chloride)	A	A	A	NA	A	A	A	A	Q	NA	A	A

Use or disclosure of data contained on this sheet is subject to the restrictions contained in the disclaimer located in the Table of Contents of this report.
Bal Seal Engineering: 19650 Pauling • Foothill Ranch, CA 92610-2610 • Tel: (949) 460-2100 • Fax: (949) 460-2300
Bal Seal Engineering Europe B.V.: VIDA Building, 1st floor • Kabelweg 57 • 1014 BA Amsterdam • The Netherlands • Telephone: 31 20 638 65 23 • Telefax: 31 20 625 60 18
Bal Seal Asia Limited: Suite 901, Chinachem Century Tower 178 Gloucester Road, Wanchai, Hong Kong • Telephone: +(852) 28681860 • Telefax: +(852) 22956753

5.0 LIST OF CHEMICALS AND BAL SEAL® MATERIALS

CHEMICAL	PTFE TA TFM T6	G G 5	GC GC 5 GF GF5	GFP 55	GFPM 55	GLMO4 MOS	SP 50 SP 59 SP 5 SP 36	SP 45 SP 23 SP 191 SP83	FC 10	UPC UP 30 UP 15 UP 16 UPC25	P 40 / P 41/ P170 P43 / P69D	
											73°F (23°C)	212°F (100°C)
Salt Cake	A	A	A	NA	NR	A	A	A	A	NA	NA	NA
Salt Cake (Aqueous)	A	A	A	NA	NR	A	A	A	A	NA	NA	NA
Salt Water	A	A	A	A	NR	A	A	A	NR	A	A	A
Sea Water	A	A	A	A	NR	A	A	A	NR	A	A	A
Sewage	A	A	A	NA	A	A	A	A	Q	NA	A	A
Silicone Oils and Greases	A	A	A	A	A	A	A	A	Q	A	A	A
Silver Nitride	A	NA	NA	NA	A	A	A	A	Q	A	A	A
Skydrol 500	A	A	A	NA	A	A	A	A	Q	NA	A	NA
Skydrol 7000	A	A	A	NA	A	A	A	A	Q	NA	A	NA
Soap, Liquors	A	A	A	NA	A	A	A	A	Q	NA	A	NA
Soap, Solutions	A	A	A	A	A	A	A	A	Q	A	A	NA
Soda Ash	A	A	A	NA	A	A	A	A	Q	NA	A	NA
Sodium (Elevated Temperature)	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Sodium Acetate (Anhydrous)	A	A	A	A	NR	A	A	A	Q	NA	A	NA
Sodium Aluminate	A	A	A	NA	NR	A	A	A	Q	NA	NA	NA
Sodium Bicarbonate (Aqueous)	A	A	A	A	NR	A	A	A	A	A	A	NA
Sodium Bisulfate	A	A	A	NA	NR	A	A	A	Q	A	NA	NA
Sodium Bisulfite	A	A	A	NA	NR	A	A	A	Q	A	NA	NA
Sodium Borate	A	A	A	NA	NR	A	A	A	Q	A	NA	NA
Sodium Carbonate (Aqueous)	A	A	A	A	NR	A	A	A	Q	A	A	NA
Sodium Chloride Sol. (Common Salt)	A	A	A	A	NR	A	A	A	Q	A	A	NA
Sodium Cyanamide	A	A	A	NA	NR	A	A	A	Q	NA	NA	NA
Sodium Cyanide (Aqueous)	A	A	A	NA	NR	A	A	A	Q	NA	NA	NA
Sodium Hydrosulfite	A	A	A	NA	NR	A	A	A	Q	NA	NA	NA
Sodium Hydroxide solution	A	A	A	A	NR	NA	A	A	Q	A	A	NA
Sodium Hydroxide (Aqueous)	A	A	A	A	NR	Q	A	A	Q	A	NA	NA
Sodium Hypochlorite	A	Q	Q	Q	NR	A	A	A	Q	A	A	A
Sodium Metaphosphate	A	A	A	NA	NR	A	A	A	Q	NA	NA	NA
Sodium Metasilicate	A	A	A	NA	NR	A	A	A	Q	NA	NA	NA
Sodium Nitrate (Aqueous)(Soda Niter)	A	Q	Q	Q	NR	A	A	A	Q	A	A	A
Sodium Perborate	A	Q	Q	NA	NR	A	A	A	Q	A	NA	NA
Sodium Peroxide, Aqueous	A	Q	Q	NA	NR	A	A	A	Q	Q	A	A
Sodium Phosphate, (Aqueous)	A	A	A	NA	NR	A	A	A	Q	A	A	A
Sodium Plumbite (Aqueous)	A	A	A	NA	NR	A	A	A	Q	NA	NA	NA
Sodium Silicate (Aqueous)(Water Glass)	A	A	A	A	NR	A	A	A	Q	A	A	A
Sodium Sulfide	A	A	A	A	NR	A	A	A	Q	A	A	A
Sodium Sulfite (Aqueous)	A	A	A	A	NR	A	A	A	Q	NA	A	A
Sodium Sulphate (Aqueous)(Glaubers Salt)	A	A	A	A	NR	A	A	A	Q	A	A	A
Sodium Tetraborate	A	A	A	NA	NR	A	A	A	Q	NA	NA	NA

Use or disclosure of data contained on this sheet is subject to the restrictions contained in the disclaimer located in the Table of Contents of this report.
Bal Seal Engineering: 19650 Pauling • Foothill Ranch, CA 92610-2610 • Tel: (949) 460-2100 • Fax: (949) 460-2300
Bal Seal Engineering Europe B.V.: VIDA Building, 1st floor • Kabelweg 57 • 1014 BA Amsterdam • The Netherlands • Telephone: 31 20 638 65 23 • Telefax: 31 20 625 60 18
Bal Seal Asia Limited: Suite 901, Chinachem Century Tower 178 Gloucester Road, Wanchai, Hong Kong • Telephone: +(852) 28681860 • Telefax: +(852) 22956753

5.0 LIST OF CHEMICALS AND BAL SEAL® MATERIALS

CHEMICAL	PTFE TA TFM T6	G G 5	GC GC 5 GF GF5	GFP 55	GFPM 55	GLMO4 MOS	SP 50 SP 59 SP 5 SP 36	SP 45 SP 23 SP 191 SP83	FC 10	UPC UP 30 UP 15 UP 16 UPC25	P 40 / P 41/ P170 P43 / P69D	
											73°F (23°C)	212°F (100°C)
Sodium Thiosulfate	A	A	A	A	NR	A	A	A	Q	A	NA	NA
Solvasol 1, 2 and 3	A	A	A	NA	NR	A	A	A	Q	NA	NA	NA
Solvasol 73, 74	A	A	A	NA	NR	A	A	A	Q	NA	NA	NA
Sorbitol	A	A	A	NA	NR	A	A	A	Q	NA	NA	NA
Stain Removers	A	A	A	A	A	A	A	A	A	Q	NA	NA
Starch	A	A	A	NA	NR	A	A	A	Q	A	A	NA
Steam	A	A	A	A	A	A	A	A	Q	A	A	NA
Stoddard Solvent	A	A	A	A	A	A	A	A	Q	NA	NA	NA
Styrene (Monomer)(Vinylbenzene)	A	A	A	NA	A	A	A	A	Q	Q	A	NA
Sugar (Aqueous)	A	A	A	NA	A	A	A	A	A	NA	A	NA
Sulfur Chloride (Aqueous)	A	A	A	NA	A	A	A	A	Q	NA	A	A
Sulfur Dioxide and Water	A	A	A	A	A	A	A	A	Q	A	A	A
Sulfur Dioxide (Dry)	A	A	A	A	A	A	A	A	Q	A	A	A
Sulfur Trioxide (Dry)	A	Q	Q	NA	A	A	A	A	Q	NR	A	A
Sulfur Trioxide (Wet)	A	NR	NR	NR	A	A	A	A	Q	NR	A	A
Sulfur, Molten	A	A	A	NA	NR	A	A	A	Q	NA	NA	NA
Sulfonated Fatty Alcohol	A	A	A	NA	A	A	A	A	Q	NA	NA	NA
Sulfonated Vegetable Oils	A	NA	NA	NA	A	A	A	A	A	NA	NA	NA
Sulfuric Chlorohydrin	A	A	A	NA	A	A	A	A	Q	NA	NA	NA
Sulfuric Ether	A	A	A	A	A	A	A	A	Q	Q	NA	NA
Sulfuryl Chloride	A	A	A	A	A	A	A	A	Q	A	NA	NA
Syrup, (Sucrose Soln.)	A	A	A	NA	A	A	A	A	Q	A	A	NA
Tall Oil	A	A	A	NA	A	A	A	A	Q	NA	NA	NA
Tallow	A	A	A	NA	A	A	A	A	Q	A	A	A
Tanning Liquors	A	A	A	NA	A	A	A	A	Q	NA	NA	NA
Tar and Ammonia with Water	A	A	A	NA	A	A	A	A	Q	NA	A	NA
Tar, Bituminous	A	A	A	NA	A	A	A	A	Q	NA	A	NA
Tar, Pine	A	A	A	NA	A	A	A	A	Q	NA	A	NA
Tetra Ethyl Lead	A	A	A	NA	NR	A	A	A	Q	A	A	NA
Tetrabromoethane	NA	NA	NA	NA	NR	NA	NR	NR	NR	NR	NA	NA
Tetrachloro Ethane	A	A	A	NA	NR	A	A	A	Q	NR	NA	NA
Tetrachloro Ethylene	A	A	A	NA	NR	A	A	A	Q	NR	NA	NA
Tetrafluoroborate	A	A	Q	A	A	A	A	Q	Q	NR	NA	NA
Tetrahydrofuran (THF)	A	A	A	A	NR	A	A	A	Q	Q	A	NA
Tetraphenyl	A	A	A	NA	NR	A	A	A	Q	NA	NA	NA
Therminol #1, 2 and 3	A	A	A	NA	NR	A	A	A	Q	NA	NA	NA
Thionyl Chloride	NA	NA	NA	NA	NR	NA	A	A	Q	NR	NA	NA
Thiophene	NA	NA	NA	NA	NR	NA	A	A	Q	Q	NA	NA
Titanium Tetrachloride	A	A	A	NA	NR	A	NA	NA	Q	NA	NA	NA
Toluene	A	NA	NA	NA	NR	A	NA	NA	Q	Q	A	NA
Tomato Pulp	A	A	A	A	NR	A	A	A	Q	A	NA	NA

Use or disclosure of data contained on this sheet is subject to the restrictions contained in the disclaimer located in the Table of Contents of this report.
Bal Seal Engineering: 19650 Pauling • Foothill Ranch, CA 92610-2610 • Tel: (949) 460-2100 • Fax: (949) 460-2300
Bal Seal Engineering Europe B.V.: VIDA Building, 1st floor • Kabelweg 57 • 1014 BA Amsterdam • The Netherlands • Telephone: 31 20 638 65 23 • Telefax: 31 20 625 60 18
Bal Seal Asia Limited: Suite 901, Chinachem Century Tower 178 Gloucester Road, Wanchai, Hong Kong • Telephone: +(852) 28681860 • Telefax: +(852) 22956753

5.0 LIST OF CHEMICALS AND BAL SEAL® MATERIALS

CHEMICAL	PTFE TA TFM T6	G G 5	GC GC 5 GF GF5	GFP 55	GFPM 55	GLMO4 MOS	SP 50 SP 59 SP 5 SP 36	SP 45 SP 23 SP 191 SP83	FC 10	UPC UP 30 UP 15 UP 16 UPC25	P 40 / P 41/ P170 P43 / P69D	
											73°F (23°C)	212°F (100°C)
Toxaphene	A	A	A	NA	A	A	A	A	Q	NA	NA	NA
Trichlorobenzene	A	A	A	NA	A	A	A	A	Q	NR	NA	NA
Trichloroethane (Dry)	A	A	A	NA	NR	A	A	A	Q	NA	NA	NA
Trichloroethane (Wet)	A	A	A	NA	NR	A	A	A	Q	NA	NA	NA
Trichloronitromethane	A	A	A	NA	NR	A	A	A	Q	NA	NA	NA
Trichloroethylene (Dry)	A	A	A	Q	NR	A	A	A	Q	Q	A	A
Trichloroethylene (Wet)	A	A	A	Q	NR	A	A	A	Q	Q	A	A
Trichlorotrifluoroethane	A	NA	NA	NA	NR	A	NA	NA	Q	NA	A	NA
Tricresyl Phosphate (TCP)	A	A	A	NA	NR	A	A	A	Q	A	NA	NA
Triethyl Amine	A	A	A	NA	NR	A	A	A	Q	NA	NA	NA
Trisodium Phosphate	A	A	A	A	NR	A	A	A	Q	A	NA	NA
Tri-Fluoro-Vinyl-Chloride	A	A	A	NA	NR	A	A	A	Q	NA	NA	NA
Urea and Phenolic Resins	A	A	A	NA	A	A	A	A	Q	NA	A	A
Urea, Anhydrous (Carbamide)	A	A	A	NA	A	A	A	A	Q	NA	A	A
Urine	A	A	A	NA	A	A	Q	A	Q	A	A	A
Varnish, Aromatic	A	A	A	NA	A	A	A	A	Q	NA	A	NA
Varnish, Non-Aromatic	A	A	A	NA	A	A	A	A	Q	NA	NA	NA
Vaseline	A	A	A	A	A	A	A	A	Q	Q	NA	NA
Vegetable Juices	A	A	A	NA	NR	A	A	A	A	NA	A	NA
Vetrocoke Solution (Wet)	A	A	A	NA	A	A	A	A	Q	NA	NA	NA
Vinegar	A	A	A	A	NR	A	A	A	A	A	A	A
Vinyl Chloride (Chloroethene)	A	A	A	NA	A	A	A	A	Q	NA	NA	NA
Vinyl Pyridine	A	A	A	NA	A	A	A	A	Q	NA	NA	NA
Vinylidine Chloride	A	NA	NA	NA	A	A	A	A	Q	NA	NA	NA
Vitriole, White	A	A	A	A	A	A	A	A	Q	NA	NA	NA
Water Food Service	A	NA	NA	NA	NR	A	Q	A	NR	NA	A	A
Water, Boiler Feed	A	A	A	A	NR	A	Q	A	NR	NA	A	A
Water, Brackish	A	A	A	A	NR	A	Q	A	NR	NA	A	A
Water, Clean Untreated	A	NA	NA	A	NR	A	Q	A	NR	NA	A	A
Water, Condensate	A	A	A	A	NR	A	Q	A	NR	NA	A	A
Water, Cooling Tower	A	A	A	A	NR	A	Q	A	NR	NA	A	A
Water, Distilled	A	A	A	A	NR	A	Q	A	NR	A	A	A
Water, Fresh	A	A	A	A	NR	A	Q	A	NR	NA	A	A
Water, Heavy	A	A	A	NA	NR	A	Q	A	NR	NA	A	A
Water, Hot	A	A	A	A	NR	A	Q	A	NR	NA	A	A
Water, Mine	A	A	A	A	NR	A	Q	A	NR	NA	A	A
Water, River	A	A	A	A	NR	A	Q	A	NR	NA	N	A
Water, Salt and Sea, Solution	A	A	A	A	NR	A	Q	A	NR	A	A	A
Water, Soapy	A	A	A	A	NR	A	Q	A	NR	NA	A	A
Water, with Soluble Oil	A	A	A	NA	NR	A	Q	A	NR	NA	A	A
Wax Alcohols	A	A	A	A	NR	A	Q	A	A	Q	NA	NA
Whiskey	A	A	A	NA	NR	A	Q	A	A	A	A	NA

Use or disclosure of data contained on this sheet is subject to the restrictions contained in the disclaimer located in the Table of Contents of this report.
Bal Seal Engineering: 19650 Pauling • Foothill Ranch, CA 92610-2610 • Tel: (949) 460-2100 • Fax: (949) 460-2300
Bal Seal Engineering Europe B.V.: VIDA Building, 1st floor • Kabelweg 57 • 1014 BA Amsterdam • The Netherlands • Telephone: 31 20 638 65 23 • Telefax: 31 20 625 60 18
Bal Seal Asia Limited: Suite 901, Chinachem Century Tower 178 Gloucester Road, Wanchai, Hong Kong • Telephone: +(852) 28681860 • Telefax: +(852) 22956753

5.0 LIST OF CHEMICALS AND BAL SEAL® MATERIALS

CHEMICAL	PTFE TA TFM T6	G G 5	GC GC 5 GF GF5	GFP 55	GFPM 55	GLMO4 MOS	SP 50 SP 59 SP 5 SP 36	SP 45 SP 23 SP 191 SP83	FC 10	UPC UP 30 UP 15 UP 16 UPC25	P 40 / P 41/ P170 P43 / P69D	
											73°F (23°C)	212°F (100°C)
White Liquor	A	A	A	NA	NR	A	Q	A	A	Q	A	NA
White Spirit	A	A	A	NA	NR	A	A	A	A	A	A	NA
White Water, Paper Mill	A	A	A	NA	NR	A	A	A	Q	NA	A	NA
Wine	A	A	A	NA	NR	A	Q	A	A	A	A	NA
Wood Pulp (Stock)	A	A	A	NA	NR	A	A	A	Q	NA	A	NA
Wood Vinegar	A	A	A	NA	NR	A	A	A	A	NA	A	NA
Wort (Beer Wort)	A	A	A	NA	NR	A	Q	A	A	NA	A	NA
Xylene (Dimethylbenzene)	A	A	A	A	NR	A	A	A	Q	Q	A	NA
Yeast	A	A	A	NA	NR	A	A	A	A	A	A	A
Zeolite Treated Water	A	A	A	NA	NR	A	A	A	Q	NA	NA	NA
Zinc Chloride (Dry)	A	A	A	A	A	A	A	A	Q	NA	A	A
Zinc Cyanide	A	A	A	NA	A	A	A	A	Q	A	NA	NA
Zinc Nitrate	A	A	A	NA	A	A	A	A	Q	A	NA	NA
Zinc Phosphate	A	A	A	NA	A	A	A	A	Q	A	NA	NA
Zinc Sulfate	A	A	A	NA	A	A	A	A	Q	A	A	A

A=ACCEPTABLE • Q=QUESTIONABLE • NR=NOT RECOMMENDED • NA=NOT AVAILABLE

Use or disclosure of data contained on this sheet is subject to the restrictions contained in the disclaimer located in the Table of Contents of this report.
Bal Seal Engineering: 19650 Pauling • Foothill Ranch, CA 92610-2610 • Tel: (949) 460-2100 • Fax: (949) 460-2300
Bal Seal Engineering Europe B.V.: VIDA Building, 1st floor • Kabelweg 57 • 1014 BA Amsterdam • The Netherlands • Telephone: 31 20 638 65 23 • Telefax: 31 20 625 60 18
Bal Seal Asia Limited: Suite 901, Chinachem Century Tower 178 Gloucester Road, Wanchai, Hong Kong • Telephone: +(852) 28681860 • Telefax: +(852) 22956753