ashirvad

by aliaxis

Korrosafe

Industrial uPVC Piping System

ASTM uPVC SCH 40 & SCH 80

About Aliaxis

Aliaxis group is a leading global manufacturer and distributor of plastic fluid handling systems used in residential, commercial and industrial buildings.

Head quartered in Brussels, Belgium. Aliaxis is present in over 45 countries, has more than 100 manufacturing and commercial entities and employs over 16,000 people.

Aliaxis leverages local and global knowledge of the industry as well as regulations and building habits to provide consistently excellent customer service through distribution partners to builders, installers, infrastructure contractors and others. The group is in the Indian plumbing and sanitary market through a partnership with Ashirvad Pipes since 2013.

Aliaxis at a glance

€ 3.1 billion
Revenue

120+
Distribution centres

1.400+
Injection machines

16.000+
Colleagues

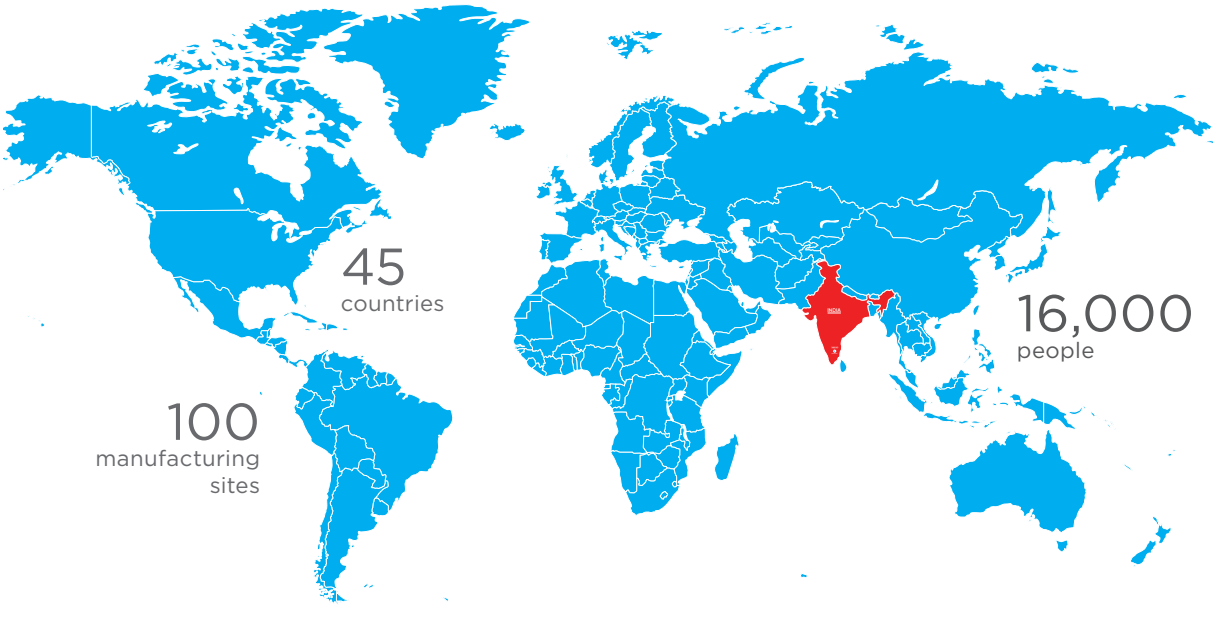
45+
Countries

600+
Extruders

€ 87 million
Capex

80+
Manufacturing sites

10
Commercial brands



About Ashirvad

Ashirvad, an Aliaxis group company, setup its Bengaluru units in 1998 and is a wholly owned company of Aliaxis group. Aliaxis group is a global leading manufacturer and distributor of plastic fluid handling systems used in residential, commercial and industrial buildings. Headquartered in Brussels, Belgium, Aliaxis is present over 40 countries with more than 75 manufacturing and commercial entities, employees over 16,100 people and generates more than 3 billion Euro (₹. 21, 600 crores approx.) in annual sales.

Ashirvad has always been relentless in its commitment to quality and service. Ashirvad pipes is a leading manufacturer and supplier of CPVC, uPVC, SWR plumbing systems and is also the pioneer in designing and manufacturing uPVC column pipes, which are used in the erection of submersible borehole pumps. Today Ashirvad is the world's largest manufacturer of uPVC column pipes and is also successfully exporting to over 35 countries. The CPVC Hot and Cold plumbing system is manufactured in collaboration with Lubrizol, USA (a Berkshire Hathaway company) and is best suited for the clean and hygienic supply of potable water. Ashirvad is the world's largest selling CPVC and uPVC pipes and fittings company.

Ashirvad has expanded its product range with an innovative triple layer low noise (silent and silent plus) SWR and a foam core underground drainage system along with the widest range of locally manufactured speciality items and accessories such as – manholes, inspection chambers and non-return valves. Furthermore, the company has successfully entered into the sanitary and fire safety space with its leading range of traps and couplings, pan connectors and concealed valves.

Ashirvad s has consistently grown year on year and aims to become a one stop shop for all Plumbing, Industrial, Sanitary, Agriculture, Fire Safety and Drainage products in the country.

Capabilities:

- Manufacturing capacity of more than 2,00,000 MT per annum
- State of the art facility spread across 50 acres
- 500+ Strong Sales & Marketing Team
- 200+ Strong Central Support Office Team
- Over 4,500 Manufacturing Workforce
- 14 Warehouses, 1,100 Distributors, 53,000 Dealers across India
- Exporting to more than 40 Countries
- 2 Factories in Bengaluru and one in Bhiwadi (Rajasthan) near Delhi

CIDC - 2017

Construction Industry Database (CIDC) - 2017 Has been enlisted as an **Approved Vendor** for providing the following Service /Products Manufacturing of CPVC & uPVC Pipes & Fittings.

WCRC Leaders Summit - 2014

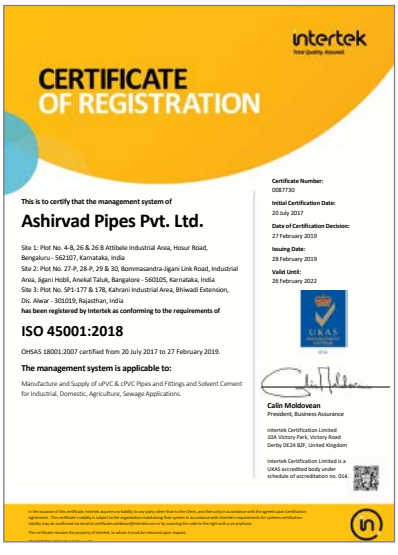
WCRC Leaders Summit - 2014 Ashirvad Pipes, "One Of The 100 Fastest Growing Marketing Brands In Asia" (Evaluated and selected by KPMG) The Global Audit Firm.

The National Award - 2007

The National Award - 2007 Ashirvad won the National Award for "Outstanding Entrepreneurship in Medium Enterprises". The award was presented by the Prime Minister of India.

ashirvad
by aliaxis

Certifications


intertek

CERTIFICATE
OF REGISTRATION

This is to certify that the management system of
Ashirvad Pipes Pvt. Ltd.

Site 1: Plot No. 4-8, 26 & 26 B Attibele Industrial Area, Hosur Road, Bengaluru - 562107, Karnataka, India
Site 2: Plot No. 27-P, 28-P, 29 & 30, Bommasandra-Jigani Link Road, Industrial Area, Jigani Hobli, Anekal Taluk, Bangalore - 560105, Karnataka, India
Site 3: Plot No. SP1-177 & 178, Kahrani Industrial Area, Bhiwadi Extension, Dis. Alwar - 301019, Rajasthan, India
has been registered by Intertek as conforming to the requirements of

ISO 45001:2018

OHSAS 18001:2007 certified from 20 July 2017 to 27 February 2019.

The management system is applicable to:

Manufacture and Supply of uPVC & cPVC Pipes and Fittings and Solvent Cement for Industrial, Domestic, Agriculture, Sewage Applications.

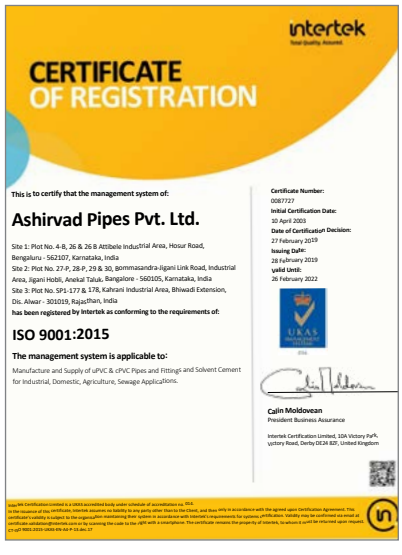
Certificate Number: 0087730
Initial Certification Date: 20 July 2017
Date of Certification Decision: 27 February 2019
Issuing Date: 28 February 2019
Valid Until: 26 February 2022

UKAS MANAGEMENT 014

Calin Moldovean
President, Business Assurance

Intertek Certification Limited
10A Victory Park, Victory Road
Derby DE24 8ZF, United Kingdom

Intertek Certification Limited is a UKAS accredited body under schedule of accreditation no. 014.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Site 3: Plot No. SP1-177 & 178, Kahrani Industrial Area, Bhiwadi Extension, Dis. Alwar - 301019, Rajasthan, India
has been registered by Intertek as conforming to the requirements of:

ISO 9001:2015

The management system is applicable to:

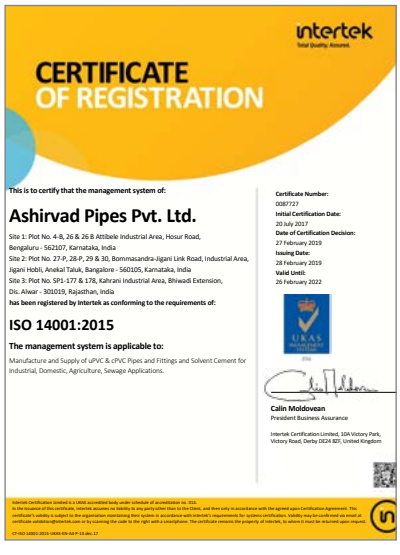
Manufacture and Supply of uPVC & cPVC Pipes and Fittings and Solvent Cement for Industrial, Domestic, Agriculture, Sewage Applications.

Certificate Number: 0087727
Initial Certification Date: 10 April 2003
Date of Certification Decision: 27 February 2019
Issuing Date: 28 February 2019
valid Until: 26 February 2022

UKAS MANAGEMENT 014

Calin Moldovean
President Business Assurance

Intertek Certification Limited, 10A Victory Park, victory Road, Derby DE24 8ZF, United Kingdom


intertek

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has been registered by Intertek as conforming to the requirements of:

ISO 14001:2015

The management system is applicable to:

Manufacture and Supply of uPVC & cPVC Pipes and Fittings and Solvent Cement for Industrial, Domestic, Agriculture, Sewage Applications.

Certificate Number: 0087727
Initial Certification Date: 20 July 2017
Date of Certification Decision: 27 February 2019
Issuing Date: 28 February 2019
Valid Until: 26 February 2022

UKAS MANAGEMENT 014

Calin Moldovean
President Business Assurance

Intertek Certification Limited, 10A Victory Park, Victory Road, Derby DE24 8ZF, United Kingdom


BUREAU VERITAS
Certification

Certificate
for
Straub Werke AG
Stradbstrasse 13, 7323 Wangs / Switzerland

SN EN ISO 9001 : 2015
SN EN ISO 14001 : 2015

Development, production, trade and sales of products and services in the pipe joining technique

Date of initial certification: **21.08.1995 (ISO 9001, DNV)**
22.12.2008 (ISO 14001)
Date of certification: **30.10.2017** Valid until: **21.12.2020**
Certificate number: **CH03494174/A** Version: **1**
Issue date: **31.10.2017**

Pascal Singh


IQNet
THE INTERNATIONAL CERTIFICATION NETWORK

CERTIFICATE

CISQRP S.r.l. has issued an IQNet recognized certificate that the organization
F.I.P. FORMATURA INIEZIONE POLIMERI SPA
PIAN DI PARATA, 2 - 16015 CASELLA (GE)
has implemented and maintains a
Quality Management System
for the following scope:
Design, production and trading of thermoplastics valves, filters, fittings and flow instrumentation for pressure pipe systems. Commercialisation and technical assistance for PE electrofusion and butt-welding fittings for water and gas supply, iron and steel joints for industry, shipbuilding industry and special applications.
which fulfills the requirements of the following standard
ISO 9001:2015

Issued on: 2018/03/28
First issued on: 1998/08/01
Expires on: 2022/04/10

This attestation is directly linked to the IQNet Partner's original certificate and shall not be used as a stand-alone document.

Registration Number: **IT-3439 IIP 1**

Alex Stoichitoiu
President of IQNet

Ing. Claudio Provezza
President of CISQ


bsi.

Certificate of Registration

QUALITY MANAGEMENT SYSTEM - ISO 9001:2015

This is to certify that:
IPEX Inc.,
5 Place De Commerce
Suite 101
Boucherville
Québec
J4B 1A7
Canada

Holds Certificate No: **FM 553037**

And operates a Quality Management System which complies with the requirements of ISO 9001:2015 for the following scope:

The design and manufacture of plastic and metal products.

For and on behalf of BSI:

Original Registration Date: 2009-07-28
Latest Revision Date: 2019-01-10
Effective Date: 2019-01-30
Expiry Date: 2022-01-29
Page: 1 of 4

...making excellence a habit.


भारत सरकार
GOVERNMENT OF INDIA
वाणिज्य एवं उद्योग मंत्रालय
MINISTRY OF COMMERCE & INDUSTRY
विदेश व्यापार महानिदेशालय
DIRECTORATE GENERAL OF FOREIGN TRADE
मान्यता प्रमाण पत्र
Certificate of Recognition
एक सितारा निर्यात सदन
ONE STAR EXPORT HOUSE

M/s. ASHIRVAD PIPES PVT. LTD.
PLOT NO.4-8, KIADB INDUSTRIAL AREA, ATTIBELE, ANEKAL TALUK, BANGALORE-562107
(IEC 0790014511 and Income Tax PAN AABCA7061R)

are hereby accorded the status of One Star Export House in accordance with the provisions of the Foreign Trade Policy, 2015-2020. This Certificate is valid for a period of 5 years effective from 20.11.2015 to 20.11.2020 subject to the conditions prescribed in Para 3.20(b) of the Hand Book of Procedures (2015-2020).

M./No. A/ 5953
Date: 23.07.2016
Place: Bangalore
Valid upto: 20.11.2015

VIJAY KUMAR, IFS
Additional Joint Deputy
Director General of Foreign Trade


ಭಾರತೀಯ ಮಾನಕ ಬ್ಯೂರೋ
भारतीय मानक ब्यूरो
BUREAU OF INDIAN STANDARDS
बेंगलूरु शाखा कार्यालय
Bangalore Branch Office:
पीनया इंडस्ट्रियल एरिया, 1वां स्टेज, तुमकूर रोड, बेंगलूरु - 560 058
Peenya Industrial Area, 1st Stage, Tumkur Road, Bangalore - 560 058

PAN No. : AAATB0431Q

REGISTERED A.D

Our Ref: BNBO /L- 3323039 Dated: 18 Feb 2014

Subject : **RENEWAL OF CERTIFICATION MARKS LICENCE NO. CML- 3323039 AS PER IS 15778 : 2007**

M/s ASHIRVAD PIPES PVT LTD
4-8, ATTIBELE INDUSTRIAL AREA, HOSUR ROAD,,
BANGALORE-562107.
Distt : Bangalore Urban
Karnataka.

Dear Sir,
With reference to your application for renewal of the above mentioned Certification Marks Licence, we are pleased to inform you that it has been renewed from 22/02/2014 to 21/02/2015.

It may please be noted that your licence shall expire at the end of the above mentioned period. You are, therefore, requested to send your application for its renewal at least two months before the expiry of the licence.

The endorsement sheet No.4 regarding renewal of licence is enclosed. This may be annexed to the original licence document available with you.

You are also requested to subscribe to our monthly Technical Journal 'Standards India' and also make use to publicise your product through advertisement. The details of the advertisement charges and subscription rates are available in our website www.bis.org.in
Thanking you.

Yours faithfully,

(H.P.SINGH)
SCIENTIST-E

Encl: As above.

मुख्यालय: मानक भवन, 9 बहादुरशाह ज़फर मार्ग, नई दिल्ली 110 002
Head Quarters : Manak Bhavana, 9 Bahadur Shah Zafar Marg, New Delhi 110 002
E-mail : info@bis.org.in


ಭಾರತೀಯ ಮಾನಕ ಬ್ಯೂರೋ
भारतीय मानक ब्यूरो
BUREAU OF INDIAN STANDARDS
बेंगलूरु शाखा कार्यालय
Bangalore Branch Office:
पीनया इंडस्ट्रियल एरिया, 1वां स्टेज, तुमकूर रोड, बेंगलूरु - 560 058
Peenya Industrial Area, 1st Stage, Tumkur Road, Bangalore - 560 058

PAN No. : AAATB0431Q

By Regd. Post

Dated 29 Oct 2013

Our Ref. BNBO /L -4497178

M/S ASHIRVAD PIPES PVT. LTD
UNIT-2, PLOT NO.27P, 28P, 29 & 30, BOMMASANDRA-JIGANI LINK ROAD,
BANDENALLASANDRA, JIGANI, ANEKAL TALUK,,
BANGALORE- 562105.
Distt : Bangalore Rural
Karnataka.

Dear Sirs,
This has reference to BIS Certification Marks Licence No. CML/L- 4497178 held by you for Specification for UPVC pipes for soil and waste discharge systems inside buildings including ventilation and rainwater system as per IS 13592 : 1992 which is valid upto 06/09/2014.

We are pleased to inform you that the Competent Authority of Bureau has agreed to include the following variety in your licence with immediate effect :

Specification for UPVC pipes for soil and waste discharge systems inside buildings including ventilation and rainwater system as per the following ratings :

Sizes of DN 63mm to 110mm, Type A and Type B Sliding Socket.

Please inform us as and when you start marking the new variety. You are advised to maintain separate records for the above variety after testing the same as per STI.

Endorsement sheet No.3 for the above is enclosed .

Thanking You,

Yours faithfully,

(H.P.SINGH)
SCIENTIST-E

Encl: AS above.

मुख्यालय: मानक भवन, 9 बहादुरशाह ज़फर मार्ग, नई दिल्ली 110 002
Head Quarters : Manak Bhavana, 9 Bahadur Shah Zafar Marg, New Delhi 110 002

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by aliaxis

Industrial Products

Korrosafe Industrial uPVC Piping System

ashirvad by aliaxis

ASTM PIPES & FITTINGS
SCH - 40 & 80

straub the right connection

PIPE COUPLINGS

jimfen

FILTRATION SYSTEMS

Durapipe UK

SUPER FLOW ABS, PLX, AIR-LINE XTRA

FRIATEC

ELECTRO - FUSION FITTINGS

IPEX Committed to Excellence

DOUBLE CONTAINMENT SYSTEMS

FIP

FLS INSTRUMENTATION

FIP

MANUAL / AUTOMATION VALVES
(UPVC, CPVC, PPH & PVDF)

Industrial Applications

Korrosafe
Industrial uPVC Piping System

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- Power Generation – WT/ WWT
- Chemical Processing – Process Piping
- Metals & Mining – WWT/WT and Slurry Transport
- Shipbuilding & Marine – Ballast Water, WT
- Turf & Agricultural Irrigation – Pre Filtration

ASTM PIPES & FITTINGS
SCH - 40 & 80

straub
the right connection

- Aerospace & Defence – Water Distribution
- Automotive – Water Treatment
- Engineering & Construction – Process Piping
- Oil & Gas – Process Piping
- Utilities – Water Treatment, ETP

PIPE COUPLINGS

jimten

- Cooling Towers - Prefiltration
- Effluent Treatment Plants- WWT
- Process Water Filtration – Water Recycling

FILTRATION SYSTEMS

Durapipe UK

- Chemical Processing – Process Piping
- Oil & Gas Processing – Product Transfer
- Fuel Transfer – White Oil Transfer
- Pressure Air - Process Air Piping
- Hazardous Chemical Transfer – Product Transfer

SUPER FLOW ABS, PLX, AIR-LINE XTRA

FRIATEC

- Gas Distribution – City Gas Distribution
- Water Distribution – City Water Distribution
- Waste Water – Sewage and ETP

ELECTRO - FUSION FITTINGS

IPEX
Committed to Excellence

- Chemical Processing – Process Piping
- Metals & Mining – WT/WWT & Process Piping
- Oil & Gas Processing – WT/WWT & Process Piping
- Oil Extraction – Process Piping
- Shipbuilding & Marine – WT/WWT

DOUBLE CONTAINMENT SYSTEMS

FIP

- Power Generation & Manufacturing – WT/ WWT
- Chemical Industry – Process Piping
- Irrigation & Agriculture – Pre Treatment
- Swimming pool & SPA – Pre Treatment
- Aquarium – Pre Treatment & Recycle

FLS INSTRUMENTATION

FIP

- Power Generation & Manufacturing – WT/ WWT
- Chemical Industry – Process Piping
- Mining – Slurry Transport, WT/WWT
- Marine – WT/WWT, Ballast Water
- Irrigation & Agriculture – Pre Treatment

MANUAL / AUTOMATION VALVES
(UPVC, CPVC, PPH & PVDF)

10 Assurances

Ashirvad's stringent quality checks ensure premium products and maximum customer satisfaction

#01
STATE OF THE ART MANUFACTURING FACILITIES

#02
ADVANCED MACHINERY FOR SUPERIOR QUALITY

#03
ADVANCED MATERIAL HANDLING SYSTEMS

#04
100% INCOMING RAW MATERIAL INSPECTION

#05
HIGH DIMENSIONAL ACCURACY TO MAINTAIN QUALITY OF EACH PIECE, TO ENSURE A DEFECT FREE SYSTEM

#06
STRINGENT QUALITY CHECKS AT EVERY LEVEL OF PRODUCTION

#07
100% FINISHED GOODS INSPECTION

#08
MULTIPLE QUALITY CHECKS IN PLACE FOR EVERY **INDUSTRIAL PVC FITTINGS** THAT LEAVES THE ASHIRVAD FACTORY

#09
EVERY BATCH OF PRODUCTS LAB TESTED

#10
REGULAR EXTERNAL LAB TESTING OF PRODUCTS IN INDIA

About Ashirvad Industrial

Ashirvad's Industrial Division (erstwhile Aliaxis Utilities and Industry Pvt Ltd.) deals with all types of Thermo Plastics Piping systems viz CPVC, uPVC, PPH, PVDF & ABS Pipes, Fittings, Valves with both Pneumatic and Electric Actuators & Accessories as per ISO-DIN Metric, ASTM standards, High Performance Metal Pipe Coupling, Pipe Clamps, Double Containment Piping System, Instrumentation products, Acid Waste system, Compressed air conveying Piping System, Pre Filtration System, Chemical Drainage system Etc. to cater the service in Industries of different segments in India and across the Globe.

We at Ashirvad by Aliaxis give packaged solutions for industrial, process plants & water treatment projects with following products:

- FIP - Italy make uPVC, CPVC, PPH & PVDF manual & auto valves, pipes & fittings.
- ASHIRVAD- Indian make uPVC & CPVC Pipes and fittings
- FIP make instrumentation like flowmeters, PH, ORP conductivity meters etc.
- IPEX - Canada make uPVC, CPVC, ABS, natural & unpigmented PP piping system for process piping, double containment piping, acid waste systems, high purity applications etc.
- DURAPIPE - UK make ABS (Acrylonitrile Butadiene Styrene) piping system & valves for chilled, cold water & flexible ABS for compressed air applications
- STRAUB - Switzerland make mechanical couplings
- JIMTEN - Spain make non-metallic filtration systems, pipe couplings & Air release valves.
- FRIATEC - Germany made Electrofusion fittings.

"Industrial" in Ashirvad today

In order to address customer needs and growth, we have a segment approach to reach to customers

Market segmentation leads to profitable growth based on:

- Better tailored product service offering/develop new offers
- Better resource management (e.g., salesforce, marketing) with specific segments
- Customized value proposition
- Better price allocation for specific segments
- Distinguished and better use of different channels
- Efficient tracking of global projects

ashirvad
by aliaxis

Today thermoplastic pipes play an important role in virtually every industrial process. The reason for this is the vast variety of solutions plastic pipes offer because plastic pipes can be adapted for each application. High chemical resistance, advanced jointing techniques and a comprehensive standardisation framework ensure efficient, economical and safe solutions.

Introduction - Product

Ashirvad is vey proud to introduce ASTM PVC solvent weld Ashirvad Korrosafe Industrial uPVC Piping System under the brand name Ashirvad.

PRODUCT	SIZE RANGE	STANDARDS *	PROPERTIES
Ashirvad Korrosafe Industrial uPVC Pipes SCH 40 & 80	1/2" - 6"	ASTM D 1785	Strong and light weight Easy to install Fire Resistant Durable UV Stabilised Simple and leak proof Suitable for Potable Water Chemical Resistance Maximum Flow rate Good Insulator.
Fittings	1/2" - 6"	ASTM D 2467	
Solvent Cement	Heavy	ASTM D 2564	

ashirvad
by aliaxis

Key Physical Properties

PVC (Poly Vinyl Chloride)

PROPERTIES	PVC	STANDARDS
Cell classification	12454	ASTM D1784
Specific gravity	1.42	ASTM D792
Tensile strength, psi at 73°F	7,450	ASTM D638
Modulus of elasticity tensile, psi at 73°F	400,000	ASTM D638
Flexural strength, psi	14,500	ASTM D790
zod impact, ft.lbs./in. at 73°F, notched	0.75	ASTM D256
Compressive strength, psi	9,000	ASTM D695
Poisson's ratio	0.38	-
Working stress, psi at 73°F	2,000	-
Coefficient of thermal expansion in./in./°F (x 10-5)	3.0	ASTM D696
Linear expansion, in./10°F per 100' of pipe	0.36	-
Maximum operating temperature under pressure	140°F (60°C)	-
Deflection temperature under load, °F at 66 psi	173	ASTM D648
Deflection temperature under load, °F at 264 psi	160	ASTM D648
Thermal conductivity, BTU.in./hr. ft2.°F	1.2	ASTM C177
Burning rate	Self-extinguish	ASTM D635
Burning class	V-0	UL-94
Flash ignition, °F	730	-
Limited oxygen index (%)	43	ASTM D2863-70
Water absorption, %, (24 hrs. at 73°F)	0.05	ASTM D570

* The properties listed in this table represent general material properties and should be used as a guideline only.

Ashirvad Korrosafe Industrial uPVC

uPVC Sch 40 - 1/2” - 6” (15mm - 150mm)
uPVC Sch 80 - 1/2” - 6” (15mm - 150mm)

OUR SYSTEM ADVANTAGE

The Ashirvad system provide a complete line of pipe, fittings, flanges, strainers and valves to meet all your process system requirements.

Ashirvad developed the Ashirvad Korrosafe Industrial (uPVC) systems to meet industry demands for a complete Pipe, Valves and Fittings (uPVC) package that is designed, produced and backed by a single manufacturer.

These systems are engineered and manufactured to strict quality, performance and dimensional standards, and therefore eliminate the problems inherent in purchasing and installing piping system components manufactured by several different companies

Our high-performance vinyl systems are designed to meet the temperature, pressure and size requirements of piping systems used in chemical processes and other industrial applications. They feature outstanding resistance to photodegradation, creep stress and immunity to oxidation, and are exceptionally suited for use with a wide range of acids, alcohols, salts and halogens. The perfect extended service, low maintenance alternative to common and exotic metal systems.

Ashirvad Korrosafe Industrial uPVC Pipes are available in SCH 40 & 80 and Fittings are available in SCH 80.

FIELDS OF APPLICATIONS

- Plant chemical distribution lines
- Water and wastewater
- Acid systems for refineries, pickling lines and plating shops
- Chlorine injection, chlorine dioxide and chloralkali plant piping
- Steel wire plants
- Battery manufacturing
- Bleach lines in textile and paper mills
- Alum and caustic handling systems
- Circuit board manufacturing
- Semiconductor
- Pharmaceutical
- Cooling water and cooling tower systems
- Tailing and slurry lines
- Washwater recovery systems
- Plant water supply
- Brine and seawater systems
- Fish farming
- Waterworks
- Aquariums and swimming pools
- Irrigation systems in golf courses, greenhouses, etc.

Caution: Do not use or test uPVC with compressed air or other gases including air-over-water boosters.

Standards and Specificatons

ASTM D 1784	-	Rigid Poly Vinyl Chloride (PVC) Compounds.
ASTM D 1785	-	Poly Vinyl Chloride (PVC) Plastic Pipes, SCH 40 & SCH 80.
ASTM D 2466	-	Socket type Poly Vinyl Chloride (PVC) Plastic Pipe Fittings
ASTM D 2467	-	Socket type Poly Vinyl Chloride (PVC) Plastic Pipe Fittings
ASTM D 2564	-	Solvent Cements for Plastic Pipes & Fittings
ASTM F 1498	-	Taper Pipe threads 60° for Thermoplastics Pipe & Fittings
ASTM D 2774	-	Underground Installation of Thermoplastic Pipes.

Codes – Description

ASTM	-	American Society for Testing and Materials.
ANSI	-	American National Standards Institute
BSP	-	British Standard Pipe
IPS	-	Iron Pipe Size (ASTM)
NPT	-	National Pipe Threads (ANSI)
FIPT	-	Female Iron Pipe Threads
MIPT	-	Male Iron Pipe Threads.
SOCKET	-	Solvent Weld Socket
SPIGOT	-	Spigot End (IPS)
PVC	-	Poly Vinyl Chloride

Why Ashirvad Korrosafe Industrial System?

Lower Installation Costs, Easy Handling

In addition to a lower material cost, Industrial uPVC pipe can significantly reduce labour and transportation costs on a typical installation. The reason? They are lightweight, easily handled, stored, cut and joined.

Extended Life

Industrial uPVC provide years of maintenance free service. Our materials will not rust, pit, scale or corrode on either interior or exterior surfaces. Thermoplastic piping systems in a variety of demanding industrial applications have operated successfully for over 45 years.

Superior Underground Performance

Industrial uPVC is immune to damage from naturally corrosive soil conditions as well as electrochemical and galvanic corrosion. This is particularly advantageous in underground installations where galvanic reaction often causes damage to metal piping products.

Exceptional Chemical Resistance

The vinyl systems, including pipe, valves and fittings provide outstanding resistance to a wide range of chemicals such as most acids, alcohols, alkalies, salt solutions, halogens and more.

Improved Flow

Industrial uPVC have a substantially lower Roughness Factor than metal and other materials, and since they do not rust, pit, scale or corrode, the interior walls remain smooth in virtually any service.

Exceptional Temperature Range

The vinyl systems are designed to meet a broad range of service temperatures. Industrial uPVC has a recommended maximum service temperature of 140°F (60°C) in pressure.

Lower Thermal Conductivity

With a low thermal conductivity factor, the vinyl systems have less heat loss or gain, thus sustaining service temperature more efficiently than metal piping. As a result, pipe insulation needs may be reduced.

Environmentally Responsible

With energy conservation a prime concern, you can rely on the fact that our manufacturing process for Industrial uPVC piping materials requires less than half the energy needed to produce the equivalent size of carbon steel or steel alloy materials.

DID YOU KNOW?

One of the outstanding characteristics of uPVC is its resistance to ignition. This is demonstrated by its flash point of 730ºF (388ºC), compared to 400ºF (204ºC) for wood chips.

Dimension and Water Pressure Rating of Ashirvad Korrosafe Industrial uPVC Pipes & Fittings

Dimensions of uPVC Pipes SCH 40 and SCH 80 (As per ASTM 1785)

Sizes			Schedule 40			Schedule 80		
Diameter (in)	Diameter (mm)	Avg OD (mm)	Min Wall Thickness (mm)	*Max. work Pressure at 23°C (kg/cm²)	Burst Pressure at 23°C (kg/cm²)	Min Wall Thickness (mm)	*Max. work Pressure at 23°C (kg/cm²)	Burst Pressure at 23°C (kg/cm²)
½	15	21.34	2.77	42.22	134.30	3.73	59.76	191.3
¾	20	26.67	2.87	33.75	108.29	3.91	48.54	154.69
1	25	33.40	3.38	31.61	101.26	4.56	44.26	142.05
1¼	32	42.16	3.56	26.01	83.00	4.85	36.61	116.76
1½	40	48.26	3.68	23.25	74.54	5.08	33.04	106.15
2	50	60.32	3.91	19.68	62.61	5.54	28.14	90.65
2½	65	73.02	5.16	21.11	68.22	7.01	29.57	95.65
3	80	88.9	5.49	18.25	59.04	7.62	26.01	84.33
4	100	114.3	6.02	15.50	49.97	8.56	22.56	73.11
6	150	168.28	7.11	12.64	39.36	10.97	19.68	62.61

Tapered Socketed Dimension for uPVC Pipe Fittings, Schedule 80 (as per ASTM D 2467)

Nominal Size (in)	Socket Entrance Diameter (A)		Socket Bottom Diameter (B)		Socket Length in inch (mm)	Inside Diameter in inch (mm)	Wall Thickness in inch (mm)	
	Diameter	Tolerance on Diameter in inch (mm)	Diameter	Tolerance on Diameter in inch (mm)	C	D	Middle if the Socket "E"	Beyond the Socket "F"
½	0.852 (21.64)	±0.004 (±0.10)	0.840 (21.34)	±0.004 (±0.10)	0.875 (22.22)	0.542 (13.77)	0.147 (3.73)	0.185 (4.70)
¾	1.062 (26.97)	±0.004 (±0.10)	1.050 (26.67)	±0.004 (±0.10)	1.000 (25.40)	0.738 (18.75)	0.154 (3.91)	0.195 (4.95)
1	1.330 (33.78)	±0.005 (±0.13)	1.315 (33.40)	±0.005 (±0.13)	1.125 (28.58)	0.952 (24.18)	0.179 (4.55)	0.225 (5.72)
1¼	1.675 (42.55)	±0.005 (±0.13)	1.660 (42.18)	±0.005 (±0.13)	1.250 (31.75)	1.273 (32.33)	0.191 (4.85)	0.240 (6.10)
1½	1.918 (48.72)	±0.006 (±0.15)	1.900 (48.26)	±0.006 (±0.15)	1.375 (34.93)	1.494 (37.95)	0.200 (5.08)	0.250 (6.99)
2	2.393 (60.78)	±0.006 (±0.15)	2.375 (60.325)	±0.006 (±0.15)	1.500 (38.10)	1.933 (49.10)	0.218 (5.54)	0.275 (6.99)
2½	2.896 (73.56)	±0.007 (±0.18)	2.875 (73.03)	±0.007 (±0.18)	1.750 (44.45)	2.316 (58.83)	0.276 (7.01)	0.345 (8.75)
3	3.524 (89.51)	±0.008 (±0.20)	3.500 (88.90)	±0.008 (±0.20)	1.875 (47.63)	2.892 (73.48)	0.300 (7.62)	0.375 (9.525)
4	4.527 (114.99)	±0.009 (±0.23)	4.500 (114.301)	±0.009 (±0.231)	2.250 (57.15)	3.817 (96.951)	0.337 (8.56)	0.420 (10.67)
6	6.0647(168.83)	±0.011 (±0.28)	6.614 (168.00)	±0.011 (±0.28)	3.000 (76.20)	5.646 (143.41)	0.432 (10.97)	0.540 (13.72)

Burst pressure requirements for uPVC fittings SCH 80 are same as burst pressure of uPVC SCH 80 pipes.

Industrial uPVC Pipes (SCH 40)

(as per ASTM D 1785)

IN	MM	LENGTH	SAP CODE
½	15	5 meter	70003488
¾	20	5 meter	70003489
1	25	5 meter	70003490
1¼	32	5 meter	70003491
1½	40	5 meter	70003492
2	50	5 meter	70003493
2½	65	5 meter	70003500
3	80	5 meter	70003501
4	100	5 meter	70003502
6	150	5 meter	70003503

Industrial uPVC Pipes (SCH 80)

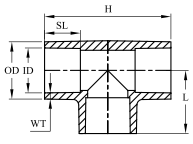
(as per ASTM D 1785)

IN	MM	LENGTH	SAP CODE
½	15	5 meter	70003494
¾	20	5 meter	70003495
1	25	5 meter	70003496
1¼	32	5 meter	70003497
1½	40	5 meter	70003498
2	50	5 meter	70003499
2½	65	5 meter	70003504
3	80	5 meter	70003505
4	100	5 meter	70003506
6	150	5 meter	70003507

Industrial Fittings (SCH. 80)

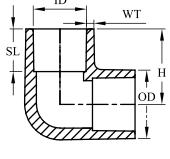
(as per ASTM F 439 - Sch 80)

TEE SOC X SOC X SOC



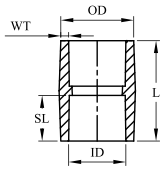
SIZE	ID	OD	WT	SL	L	H
½	21.64	29.1	3.73	22.23	50	72
¾	26.97	34.79	3.91	25.4	57	79
1	33.78	42.88	4.55	28.58	67	93
1¼	42.55	52.25	4.85	31.75	80	108
1½	48.72	58.88	5.08	34.93	94	121
2	60.78	71.86	5.54	38.1	107	138
2½	73.56	87.58	7.01	44.45	130	174
3	89.5	113.74	7.62	47.63	140	200
4	114.99	132.11	8.56	57.15	188	245
6	153.88	168.1	7.11	77.25	250	330

ELBOW SOC X SOC 90 DEGREE



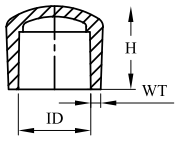
SIZE	ID	OD	WT	SL	H
½	21.64	29.1	3.73	22.23	42
¾	26.97	34.79	3.91	25.4	58
1	33.78	42.88	4.55	28.58	66
1¼	42.55	52.25	4.85	31.75	80
1½	48.72	58.88	5.08	34.93	90
2	60.78	71.86	5.54	38.1	115
2½	73.56	87.58	7.01	44.45	132
3	89.5	113.74	7.62	47.63	150
4	114.99	132.11	8.56	57.15	182
6	153.88	168.1	7.11	77.25	250

COUPLING SOC X SOC



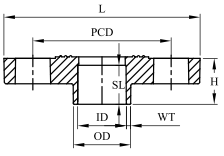
SIZE	ID	OD	WT	SL	L
½	21.64	29.1	3.73	22.23	47
¾	26.97	34.79	3.91	25.4	54
1	33.78	42.88	4.55	28.58	60
1¼	42.55	52.25	4.85	31.75	67
1½	48.72	58.88	5.08	34.93	73
2	60.78	71.86	5.54	38.1	80
2½	73.56	87.58	7.01	44.45	96
3	89.5	113.74	7.62	47.63	102
4	114.99	132.11	8.56	57.15	121
6	153.88	168.1	7.11	77.25	160

END CAP SOC



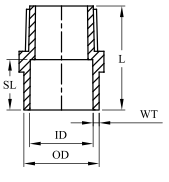
SIZE	ID	OD	WT	SL	L
½	21.64	29.1	3.73	22.23	28
¾	26.97	34.79	3.91	25.4	36
1	33.78	42.88	4.55	28.58	36
1¼	42.55	52.25	4.85	31.75	42
1½	48.72	58.88	5.08	34.93	45
2	60.78	71.86	5.54	38.1	54
2½	73.56	87.58	7.01	44.45	60
3	89.5	113.74	7.62	47.63	66
4	114.99	132.11	8.56	57.15	80

FLANGE SOC - CL 150



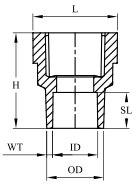
SIZE	ID	OD	WT	SL	L	H	U
1	33.78	42.88	4.55	28.58	115	32	4
1¼	42.55	52.31	4.88	32.50	125.7	36.7	4
1½	48.72	58.88	5.08	34.93	136	38	4
2	60.78	71.86	5.54	38.10	160	42	4
2½	73.56	87.58	7.01	44.45	176	51	4
3	89.50	104.74	7.62	47.63	188	55	4
4	114.99	132.11	8.56	57.15	225	68	8

MTA SOC X THR



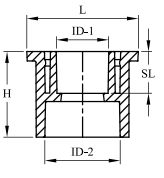
SIZE	ID	OD	WT	SL	L
½	21.64	29.1	3.73	22.23	42
¾	26.97	34.79	3.91	25.4	48
1	33.78	42.88	4.55	28.58	56
1¼	42.55	52.25	4.85	31.75	58
1½	48.72	58.88	5.08	34.93	66
2	60.78	71.86	5.54	38.1	69
2½	73.56	87.58	7.01	44.45	72
3	89.5	113.74	7.62	47.63	76
4	114.99	132.11	8.56	57.15	81

FTA SOC X THR



SIZE	ID	OD	WT	SL	L	H
½	21.64	29.1	3.73	22.23	29	40
¾	26.97	34.79	3.91	25.4	35	46
1	33.78	42.88	4.55	28.58	43	55
1¼	42.55	52.25	4.85	31.75	53	59
1½	48.72	58.88	5.08	34.93	60	67
2	60.78	71.86	5.54	38.1	72	71
2½	73.56	87.58	7.01	44.45	87	77
3	89.5	104.74	7.62	47.63	104	87
4	114.99	132.11	8.56	57.15	128	105

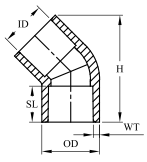
REDUCER BUSH



SIZE	ID-1	ID-2	SL	L	H
¾ x ½	26.97	21.64	22.23	34	28
1 x ½	33.78	21.64	22.23	43	32
1 x ¾	33.78	26.97	25.4	43	32
1¼ x ½	42.55	21.64	22.23	53	35
1¼ x ¾	42.55	26.97	25.4	53	35
1¼ x 1	42.55	33.78	28.58	53	35
1½ x ½	48.72	21.64	22.23	58	37
1½ x ¾	48.72	26.97	25.4	58	37
1½ x 1	48.72	33.78	28.58	58	37
1½ x 1¼	48.72	42.55	31.75	58	37
1½ x 1½	48.72	48.72	22.23	58	37
2 x ¾	60.78	26.97	25.4	72	43
2 x 1	60.78	33.78	28.58	72	43
2 x 1¼	60.78	42.55	31.75	72	43
2 x 1½	60.78	48.72	34.93	72	43
2½ x 2 (CTS)	73.56	60.78	38.1	80	56
2½ x 2	73.56	60.78	38.1	80	56
3 x 2 (CTS)	89.5	60.78	38.1	98	56
3 x 2	89.5	60.78	38.1	98	56
3 x 2½	89.5	73.56	44.45	98	56
4 x 2 (CTS)	114.99	60.78	38.1	123	66
4 x 2	114.99	60.78	38.1	123	66
4 x 2½	114.99	73.56	44.45	123	66
4 x 3	114.99	89.5	47.63	123	66
6 x 3	89.31	167.92	48	170.8	85.5
6 x 4	114.76	167.92	51	170.8	85.5

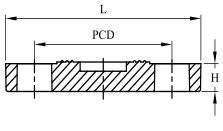
ashirvad
by aliaxis

ELBOW SOC X SOC 45°



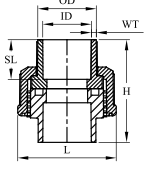
SIZE	ID	OD	WT	SL	L	H
½	21.64	29.1	3.73	22.23	45	59
¾	26.97	34.79	3.91	25.4	58	68
1	33.78	42.88	4.55	28.58	60	74
1¼	42.55	52.25	4.85	31.75	77	85
1½	48.72	58.88	5.08	34.93	83	88
2	60.78	71.86	5.54	38.1	98	115
2½	73.56	87.58	7.01	44.45	130	168
3	89.5	104.74	7.62	47.63	126	188
4	114.99	132.11	8.56	57.15	145	235

FLANGE END CAP – CLOSED



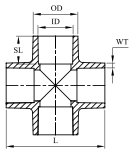
SIZE	L	H	U
1	115	15	4
1½	136	18	4
2	160	18	4
2½	176	23	4
3	188	23	4
4	225	28	8
6	278	28	8

UNION



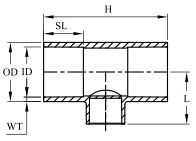
SIZE	ID	OD	WT	SL	L	H
½	21.64	29.1	3.73	22.23	46	62
¾	26.97	34.79	3.91	25.4	53	65
1	33.78	42.88	4.55	28.58	69	68
1¼	42.55	52.25	4.85	31.75	71	85
1½	48.72	58.88	5.08	34.93	95	85
2	60.78	71.86	5.54	38.1	115	94
2½	73.38	88.54	7.58	45.45	125.8	101.4
3	89.31	97.41	8.1	48.63	146.7	107
4	114.76	124.19	9.43	58.15	176.2	126.35

CROSS TEE



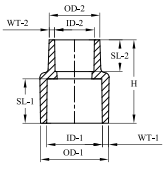
SIZE	ID	OD	WT	SL	L
¾	26.97	34.79	3.91	25.4	79
1	33.78	42.88	4.55	28.58	92

REDUCER TEE



SIZE	ID-1	OD-1	WT-1	SL-1	ID-2	OD-2	WT-2	SL-2	L	H
¾ x ¾ x ½	26.97	34.79	3.91	25.4	21.64	29.1	3.73	22.23	56	80
1 x 1 x ½	33.78	42.88	4.55	28.58	21.64	29.1	3.73	22.23	67	92
1 x 1 x ¾	33.78	42.88	4.55	28.58	26.97	34.79	3.91	25.4	70	92
1¼ x 1¼ x ½	42.55	52.25	4.85	31.75	21.64	29.1	3.73	22.23	70	108
1¼ x 1¼ x ¾	42.55	52.25	4.85	31.75	26.97	34.79	3.91	25.4	73	108
1¼ x 1¼ x 1	42.55	52.25	4.85	31.75	33.78	42.88	4.55	28.58	75	108
1½ x 1½ x ½	48.72	58.88	5.08	34.93	21.64	29.1	3.73	22.23	75	117
1½ x 1½ x ¾	48.72	58.88	5.08	34.93	26.97	34.79	3.91	25.4	82	117
1½ x 1½ x 1	48.72	58.88	5.08	34.93	33.78	42.88	4.55	28.58	82	117
1½ x 1½ x 1¼	48.72	58.88	5.08	34.93	42.55	52.25	4.85	31.75	87	117
2 x 2 x ½	60.78	71.86	5.54	38.1	21.64	29.1	3.73	22.23	88	100
2 x 2 x ¾	60.78	71.86	5.54	38.1	26.97	34.43	3.73	25.4	93	135
2 x 2 x 1	60.78	71.86	5.54	38.1	33.78	42.88	4.55	28.58	95	135
2 x 2 x 1¼	60.78	71.86	5.54	38.1	42.55	52.25	4.85	31.75	100	135
2 x 2 x 1½	60.78	71.86	5.54	38.1	48.72	58.88	5.08	34.93	104	135
2½ x 2½ x 2	73.56	87.58	7.01	44.45	60.78	71.86	5.54	38.1	82.2	161
3 x 2	89.31	105.55	16.24	48.63	60.78	88.54	27.76	44	95.45	181.12
3 x 3 x 2½	89.51	104.75	7.62	47.63	73.38	83.7	5.16	44.45	95.45	181.1

REDUCER COUPLER



SIZE	ID-1	OD-1	WT-1	SL-1	ID-2	OD-2	WT-2	SL-2	H
¾ x ½	26.97	34.79	3.91	25.4	21.64	29.1	3.73	22.23	56
1 x ½	33.78	42.88	4.55	28.58	21.64	29.1	3.73	22.23	66
1 x ¾	33.78	42.88	4.55	28.58	26.97	34.79	3.91	25.4	65
1¼ x ½	42.55	52.25	4.85	31.75	21.64	29.1	3.73	22.23	69
1¼ x ¾	42.55	52.25	4.85	31.75	26.97	34.79	3.91	25.4	68
1¼ x 1	42.55	52.25	4.85	31.75	33.78	42.88	4.55	28.58	68
1½ x ½	48.72	58.88	5.08	34.93	21.64	29.1	3.73	22.23	74
1½ x ¾	48.72	58.88	5.08	34.93	26.97	34.79	3.91	25.4	76
1½ x 1	48.72	58.88	5.08	34.93	33.78	42.88	4.55	28.58	75
1½ x 1¼	48.72	58.88	5.08	34.93	42.55	52.25	4.85	31.75	74
2 x ½	60.78	71.86	5.54	38.1	21.64	29.1	3.73	22.23	85
2 x ¾	60.78	71.86	5.54	38.1	26.97	34.43	3.73	25.4	85
2 x 1	60.78	71.86	5.54	38.1	33.78	42.88	4.55	28.58	85
2 x 1¼	60.78	71.86	5.54	38.1	42.55	52.25	4.85	31.75	83
2 x 1½	60.78	71.86	5.54	38.1	48.72	58.88	5.08	34.93	83
2½ x 2	73.56	87.58	7.01	44.45	60.78	71.86	5.54	38.1	104
3 x 2	89.31	105.55	16.24	48.63	60.78	88.54	27.76	48.93	104
3 x 2½	89.51	104.75	7.62	47.63	73.38	83.7	5.16	44.45	107

Pressure De-Rating Factor

Pipe temperature de-rating factor for pressure rating

Operating Temperature		
Fahrenheit (°F)	Centigrade °C	De-rating Factor
73	23	1.00
80	27	0.88
90	32	0.75
100	38	0.62
110	43	0.51
120	49	0.40
130	54	0.31
140	60	0.22

Ashirvad Korrosafe Industrial uPVC Piping System pressure ratings are dependent on the pipe diameter and the operating temperature of the system. As temperatures increase, the pressure rating of the system decreases. Refer to the table for de-rating factors. uPVC piping to carry a maximum service temperature of 140°F when appropriate temperature/ pressure de-rating factors are applied.

Handling and Storage

Proper Handling of Pipes

Please check and inspect the pipes on receipt. The pipes should be checked for any forms of transport damage due to shift in loads or improper handling/treatment. Visually examine the ends of pipes for any cracks or damage.

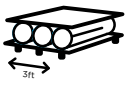
The pipes should be handled with care. The tendency to throw or drop the pipes to the floor should be avoided. Do not drag or push the pipes from a truck bed. Contact of the pipes with any sharp object should be totally avoided.

Storage of Pipes

The pipes should preferably be stored indoors.
When this is not possible, please ensure to

Protect the pipes from sun light, to reduce the effect of UV rays.

The pipes should be stored on level ground and on dry surface.



If pipes of same diameter but different classes are being stacked together, place the thicker pipes below. i.e., stack Sch 80 below Sch 40.

If placing pipes on racks, ensure the spacing between the supports does not exceed 3 feet.

Safe Handling of Solvent Cement

When using solvent cement, primers and cleaners, there are some basic safety measures all users should keep in mind.

After every application of solvent on the pipe / fitting ensure to put the lid back on the solvent cement containers and tighten the lid slightly to avoid evaporation and escape of solvent.

Avoid prolonged breathing of solvent vapours.
When pipe and fittings are being joined in enclosed areas, please ensure sufficient ventilation.

Keep the primers, cleaners and solvent cement away from all sources of ignition, heat, sparks and open flame.

Keep containers of solvent cement, primers and cleaners tightly closed except when the product is being used.

Dispose of all rags used with solvents in a proper outdoor waste bin.

Avoid eye and skin contact. In case of eye contact, flush with plenty of water for 15 minutes and call a doctor.

Refer to ASTM F402, Standard Practice for Safe Handling of Solvent cement, Primers, and Cleaners Used for Joining Thermoplastic Pipe and Fittings.

From systems that convey water, chemicals and gases to conduits that carry power and data cabling. From PVC and ABS to PVDF and PE. From valves and fittings to pipes. From solvent cements and cutting tools to electrofusion systems. Whatever the product or application, our customers can be confident that everything they need for their particular solution will be delivered with the quality and service you expect from an industry leader.

Quality Control Procedures at Ashirvad

Pipes and fittings manufactured at Ashirvad, follow a stringent quality control process before being rolled out into the market, in order to supply a defect free system to its users.

The various quality control checks regularly being done at Ashirvad follow the highest specifications of BIS (India) and ASTM (USA) as given below.

PIPES

Effect on Water
To ensure the quality of water passing through the pipes.

Heat Reversion Test
How much the pipe changes in length when heated in an oven and left to cool. This is a measure of residual stresses left in the pipe during production process.

Drop Impact Test
Weights are dropped on the pipe to observe for any cracks or failures.

Flattening Test
Samples are compressed so that opposite walls are brought together without the pipe cracking, which is a good measure of correct extrusion techniques during production.

Tensile Strength
The maximum stress that a pipe can withstand while being stretched or pulled.

FITTINGS

Stress Relief Test
To determine the level of internal stress by heating the fitting in an aircirculated oven @ 150°C. There should not be any blisters, weld line splitting or any cracking.

PIPES AND FITTINGS

Burst Pressure Check
Maximum pressure before the fittings burst. This must be over three times the normal pressure rating.

Visual Appearance
To ensure that all pipes and fittings are uniform in colour and free visual effects such as black dots, scratches, burn marks, etc.

Dimensions
To ensure that all pipes and fittings conform to the appropriate standards.

Opacity
To measure the percentage of light flux passing through the wall and to ensure it is below 0.2%.

Vicat Softening Temperature
The temperature at which 1 mm^2 needle penetrates 1 mm through the wall of the pipe.

Density
Density of pipes and fittings is to be determined.

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by aliaxis

Important Notes for Installers and Users

1. **Water Hammer**

   Plastic piping systems be designed and constructed to avoid excessive WATER HAMMER. Water hammer can cause damage and failure to pipe, valves and fittings within the piping system.

2. **THREADED CONNECTIONS**

   Use a quality grade thread sealant. Do not use substances that could cause stress cracking to plastic. Major attention must be given while making plastic thread joints. 1 to 2 turns beyond FINGER TIGHT is generally all that is required to make a sound plastic connection. Unnecessary OVER TIGHTENING will cause DAMAGE TO BOTH PIPES & FITTINGS

3. **SEAL & GASKET LUBRICANTS**

   Some Lubricants, including vegetable oils are known to cause stress cracking in thermoplastics materials. A mild soap or commercially available pipe gasket lubricants suitable for uPVC is recommended where lubrication is required for installation or maintenance service (especially with Flange joints). Choice of lubricant is at the discretion of the installer.

4. **FLOW VELOCITIES**

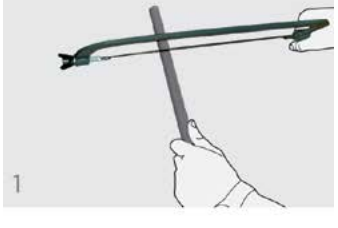
   System should not be operated or flushed out at flow velocities greater than 5 feet per second.

Installation Procedure

Easy and 100% leakproof installation.

Step 1: Cutting

Measure the pipe length accurately and make a visible marking using a felt tip pen. Ensure that the pipe and fittings are size compatible. You can easily cut with a plywood cutting saw/ ratchet cutter or a wheel cutter. Cutting the pipe as squarely as possible (at 90°) provides optimal bonding area within a joint. Inspect pipe ends thoroughly prior to making a joint. If a crack or splintering is noticed cut-off a minimum of 25 mm beyond the visible crack before proceeding.



Step 2: Deburring/Beveling

Burrs in and on pipe end can obstruct flow/proper contact between the pipe and socket of the fitting during assembly and should be removed from both in and outside of the pipe. A 15 mm dia half round file/a pen knife or a deburring tool are suitable for this purpose. A slight bevel on the end of the pipe will ease entry of the pipe into the socket of the fitting socket.

Step 3: Fitting Preparation

Using a clean dry rag, wipe the dirt and moisture from the fitting sockets and pipe end. Dry fit the pipe to ensure total entry into the bottom of the fittings socket and make a visible marking using a felt tip pen.

Step 4: One Step Solvent adhesive Procedure

Use only Ashirvad uPVC Solvent adhesive conforming to ASTM D2564 to ensure a perfect solvent weld joint. When making a joint, apply an even coat of solvent adhesive at the end of the pipe and also inside the fitting socket. Do not use thickened or lumpy solvent adhesive. It should have a flow consistency like that of syrup or paint.

Two Step Solvent adhesive Procedure

4a: Apply primer to socket keeping surfaces wet and applicator wet and in motion
until the entire joining surface is properly softened. Avoid puddling.

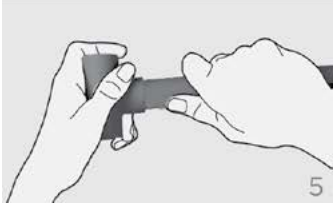
4b: Apply to pipe surface in the same manner equal to depth of socket.

4c: Apply again to the fitting socket. Avoid puddling.

4d: While the primer is still wet and the surfaces are soft, apply a full, even layer of solvent adhesive to the pipe end, equal to the depth of the fitting socket. Like the primer, be aggressive. Remember to apply enough solvent adhesive to fill the gap between the pipe and fitting.

4e: Apply a thin layer of solvent adhesive to the inside of the fitting socket. This will prevent puddling of the solvent adhesive inside of the pipe or fitting. Excessive solvent adhesive applied to the fitting socket can cause the joint to clog and the wall of the pipe or fitting to weaken due to softening by the trapped solvents.

4f: Apply a second full, even layer of solvent adhesive to the pipe end. Excessive solvent adhesive on the pipe outer diameter (O.D.) can be wiped away after assembly.



Step 5: Assembly

Immediately insert the pipe into the fitting socket, rotate the pipe 1/4 to 1/2 turn while inserting. This motion ensures an even distribution of solvent adhesive within the joint. **Properly align the fittings as per patented alignment system shown with picture diagram on the right side.** Hold the assembly for 3 seconds to allow the joint to setup and avoid push-out.

A bead of One-Step solvent adhesive must be formed around the entire socket fitting entrance. With a clean, dry cloth remove the excess solvent adhesive from the surface of the pipe and fitting.

Selection of Solvent Cement

JOINT SETTING & CURING TIME

RECOMMENDED INITIAL SET TIME

Temperature Range	Pipe Size ½"-1¼" (15 mm – 32 mm)	Pipe Size 1½"-3" (40 mm – 80 mm)	Pipe Size 4"-6" (100 mm – 150 mm)
15.5°C – 37.7°C	15 minutes	30 minutes	1 hours
4.4°C – 15.5°C	1 hours	2 hours	4 hours

RECOMMENDED INITIAL CURE TIME

Temperature Range	Pipe Size ½"-1¼" (15 mm – 32 mm)	Pipe Size 1½"-3" (40 mm – 80 mm)	Pipe Size 4"-6" (100 mm – 150 mm)
15.5°C – 37.7°C	6 hours	12 hours	24 hours
4.4°C – 15.5°C	12 hours	24 hours	48 hours

TESTING PRESSURE SYSTEM

1. Conduct pressure testing with water. DO NOT USE AIR OR OTHER GASES for pressure testing.

2. The piping system should be adequately anchored to limit movement. Water under pressure exerts thrust forces in piping systems. Thrust blocking should be provided at changes of direction, change in size and at dead ends.

3. Please refer tables given for initial set & cure times before pressure testing.

4. The piping systems should be slowly filled with water, taking care to prevent surge and air entrapment. The flow velocity should not exceed 1 feet per second.

5. All trapped air must be slowly released. Vents must be provided at all high points of the piping system. All valves and air relief mechanisms should be opened so that the air can be vented while the system is extremely dangerous and it must be slowly and completely vented prior to testing.

6. For sizes 4" & above, we recommend to use automatic air relief valves at every 300 - 400 mtr. distance & at furthest & highest points of pipeline to avoid any damage to the piping system.

7. The piping system can be pressurized to 125% of its designed working pressure. However care must be taken to ensure the pressure does not exceed the working pressure of the lowest rated component in the system (valves, unions, flanges, threaded parts etc.)

8. The pressure test should not exceed one hour. Any leaking joints or pipe must be cut out and replaced and the line recharged and retested using the same procedure.

Support Spacing for uPVC Pipe

Adequate supports for any piping system is a matter of great importance. In practice, support spacings are a function of pipe size operating temperatures, the location of heavy valves or fittings and the mechanical properties of the pipe material. To ensure the satisfactory operation the location and type of hangers should be carefully considered. Hangers should not compress, distort, cut or abrade the piping. All piping should be supported with an approved hanger at intervals sufficiently close to maintain correct pipe alignment and to prevent sagging or grade reversal. Pipe should also be supported at all branch ends and at all changes of direction. Support trap arms as close as possible to the trap.

1. Concentrated loads should be supported directly so as to eliminate high stress concentrations. Should this be impractical then the pipe must be supported immediately adjacent to the load.

2. In systems where large fluctuations in temperature occur, allowances must be made for expansion and contraction of the piping system. Since changes in direction in the system are usually sufficient to allow for expansion and contraction hangers must be placed so as not to restrict this movement.

3. Since plastic pipe expands or contracts approximately five times greater than those of steel, hangers should not restrict this movement.

4. Hangers should provide as much bearing surface as possible. To prevent damage to the pipe, file smooth any sharp edges or burrs on the hangers or supports.

5. Support spacing for horizontal piping systems is determined by the maximum operating temperature the system will encounter. The piping should be supported on uniform centers with supports that do not restrict the axial movement.

6. For vertical lines, it is recommended that an engineer should design the vertical supports according to the vertical load involved.

Schedule 40 – Recommended Support Spacing (In Feet)

NOM. PIPE SIZE		TEMPRATURE °C				
Diameter (in)	Diameter (mm)	15.5	26.6	37.7	48.8	60
½	15	4½	4½	4	2½	2½
¾	20	5	4½	4	2½	2½
1	25	5½	5	4½	3	2½
1¼	32	5½	5½	5	3	3
1½	40	6	5½	5	3½	3
2	50	6	5½	5	3½	3
2½	65	6½	6	5½	4	3
3	80	7	7	6	4	3½
4	100	7½	7	6½	4½	4
6	150	8½	8	7½	5	4½

Schedule 80 – Recommended Support Spacing (In Feet)

NOM. PIPE SIZE		TEMPRATURE °C				
Diameter (in)	Diameter (mm)	15.5	26.6	37.7	48.8	60
½	15	4½	4½	4	2½	2½
¾	20	5	4½	4	2½	2½
1	25	5½	5	4½	3	2½
1¼	32	5½	5½	5	3	3
1½	40	6	5½	5	3½	3
2	50	6	5½	5	3½	3
2½	65	6½	6	5½	4	3
3	80	7	7	6	4	3½
4	100	7½	7	6½	4½	4
6	150	8½	8	7½	5	4½

Chemical Resistance Chart - PVC

The chemical resistance information for PVC pipe provided in the following tables is based on short term immersion of unstressed strips of PVC in various chemicals (usually undiluted), and may be useful in assessing the suitability of PVC under unusual or specific operating environments.

Results of this type of test can be used only as a guide to estimate the response of PVC. These tables provide guidance to industrial users of pipe for conveying the chemicals listed, rather than design criteria for sewers that may experience occasional exposures or when diluted by other wastewater discharges.

An additional source of information on the chemical resistance of PVC pipe is the National Association of Corrosion Engineers publication entitled, “Corrosion Data Survey, Nonmetals Section.” For critical applications it is recommended that testing be performed under conditions that approximate the anticipated field conditions. In applications where exposure to harmful chemicals is frequent, of long duration or in high concentrations, further testing is recommended.

The following chemical resistance legend is used in the following PVC tables:

R - Generally resistant
C - Less resistant than R but still suitable for some conditions
N - Not resistant

Chemical	23°C (73°F)	60°C (140°F)
A		
Acetaldehyde	N	N
Acetaldehyde, aq 40%	C	N
Acetamide - -	-	-
Acetic acid, vapor	R	R
Acetic acid, glacial	R	N
Acetic acid, 25%	R	R
Acetic acid, 60%	R	N
Acetic acid, 85%	R	N
Acetic anhydride	N	N
Acetone	N	N
Acetylene	N	N
Acetyl chloride	N	N
Acetylnitrile	N	N
Acrylonitrile	N	N
Acrylic acid	N	N
Adipic acid	R	R
Alcohol, allyl	R	C
Alcohol, amyl	N	N
Alcohol, benzyl	N	N
Alcohol, butyl (n-butanol)	R	R
Alcohol, diacetone	N	N
Alcohol, ethyl (ethanol)	R	R
Alcohol, hexyl (hexanol)	R	R
Alcohol, isopropyl (2-propanol)	R	R
Alcohol, methyl (methanol)	R	R
Alcohol, propyl (1-propanol)	R	R
Alcohol, propargyl	R	R
Allyl chloride	N	N
Alums	R	R
except Aluminim fluoride	R	N
Ammonia, gas	R	R
Ammonia, liquid	N	N
Ammonium salts	R	R
except Ammonium Dichromate	R	N
Ammonium fluoride, 10%	R	R
Ammonium fluoride, 25%	R	C
Amyl acetate	N	N
Amyl chloride	N	N
Aniline	N	N
Aniline chlorohydrate	N	N
Aniline hydrochloride	N	N
Anthraquinone	R	R
Antimony trichloride	R	R
Anthraquinone sulfonic acid	R	R
Aqua regia	C	N
Arsenic acid, 80%	C	N
Aryl-sulfonic acid	R	R
B		
Barium salts	R	R
except Barium nitrate	R	N
Beer	R	R
Beet sugar liquor	R	R
Benzaldehyde, 10%	R	N
Benzene (benzol)	N	N
Benzene sulfonic acid, 10%	R	R
Benzene sulfonic acid, > 10%	N	N
Benzoic acid	R	R
Black liquor – paper	R	R
Bleach, 12% active chlorine	R	R
Bleach, 5% active chlorine	R	R
Borax	R	R
Boric acid	R	R
Brine	R	R
Bromic acid	R	R
Bromine, aq	R	R
Bromine, liquid	N	N
Bromine, gas, 25%	R	R
Bromobenzene	N	N
Bromotoluene	N	N
Butadiene	R	R
Butane	R	R
Butynediol	R	N
Butyl acetate	N	N
Butyl stearate	R	N
Butyl phenol	R	N

R - Generally Resistant
C - Less resistant than R but still suitable for some conditions
N - Not resistant

Chemical	23°C (73°F)	60°C (140°F)
Butylene, liquid	R	R
Butyric acid	R	N
C		
Cadmium Cyanide	R	R
Calcium salts	R	R
except Calcium bisulde	N	N
Calcium hypochlorite, 30%	R	R
Calcium hydroxide	R	R
Calcium Nitrate	R	R
Calcium Oxide	R	R
Calcium Sulfate	R	R
Camphor	R	N
Cane sugar liquors	R	R
Carbon disulfide	N	N
Carbon dioxide	R	R
Carbon dioxide, aq	R	R
Carbon monoxide	R	R
Carbitol	R	N
Carbon tetrachloride	R	N
Carbonic Acid	R	R
Castor oil	R	R
Caustic potash (potassium hydroxide), 50%	R	R
Caustic soda (sodium hydroxide), <40%	R	R
Cellosolve	R	N
Cellosolve acetate	R	N
Chloral hydrate	R	R
Chloramine, dilute	R	N
Chloric acid, 20%	R	R
Chlorine, gas, dry	C	N
Chlorine, gas, wet	N	N
Chlorine, liquid	N	N
Chlorine water	R	R
Chloracetic acid, 50%	R	R
Chloroacetyl Chloride	R	N
Chlorobenzene	N	N
Chlorobenzyl chloride	N	N
Chloroform	N	N

Chemical	23°C (73°F)	60°C (140°F)
Chloropicrin	N	N
Chlorosulfonic acid	R	N
Chromic acid, 10%	R	R
Chromic acid, 30%	R	R
Chromic acid, 40%	R	C
Chromic acid, 50%	N	N
Chromium potassium sulfate	R	N
Citric acid	R	R
Coconut oil	R	R
Coffee	R	R
Coke oven gas	R	R
Copper acetate	R	N
Copper salts, aq	R	R
Corn oil	R	R
Corn syrup	R	R
Cottonseed oil	R	R
Cresote	N	R
Cresol, 90%	N	N
Cresylic acid, 50%	R	R
Croton aldehyde	N	N
Crude oil, sour	R	R
Cupric Salts, aq	R	R
Cyclohexane	N	N
Cyclohexanol	N	N
Cyclohexanone	N	N
D		
Detergents, aq	R	R
Dextrin	R	R
Dextrose	R	R
Dibutoxyethyl phthalate	N	N
Diesel fuels	R	R
Diethylamine	N	N
Diethyl Ether	R	N
Disodium phosphate	R	R
Diglycolic acid	R	R
Dioxane -1,4	N	N
Dimethylamine	R	R
Dimethyl formamide	N	N

Chemical	23°C (73°F)	60°C (140°F)
Dibutyl phthalate	N	N
Dibutyl sebacate	R	N
Dichlorobenzene	N	N
Dichloroethylene	N	N
E		
Ether	N	N
Ethyl ether	N	N
Ethyl halides	N	N
Ethylene halides	N	N
Ethylene glycol	R	R
Ethylene oxide	N	N
F		
Fatty acids	R	R
Ferric salts	R	R
Fish Oil	R	R
Fluorine, dry gas	R	N
Fluorine, wet gas	R	N
Fluoboric acid	R	R
Fluosilicic acid, 50%	R	R
Formadehyde	R	R
Formic acid	R	N
Freon - F11, F12, F113, F114	R	R
Freon - F21, F22	R	N
Fructose	R	R
Furfural	N	N
G		
Gallic acid	R	R
Gas, coal, manufactured	N	N
Gas, natural, methane	R	R
Gasolines	C	C
Gelatin	R	R
Glucose	R	R
Glue, animal	R	R
Glycerine (glycerol)	R	R
Glycolic acid	R	R
Glycols	R	R
Grape Sugar	R	R
Green liquor, paper	R	R

Chemical	23°C (73°F)	60°C (140°F)
H		
Heptane	R	R
Hexane	R	N
Hexanol	R	R
Hydraulic Oil	R	N
Hydrobromic acid, 20%	R	R
Hydrochloric acid	R	R
Hydrofluoric acid, 30%	R	N
Hydrofluoric acid, 50%	R	N
Hydrofluoric acid, 100%	N	N
Hydrofluosilic acid	R	R
Hydrocyanic acid	R	R
Hydrogen	R	R
Hydrogen cyanide	R	R
Hydrogen fluoride	N	N
Hydrogen phophide	R	R
Hydrogen peroxide, 50%	R	R
Hydrogen peroxide, 100%	R	R
Hydrogen sulfide, aq	R	R
Hydrogen sulfide, dry	R	R
Hydroquinone	R	R
Hydroxylamine sulfate	R	R
Hydrazine	N	N
Hypochlorous acid	R	R
I		
Iodine, aq, 10%	N	N
J		
Jet fules, JP-4 and JP-5	C	C
K		
Kerosene	R	R
Ketones	N	N
Ketchup	R	N
Kraft paper liquor	R	R
L		
Lctic acid, 25%	R	R
Lactic acid, 80%	R	N
Lard oil	R	R

R - Generally Resistant
C - Less resistant than R but still suitable for some conditions
N - Not resistant

Chemical	23°C (73°F)	60°C (140°F)
Lauric acid	R	R
Lauryl acetate	R	R
Lauryl chlorie	R	R
Lead salts	R	R
Lime sulfur	R	R
Linoleic acid	R	R
Linoleic oil	R	R
Linseed oil	R	R
Liqueurs	R	R
Lithium salts	R	R
Lubricating oils	R	R
M		
Magnesium salts	R	R
Maleic acid	R	R
Malic acid	R	R
Manganese sulfate	R	R
Mercuric salts	R	R
Mercury	R	R
Methane	R	R
Methoxyethl oleate	R	N
Methyl acetate	N	N
Methyl amine	N	N
Methyl bromide	N	N
Methyl cellosolve	N	N
Methyl chloride	N	N
Methyl chloroform	N	N
Methyl ethyl ketone	N	N
Methyl isobutyl carbinol	N	N
Methyl isopropyl ketone	N	N
Methyl methacrylate	R	N
Methyl sulfate	R	N
Methyl sulfuric acid	R	R
Methylene bromide	N	N
Methylene chloride	N	N
Methylene iodide	N	N
Milk	R	R
Mineral oil	R	R

Chemical	23°C (73°F)	60°C (140°F)
Molasses	R	R
Monochloroacetic acid	R	R
Monochlorobenzene	N	N
Monoethanolamine	N	N
Motor oil	R	R
N		
Naptha	R	R
Naphthalene	N	N
Natural Gas	R	R
Nickel acetate	R	N
Nickel salts	R	R
Nicotine	R	R
Nicotinic acid	R	R
Nitric acid, 0 to 40%	R	R
Nitric acid, 50%	R	C
Nitric acid, 100%	N	N
Nitrobenzene	N	N
Nitroglycerine	N	N
Nitrous acid, 10%	R	R
Nitrous oxide, gas	R	N
Nitroglycol	N	N
O		
Oleic acid	R	R
Oleum	N	N
Olive oil	R	R
Oxalic acid	R	R
Oxygen, gas	R	R
Ozone, gas	R	R
P		
Palmitic acid, 10%	R	R
Palmitic acid, 70%	R	N
Paraffin	R	R
Pentane	C	C
Peracetic acid, 40%	R	N
Perchloric acid, 15%	R	N
Perchloric acid, 70%	r	N

Chemical	23°C (73°F)	60°C (140°F)
Perchloroethylene	R	N
Perphosphate	R	N
Phenol	R	N
Phenylhydrazine	N	N
Phosphoric anhydride	R	N
Phosphoric acid	R	R
Phosphorus pentoxide	R	N
Phosphorous trichloride	N	N
Photographic chemicals, aq	R	R
Phthalic acid	N	N
Plating solutions, metal	R	R
Potash	R	R
Potassium amyl xanthate	R	N
Potassium salts, aq	R	R
except Potassium iodide	R	N
Potassium permanganate, 10%	R	R
Potassium permanganate, 25	R	N
Propane	R	R
Propylene dichloride	N	N
Propylene oxide	N	N
Pyridine	N	N
Pyrogallic acid	R	N
R		
Rayon coagulating bath	R	R
S		
Salicylic acid	R	R
Salicyladehyde	N	N
Selenic acid, aq.	R	R
Silicic acid	R	R
Silicone oil	R	N
Silver salts	R	R
Soaps	R	R
Sodium salts, aq	R	R
except Sodium chlorite	N	N
except Sodium chlorate	R	N
except Sodium hypochlorite	R	N
Stannic chloride	R	R
Stannous chloride	R	R

Chemical	23°C (73°F)	60°C (140°F)
Starchy	R	R
Stearic acid	R	R
Stoddard solvent	N	N
Succinic acid	R	R
Sulfamic acid	N	N
Sulfate & Sulfite liquors	R	R
Sulfur	R	R
Sugars, aq	R	R
Sulfur dioxide, dry	R	R
Sulfur dioxide, wet	R	N
Sulfur trioxide, gas, dry	R	R
Sulfur acid, wet	R	N
Sulfuric acid, up to 80%	R	R
Sulfuric acid,90 to 93%	R	N
Sulfuric acid, 94 to 100%	N	N
Sulfurous acid	R	R
T		
Tall oil	R	R
Tannic acid	R	R
Tanning liquors	R	R
Tar	N	N
Tartaric acid	R	R
Terpineol	C	C
Tetrachloroethane	C	C
Toluene	N	N
Tomato juice	R	R
Transformer oil	R	R
Tributyl phosphate	N	N
Tributyl citrate	R	R
Trichloroacetic acid	R	R
Trichloroethylene	R	N
Triethanolamine	R	N
Triethylamine	R	R
Trimethyl propane	R	N
Trisodium phosphate	R	R
Turpentine	R	R
U		
Urea	R	R

R - Generally Resistant
C - Less resistant than R but still suitable for some conditions
N - Not resistant

Chemical	23°C (73°F)	60°C (140°F)
Urine	R	R
V		
Vaseline	N	N
Vegetable oils	R	R
Vinegar	R	R
Vinyl acetate	N	N
W		
Water, deionized	R	R
Water, distilled	R	R
Water, salt	R	R
White Liquor	R	R
Whiskey	R	R
Wines	R	R
X		
Xylene	N	N
Z		
Zinc salts	R	R

These tables are meant to aid the designer in decisions as to transporting/conveyance of undiluted chemicals. Chemical resistance data is provided as a guide only. Information is based primarily on immersion of unstressed strips in chemicals and to lesser degree on field experience.

Ashirvad Pipes Pvt. Ltd., 4-B, Attibele Industrial Area, Hosur Road, Bengaluru - 562 107, Karnataka, INDIA.
T: +91 80 2806 1000 / 2806 1700 **F:** +91 80 2806 1080

For any Service / Customer complaint / Queries:
Toll Free: 1800 572 8900 **M:** +91 9902 333 333 **E:** customercare@ashirvad.com / info.industrial@ashirvad.com

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