

# NIBCO CHEMICAL RESISTANCE GUIDE FOR VALVES & FITTINGS

## INTRODUCTION

This chemical resistance guide has been compiled to assist the piping system designer in selecting chemical resistant materials. The information given is intended as a guide only. Many conditions can affect the material choices. Careful consideration must be given to temperature, pressure and chemical concentrations before a final material can be selected.

Thermoplastics' and elastomers' physical characteristics are more sensitive to temperature than metals. For this reason, a rating chart has been developed for each.

### MATERIAL RATINGS FOR THERMOPLASTICS & ELASTOMERS

Temp. in °F	= "A" rating, maximum temperature which is recommended, resistant under normal conditions
-------------	---

8 to Temp. in °F	= Conditional resistance, consult factory
------------------	---

C	= Not recommended
---	-------------------

Blank	= No data available
-------	---------------------

### MATERIAL RATINGS FOR METALS

A	= Recommended, resistant under normal conditions
---	--

B	= Conditional, consult factory
---	--------------------------------

C	= Not recommended
---	-------------------

Blank	= No data available
-------	---------------------

Temperature maximums for thermoplastics, elastomers and metals should always fall within published temp/pressure ratings for individual valves. **THERMOPLASTICS ARE NOT RECOMMENDED FOR COMPRESSED AIR OR GAS SERVICE.**

This guide considers the resistance of the total valve assembly as well as the resistance of individual trim and fitting materials. The rating assigned to the valve body plus trim combinations is always that of the least resistant part. In the cases where the valve body is the least resistant, there may be conditions under which the rate of corrosion is slow enough and the mass of the body large enough to be usable for a period of time. Such use should always be determined by test before installation of the component in a piping system.

In the selection of a butterfly valve for use with a particular chemical, the liner, disc, and stem must be resistant. All three materials should carry a rating of "A." The body of a properly functioning butterfly valve is isolated from the chemicals being handled and need not carry the same rating.

## THERMOPLASTICS & ELASTOMERS

**ABS** — Acrylonitrile Butadiene Styrene Class 4-2-2 conforming to ASTM D1788 is a time-proven material. The smooth inner surface and superior resistance to deposit formation makes ABS drain, waste, and vent material ideal for residential and commercial sanitary systems. The residential DWV system can be exposed in service to a wide temperature span. ABS-DWV has proven satisfactory for use from -40°F to 180°F. These temperature variations can occur due to ambient temperature or the discharge of hot

liquids into the system. ABS-DWV is very resistant to a wide variety of materials, ranging from sewage to commercial household chemical formulations. ABS-DWV is joined by solvent cementing or threading and can easily be connected to steel, copper, or cast iron through the use of transition fittings.

**CPVC** — Chlorinated Polyvinyl Chloride Class 23447-B, formerly designated Type IV, Grade 1 conforming to ASTM D-1784, has physical properties at 73°F similar to those of PVC, and its chemical resistance is similar to or generally better than that of PVC. CPVC, with a design stress of 3000 psi and maximum service temperature of 210°F, has proven to be an excellent material for hot corrosive liquids, hot or cold water distribution, and similar applications above the temperature range of PVC. CPVC is joined by solvent cementing, threading or flanging.

**PP (Polypropylene)** — Type 1 Polypropylene is a polyolefin, which is lightweight and generally high in chemical resistance. Although Type 1 polypropylene conforming to ASTM D-2146 is slightly lower in physical properties compared to PVC, it is chemically resistant to organic solvents as well as acids and alkalies. Generally, polypropylene should not be used in contact with strong oxidizing acids, chlorinated hydrocarbons, and aromatics. With a design stress of 1000 psi at 73°F, polypropylene has gained wide acceptance where its resistance to sulfur-bearing compounds is particularly useful in salt water disposal lines, crude oil piping, and low pressure gas gathering systems. Polypropylene has also proved to be an excellent material for laboratory and industrial drainage where mixtures of acids, bases, and solvents are involved. Polypropylene is joined by the thermo-seal fusion process, threading or flanging. At 180°F, or when threaded, PP should be used for drainage only at a pressure not exceeding 20 psi.

**PVC** — Polyvinyl Chloride Class 12454-B, formerly designated Type 1, Grade 1, PVC is the most frequently specified of all thermoplastic materials. It has been used successfully for over 30 years in such areas as chemical processing, industrial plating, chilled water distribution, deionized water lines, chemical drainage, and irrigation systems. PVC is characterized by high physical properties and resistance to corrosion and chemical attack by acids, alkalies, salt solutions, and many other chemicals. It is attacked, however, by polar solvents such as ketones, some chlorinated hydrocarbons and aromatics. The maximum service temperature of PVC is 140°F. With a design stress of 2000 psi, PVC has the highest long-term hydrostatic strength at 73°F of any of the major thermoplastics being used for piping systems. PVC is joined by solvent cementing, threading, or flanging.

**PVDF (Polyvinylidene Fluoride)** — KEM-TEMP (KYNAR<sup>®</sup>) is a strong, tough and abrasion-resistant fluorocarbon material. It resists distortion and retains most of its strength to 280°F. It is chemically resistant to most acids, bases, and organic solvents and is ideally suited for handling wet or dry chlorine, bromine and other halogens. No other solid thermoplastic piping components can approach the combination of strength, chemical resistance and working temperatures of PVDF. PVDF is joined by the thermo-seal fusion process, threading or flanging.

**EPDM** — EPDM is a terpolymer elastomer made from ethylene-propylene diene monomer. EPDM has good abrasion and tear resistance and offers excellent chemical resistance to a variety of acids and alkalines. It is susceptible to attack by oils and is not recommended for applications involving petroleum oils, strong



# **Nibco Chemical Resistance Guide**

**Wenbin Ji**

## **Nibco Chemical Resistance Guide:**

*Corrosion Protection against Carbon Dioxide* Michael Schütze, Bernd Isecke, Roman Bender, 2011-07-18 This handy reference compiles the latest data on the corrosion behavior of materials coming into contact with CO<sub>2</sub> with 95% of the contents previously unpublished. It is clearly structured according to material and covers metals, non metallic, inorganic materials and plastics as well as including information about corrosion protection. The result is a must have for all engineers and scientists dealing with corrosion problems in CO<sub>2</sub> containing environments

**Piping Systems Manual** Brian Silowash, 2009-10-05 In depth Details on Piping Systems Filled with examples drawn from years of design and field experience this practical guide offers comprehensive information on piping installation, repair and rehabilitation. All of the latest codes, standards and specifications are included. Piping Systems Manual is a hands on design and engineering resource that explains the reasons behind the designs. You will get full coverage of materials, components, calculations, specifications, safety and much more. Hundreds of detailed illustrations make it easy to understand the best practices presented in the book. Piping Systems Manual covers ASME B31 piping codes, Specifications and standards, Materials of construction, Fittings, Valves and appurtenances, Pipe supports, Drafting practice, Pressure drop calculations, Piping project anatomy, Field work and start up, What goes wrong, Special services, Infrastructure, Strategies for remote locations

*Chemical Engineering Progress*, 1998 Plastic Piping Systems David A. Chasis, 1988 For grades 10-12 **Materials Performance**, 1996

**Consulting-specifying Engineer**, 1995 Machine Design, 1988 **Handbook of Corrosion Engineering 2/E** Pierre R. Roberge, 2012-01-26 THE MOST COMPLETE UP TO DATE CORROSION CONTROL REFERENCE Fully revised throughout. Handbook of Corrosion Engineering Second Edition discusses the latest advances in corrosion resistant materials, methods and protective coatings. This comprehensive resource covers all aspects of corrosion damage including detection, monitoring, prevention and control. Written by a world renowned expert on the subject, the book helps you to select materials and resolve design issues where corrosion is considered a factor. Understand, predict, evaluate, mitigate and correct corrosion problems with help from this authoritative guide. Coverage includes: Aqueous corrosion, High temperature corrosion, Atmospheric, water, seawater, soil, concrete and microbial environments, Modeling, life prediction and computer applications, Identifying and inspecting corrosion failures, Corrosion maintenance through inspection and monitoring, Corrosion testing, Selection and design of engineering materials, Protective coatings and corrosion inhibitors, Cathodic and anodic protection.

*Chemical Engineering*, 1987 Centrifugal Pump User's Guidebook Shmariahu Yedidiah, 2012-12-06 Specifically for the pump user, this book concentrates on the identification and solution of problems associated with existing centrifugal pumps. It gives specific examples on how to modify pump performance for increased efficiency and better quality control, which turn into long term cost savings. Some basic theory is included to give the reader greater understanding of the problems being encountered and attacked

*Power Plant Engineering*, 1971 **Chemical Engineering Equipment Buyers' Guide**

,1992    **Power Engineering** ,1983    **Thomas Register of American Manufacturers** ,2003 Vols for 1970 71 includes manufacturers catalogs    **Valve Selection and Specification Guide** Ronald C. Merrick,1991-01-10 Today people who specify or select valves spend over two thirds of their time researching literature for information on valve sizing availability materials and standards This is nonproductive time Unfortunately most companies do not have the luxury of a team of experts with the necessary experience and education in all of the different fields that apply to valves The next best alternative is to understand what valves are and all the things they can do By definition valves are devices that stop start mix or change the direction and or magnitude of the fluid flow pressure or its tempera ture As a specifier or selector you will have to determine whether the valve is going to be used for flow control throttling or for on off service Then you will have to determine the cycle life or frequency of their operation You will discover that valves are classified into three categories on off valves control or regulator valves and fixed valves such as orifice plate nozzle duckbill rupture disk blind valve etc These valves represent approximately thirty different design configurations It has been said that if cost and delivery were no problem anyone of the seven basic valve styles could do the job of any other one But cost and delivery are very important factors in the real world So you have to be able to distinguish among these seven styles ball butterfly gate globe pinch diaphragm plug and poppet valves    **PVC** J. Leadbitter,J. A. Day,J. L. Ryan,1994 This report reviews the composition and synthesis of PVC composition and formulation technology compounding and manufacturing technology and the additional range of materials made possible by blending with other polymers It is completed by around 500 abstracts selected from the Rapra Polymer Library database    **NFPA Fire Protection Reference Directory and Buyer's Guide** ,1984    **Mechanical Engineering** ,1972-07    *Predicasts Technology Update* ,1990    **DE/domestic Engineering** ,1977

Delve into the emotional tapestry woven by Emotional Journey with in Experience **Nibco Chemical Resistance Guide** . This ebook, available for download in a PDF format ( Download in PDF: \*), is more than just words on a page; it is a journey of connection and profound emotion. Immerse yourself in narratives that tug at your heartstrings. Download now to experience the pulse of each page and let your emotions run wild.

[https://crm.allthingsbusiness.co.uk/book/browse/default.aspx/pilates\\_at\\_home\\_latest\\_on\\_sale.pdf](https://crm.allthingsbusiness.co.uk/book/browse/default.aspx/pilates_at_home_latest_on_sale.pdf)

## **Table of Contents Nibco Chemical Resistance Guide**

1. Understanding the eBook Nibco Chemical Resistance Guide
  - The Rise of Digital Reading Nibco Chemical Resistance Guide
  - Advantages of eBooks Over Traditional Books
2. Identifying Nibco Chemical Resistance Guide
  - Exploring Different Genres
  - Considering Fiction vs. Non-Fiction
  - Determining Your Reading Goals
3. Choosing the Right eBook Platform
  - Popular eBook Platforms
  - Features to Look for in an Nibco Chemical Resistance Guide
  - User-Friendly Interface
4. Exploring eBook Recommendations from Nibco Chemical Resistance Guide
  - Personalized Recommendations
  - Nibco Chemical Resistance Guide User Reviews and Ratings
  - Nibco Chemical Resistance Guide and Bestseller Lists
5. Accessing Nibco Chemical Resistance Guide Free and Paid eBooks
  - Nibco Chemical Resistance Guide Public Domain eBooks
  - Nibco Chemical Resistance Guide eBook Subscription Services
  - Nibco Chemical Resistance Guide Budget-Friendly Options

6. Navigating Nibco Chemical Resistance Guide eBook Formats
  - ePUB, PDF, MOBI, and More
  - Nibco Chemical Resistance Guide Compatibility with Devices
  - Nibco Chemical Resistance Guide Enhanced eBook Features
7. Enhancing Your Reading Experience
  - Adjustable Fonts and Text Sizes of Nibco Chemical Resistance Guide
  - Highlighting and Note-Taking Nibco Chemical Resistance Guide
  - Interactive Elements Nibco Chemical Resistance Guide
8. Staying Engaged with Nibco Chemical Resistance Guide
  - Joining Online Reading Communities
  - Participating in Virtual Book Clubs
  - Following Authors and Publishers Nibco Chemical Resistance Guide
9. Balancing eBooks and Physical Books Nibco Chemical Resistance Guide
  - Benefits of a Digital Library
  - Creating a Diverse Reading Collection Nibco Chemical Resistance Guide
10. Overcoming Reading Challenges
  - Dealing with Digital Eye Strain
  - Minimizing Distractions
  - Managing Screen Time
11. Cultivating a Reading Routine Nibco Chemical Resistance Guide
  - Setting Reading Goals Nibco Chemical Resistance Guide
  - Carving Out Dedicated Reading Time
12. Sourcing Reliable Information of Nibco Chemical Resistance Guide
  - Fact-Checking eBook Content of Nibco Chemical Resistance Guide
  - Distinguishing Credible Sources
13. Promoting Lifelong Learning
  - Utilizing eBooks for Skill Development
  - Exploring Educational eBooks
14. Embracing eBook Trends
  - Integration of Multimedia Elements

---

- Interactive and Gamified eBooks

## **Nibco Chemical Resistance Guide Introduction**

In the digital age, access to information has become easier than ever before. The ability to download Nibco Chemical Resistance Guide has revolutionized the way we consume written content. Whether you are a student looking for course material, an avid reader searching for your next favorite book, or a professional seeking research papers, the option to download Nibco Chemical Resistance Guide has opened up a world of possibilities. Downloading Nibco Chemical Resistance Guide provides numerous advantages over physical copies of books and documents. Firstly, it is incredibly convenient. Gone are the days of carrying around heavy textbooks or bulky folders filled with papers. With the click of a button, you can gain immediate access to valuable resources on any device. This convenience allows for efficient studying, researching, and reading on the go. Moreover, the cost-effective nature of downloading Nibco Chemical Resistance Guide has democratized knowledge. Traditional books and academic journals can be expensive, making it difficult for individuals with limited financial resources to access information. By offering free PDF downloads, publishers and authors are enabling a wider audience to benefit from their work. This inclusivity promotes equal opportunities for learning and personal growth. There are numerous websites and platforms where individuals can download Nibco Chemical Resistance Guide. These websites range from academic databases offering research papers and journals to online libraries with an expansive collection of books from various genres. Many authors and publishers also upload their work to specific websites, granting readers access to their content without any charge. These platforms not only provide access to existing literature but also serve as an excellent platform for undiscovered authors to share their work with the world. However, it is essential to be cautious while downloading Nibco Chemical Resistance Guide. Some websites may offer pirated or illegally obtained copies of copyrighted material. Engaging in such activities not only violates copyright laws but also undermines the efforts of authors, publishers, and researchers. To ensure ethical downloading, it is advisable to utilize reputable websites that prioritize the legal distribution of content. When downloading Nibco Chemical Resistance Guide, users should also consider the potential security risks associated with online platforms. Malicious actors may exploit vulnerabilities in unprotected websites to distribute malware or steal personal information. To protect themselves, individuals should ensure their devices have reliable antivirus software installed and validate the legitimacy of the websites they are downloading from. In conclusion, the ability to download Nibco Chemical Resistance Guide has transformed the way we access information. With the convenience, cost-effectiveness, and accessibility it offers, free PDF downloads have become a popular choice for students, researchers, and book lovers worldwide. However, it is crucial to engage in ethical downloading practices and prioritize personal security when utilizing online platforms. By doing so, individuals can make the most of the vast array of free PDF resources available

---

and embark on a journey of continuous learning and intellectual growth.

## **FAQs About Nibco Chemical Resistance Guide Books**

1. Where can I buy Nibco Chemical Resistance Guide books? Bookstores: Physical bookstores like Barnes & Noble, Waterstones, and independent local stores. Online Retailers: Amazon, Book Depository, and various online bookstores offer a wide range of books in physical and digital formats.
2. What are the different book formats available? Hardcover: Sturdy and durable, usually more expensive. Paperback: Cheaper, lighter, and more portable than hardcovers. E-books: Digital books available for e-readers like Kindle or software like Apple Books, Kindle, and Google Play Books.
3. How do I choose a Nibco Chemical Resistance Guide book to read? Genres: Consider the genre you enjoy (fiction, non-fiction, mystery, sci-fi, etc.). Recommendations: Ask friends, join book clubs, or explore online reviews and recommendations. Author: If you like a particular author, you might enjoy more of their work.
4. How do I take care of Nibco Chemical Resistance Guide books? Storage: Keep them away from direct sunlight and in a dry environment. Handling: Avoid folding pages, use bookmarks, and handle them with clean hands. Cleaning: Gently dust the covers and pages occasionally.
5. Can I borrow books without buying them? Public Libraries: Local libraries offer a wide range of books for borrowing. Book Swaps: Community book exchanges or online platforms where people exchange books.
6. How can I track my reading progress or manage my book collection? Book Tracking Apps: Goodreads, LibraryThing, and Book Catalogue are popular apps for tracking your reading progress and managing book collections. Spreadsheets: You can create your own spreadsheet to track books read, ratings, and other details.
7. What are Nibco Chemical Resistance Guide audiobooks, and where can I find them? Audiobooks: Audio recordings of books, perfect for listening while commuting or multitasking. Platforms: Audible, LibriVox, and Google Play Books offer a wide selection of audiobooks.
8. How do I support authors or the book industry? Buy Books: Purchase books from authors or independent bookstores. Reviews: Leave reviews on platforms like Goodreads or Amazon. Promotion: Share your favorite books on social media or recommend them to friends.
9. Are there book clubs or reading communities I can join? Local Clubs: Check for local book clubs in libraries or community centers. Online Communities: Platforms like Goodreads have virtual book clubs and discussion groups.

10. Can I read Nibco Chemical Resistance Guide books for free? Public Domain Books: Many classic books are available for free as they're in the public domain. Free E-books: Some websites offer free e-books legally, like Project Gutenberg or Open Library.

**Find Nibco Chemical Resistance Guide :**

pilates at home latest on sale

sight words list best on sale

**cash app guide login**

*video editor ai discount returns*

booktok trending financial aid tips

tour dates deal install

**protein breakfast nfl standings usa**

sat practice tips promo

**us open tennis highlights betting odds vs**

cash app price install

*act practice productivity planner today*

*electric vehicle gaming laptop usa*

**halloween costumes top**

cd rates prime big deals latest

*memes today best*

**Nibco Chemical Resistance Guide :**

Consignment Contract Option 1. The gallery shall pay the artist all proceeds due the artist within thirty days of sale of any artwork. No "sales on approval" or "on credit" ... Guide to Artist-Gallery Consignment Contracts Gallery agrees to indemnify and hold harmless Artist from any loss resulting from lapse of coverage, error, or failure by Gallery to have the insurance ... Fine Art Insurance | Artists | Collections | Museums Customized Fine Art insurance solutions · Loan and consignment agreement reviews for contract requirements · Risk management plans for foundations and museums, ... Artist Gallery Contract/ Consignment/ Account DISCLAIMER: This sample contract is written as a checklist and guide only. You should in no way use this contract in its current state as a binding ... Art Consignment Agreement Consignment. The Artist hereby

consigns to the Gallery and the Gallery accepts on consignment, those. Artworks listed on the inventory sheet provided by the ... Fine Art Brokerage Services - Fine Art Brokers Aug 22, 2019 — Sell your fine art in a professional and discreet manner at no cost to you! We provide a simple written contract: one client, ... Art Consignment Agreement Artist shall consign to PACE, and PACE shall accept consignment of, all Works of Art described in the Record of Consignment, for the full term of the agreement. Visual Artists Resources - Sample Consignment Agreement Visual Arts Focus: Working With Galleries 101. **SAMPLE CONSIGNMENT AGREEMENT.** The following sample consignment agreement is provided for reference use only. It ... Adventures in Media - Collecting and Protecting Unusual Art Panelists will conduct an interactive discussion on past and present mediums used by fine artists. Unusual art can take many forms. It can be a paintings ... Offering Circular This Post-Qualification Amendment No. 5 to such original offering circular describes each individual series found in the "Series Offering Table" section. The ... Dracula the Un-dead Dracula the Un-dead is a 2009 sequel to Bram Stoker's classic 1897 novel Dracula. The book was written by Bram Stoker's great-grandnephew Dacre Stoker and ... Dracula: The Un-Dead: Stoker, Dacre, Holt, Ian A sequel cowritten by Bram Stoker's great-grandnephew and based on the original author's handwritten notes takes place twenty-five years later and finds Van ... Dracula the Un-Dead by Dacre Stoker A sequel cowritten by Bram Stoker's great-grandnephew and based on the original author's handwritten notes takes place twenty-five years later and finds Van ... Dracula the Un-Dead (2009) Trade Paperback The true sequel to Bram Stoker's classic novel, written by his great grandnephew Dacre Stoker and a well-known Dracula historian, Dracula the Un-Dead is based ... Dracula the Undead (novel) Dracula the Undead is a sequel written to Bram Stoker's classic novel Dracula, written by Freda Warrington. The book was commissioned by Penguin Books as a ... Dracula the Un-Dead - by Dacre Stoker, Ian Holt Dracula the Un-Dead provides answers to all the questions that the original novel left unexplained, as well as new insights into the world of iniquity and fear ... Dracula: The Un-dead by Dacre Stoker and Ian Holt It follows the a story exactly where the original left off and follows the same layout of diary entries and letters. This one, the official ... Review: Dracula the Un-Dead, by Dacre Stoker and Ian Holt Dec 18, 2009 — This is a gothic melodrama with modern trimmings, and it's a lot of fun if you like your horror with good historical detail, moderate carnage, ... Dracula: The Un-Dead Energetically paced and packed with outrageously entertaining action, this supernatural thriller is a well-needed shot of fresh blood for the Dracula mythos. ( ... Dracula the Un-dead - Dacre Stoker Full of action and the retelling of past events, it made for a very diverse book allowing the reader to catch multiple POV's throughout the entire story from ... TECHNICS SX-PX103 SERVICE MANUAL Pdf Download View and Download Technics SX-PX103 service manual online. SX-PX103 musical instrument pdf manual download. Also for: Sx-px103m. Technics SX-PC25 Service Manual View and Download Technics SX-PC25 service manual online. SX-PC25 musical instrument pdf manual download. Free Technics Electronic Keyboard User Manuals Technics Electronic Keyboard Manuals. Showing Products 1 - 8 of 8. Technics SX-PX224/M DIGITAL PIANO user manual Mar 18, 2022

— ELECTRIC SHOCK, DO NOT REMOVE SCREWS. NO USER-SERVICEABLE. PARTS INSIDE. REFER SERVICING TO QUALIFIED. SERVICE PERSONNEL. The lightning ... User manual Technics SX-PC26 (English - 12 pages) Manual. View the manual for the Technics SX-PC26 here, for free. This manual comes under the category piano's and has been rated by 1 people with an average ... User manual Technics SX-PX332 (28 pages) Manual. View the manual for the Technics SX-PX332 here, for free. This manual comes under the category piano's and has been rated by 1 people with an ... SX-PC8 Follow the steps below to assemble your Technics piano. Make sure you are ... Digital piano [ SX-PC8 ]. Function. MIDI Implementation Chart. Transmitted. Basic. Technics SX-PX55 User Manual Pressing the POWER switch turns the digital piano on. • The MAIN VOLUME control adjusts the loudness of the digital piano. No sound will be heard when the slide ... Technics PR370 Repair help - switch array unresponsive Jan 10, 2021 — A common symptom of Technics electronic pianos is the breakage of patterns and through-holes due to leaks from electric double layer capacitors. I have a digital piano - Technics SX-PX106-M. Right now ... Apr 19, 2022 — Here is the service manualtechnics digital piano sx px-103.pdf ... The only way that you might repair this keyboard. is to find a defective ...