

Applicable Standards

900 Series

AASHTO H-20 or HS-20

AASHTO M306-07 modified 9"x 9" load plate replaced with 18" long x 4" diameter steel rod

ASTM A536 Class 65-45-12

CALTRANS Section 10-1.35, "Grated Line Drain"

CALTRANS Section 75-1.02, "Miscellaneous Iron and Steel"

FAA publication AC 150/5320-6D, "Airport Pavement Design and Evaluation"

DIN 19580

3000 Series & FP Series

AASHTO-H029

AASHTO M306-89, Section 7, "Standard Specification for Drainage Structure Castings"

ASTM A-48 Class 30

FAA publication AC 150/5320-6D, "Airport Pavement Design and Evaluation"

Federal Specification AA-60005E, "Frames, covers, gratings, steps, manhole sumps, and catch basins"

DIN 19580

TECHNICAL INFORMATION



DIN Application Load Class A - 3,372 lbs. - 15 kN

Residential, pedestrian, and cyclist traffic



DIN Application Load Class B - 28,100 lbs. - 125 kN

Sidewalks, parking lots, and car parking decks



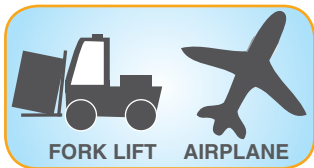
DIN Application Load Class C - 56,200 lbs. - 250 kN

Curb sides, highway shoulders, and parking areas



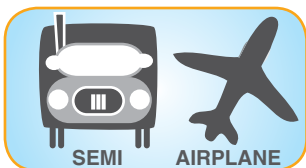
DIN Application Load Class D - 89,920 lbs. - 400 kN

Trafficked sections of roads and highways



DIN Application Load Class E - 134,800 lbs. - 600 kN

Industrial areas, forklifts, traffic, ports, and dock sides

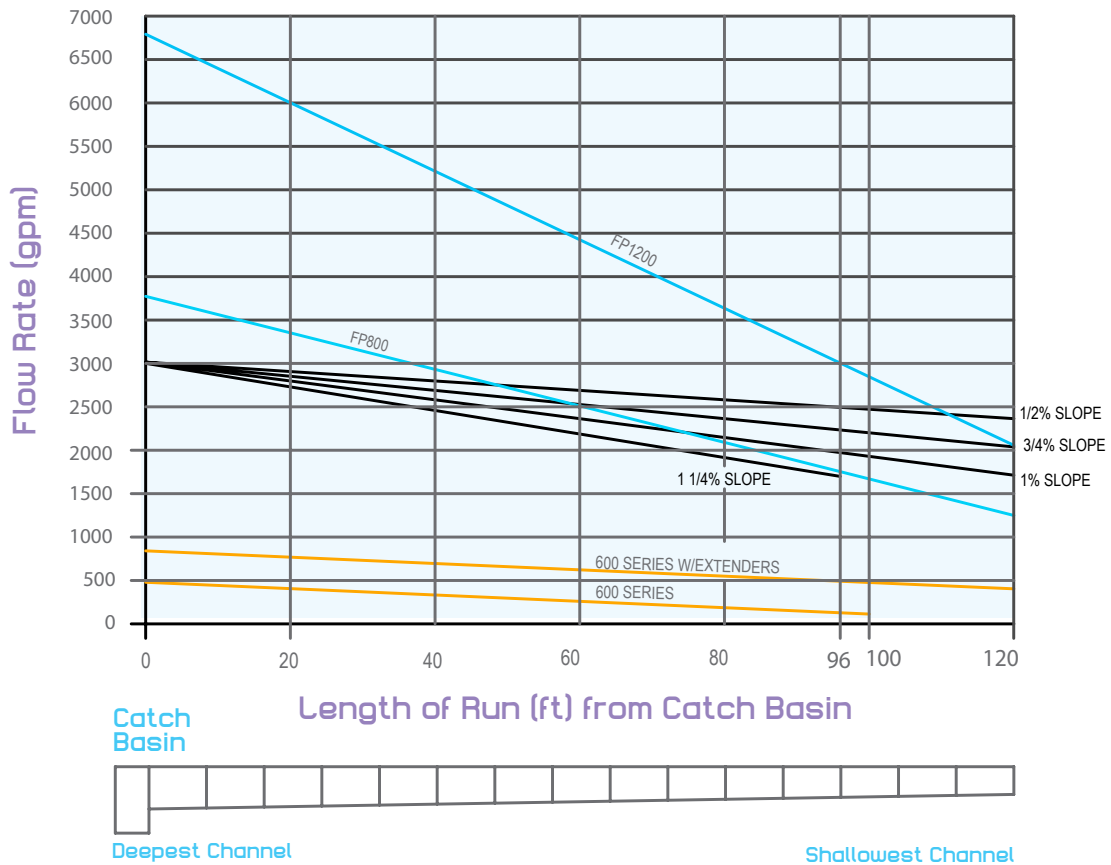


DIN Application Load Class F - 202,320 lbs. - 900 kN

Aircraft runways, docks, and high impact wheel loads

TECHNICAL INFORMATION

Flow capacity for POLYCAST® drains



TECHNICAL

600 series

@ CATCH BASIN 478.7 GPM @ 100 FT. 113.8 GPM

600 series w/extendors

@ CATCH BASIN 840 GPM @ 120 FT. 404 GPM

3000 series 1/2% slope

@ CATCH BASIN 3017.2 GPM @ 120 FT. 2363 GPM

3000 series 3/4% slope

@ CATCH BASIN 3017.2 GPM @ 120 FT. 2038 GPM

3000 series 1% slope

@ CATCH BASIN 3017.2 GPM @ 120 FT. 1655.7 GPM

3000 series 1 1/4% slope

@ CATCH BASIN 3017.2 GPM @ 96 FT. 1655.7 GPM

FP800 series

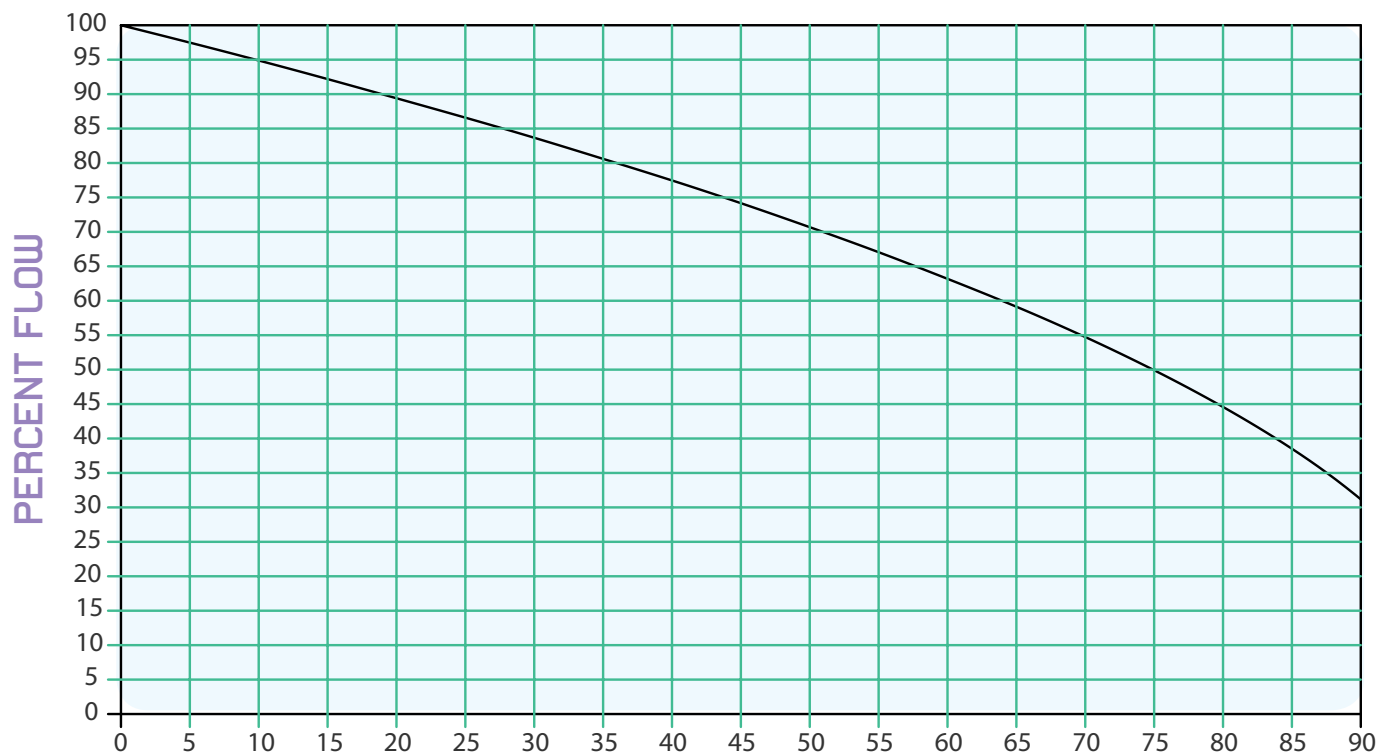
@ CATCH BASIN 3772 GPM @ 120 FT. 1249.2 GPM

FP1200 series

@ CATCH BASIN 6791.6 GPM @ 120 FT. 2057.4 GPM

TECHNICAL INFORMATION

Effect of Non-Sloped Channels on Flow Capacity



Percent Non-Sloped Channels

* This graph is based on the Manning Equation

Corrosion Resistance Guide

For those highly corrosive drainage situations, Hubbell-Lenoir City Division manufactures polymer concrete drainage components with DERAKANE®* 470 Vinyl Ester resin. This includes all series of precast drainage systems and components.

The Vinyl Ester trench drains can be ordered with a highly corrosion-resistant Vinyl Ester fiberglass grating.

A corrosion-resistant fiberglass grate hold-down device is also available. The Vinyl Ester trench drains can also be ordered with any of the gratings offered.

POLYCAST® polymer concrete products fabricated with DERAKANE®* 470 Vinyl Ester resin are ideally suited for drainage and handling of most highly corrosive fluids.

The POLYCAST Vinyl Ester based drains are especially suitable for drainage in areas where manufacturers must concentrate and contain corrosive materials to meet EPA pollution control requirements.

POLYCAST drain components are manufactured with only quality polyester and Vinyl Ester resins.

DERAKANE® 470 Vinyl Ester Resin:

- Performs very well at high temperatures
- Can be used in many applications involving combinations of acids, halogenated organics, caustics, and solvents
- Displays high resistance to chlorinated solvents
- Has proven track record for many industrial applications

* DERAKANE® is a registered trademark of Ashland Chemical Company.

POLYCAST recommends job site emersion testing to verify suitability of chemical resistance before ordering material. Test coupons of Vinyl Ester and polyester are available by contacting POLYCAST Customer Service.

TECHNICAL INFORMATION

Corrosion Resistance Guide

CHEMICAL	% CONCENTRATION	MAX TEMP °F	CHEMICAL	% CONCENTRATION	MAX TEMP °F
A					
Acetaldehyde	100	N.R.	Brine	All	180
Acetic Acid	10	180	Bromine, Liquid	100	N.R.
Acetic Acid, Glacial	100	N.R.	Bunker C Fuel Oil	100	180
Acetic Anhydride	100	N.R.	Butyl Acetate	100	100
Acetone	10	150	Butyl Alcohol	All	100
Acetone	100	N.R.	Butyric Acid	100	65
Acrylamide	50	65	C		
Adipic Acid	23	150	Calcium Bisulfite	All	150
Alum	All	180	Calcium Bromide	All	180
Aluminum Chloride	All	180	Calcium Carbonate	All	150
Aluminum Chlorohydrate	All	180	Calcium Chlorate	All	180
Aluminum Nitrate	100	150	Calcium Chloride	All	180
Aluminum Potassium Sulfate	All	180	Calcium Hydroxide	100	180
Aluminum Sulfate	All	180	Calcium Hypochlorite	All	150
Ammonium Acetate	65	65	Calcium Nitrate	All	180
Ammonium Bicarbonate	50	135	Calcium Sulfate	All	180
Ammonium Bifluoride	100	125	Calcium Sulfite	All	180
Ammonium Bromide	43	135	Capric Acid	All	65
Ammonium Carbonate	All	125	Carbon Disulfide	100	N.R.
Ammonium Chloride	All	180	Carbon Tetrachloride	100	125
Ammonium Fluoride	All	125	CARBOWAX Polyethylene Glycol	100	150
Ammonium Hydroxide	20	125	Carboxylethyl Cellulose	10	150
Ammonium Nitrate	All	180	Castor Oil	100	125
Ammonium Persulfate	All	150	Chlorine Water	Sat'd	200
Ammonium Phosphate, dibasic	All	180	Chlorine, Wet Gas	100	180
Ammonium Sulfate	All	180	Chloroacetic Acid	25	100
Ammonium Thiocyanate	20	180	Chlorobenzene	100	N.R.
Aniline	100	N.R.	Chloroform	100	N.R.
B			Chloropyridine (tetra)	100	100
Barium Carbonate	All	180	CHLOROTHENE SM 1,1,1- Trichloroethane inhibited	100	85
Barium Chloride	All	180	Chromic Acid	120	130
Barium Cyanide	All	135	Citric Acid	All	180
Barium Hydroxide	All	125	Coconut Oil	All	150
Beer		100	Copper Chloride	All	180
Benzene	100	N.R.	Copper Nitrate	All	180
Benzoic Acid	Sat'd.	180	Copper Sulfate	All	180
Benzyl Alcohol	All	N.R.	Corn Oil		150
Benzyl Chloride	100	N.R.	Corn Starch	Slurry	180
Black Liquor (Pulp Mill)	All	150	Crude Oil	100	180
Bleaches:			Cyclohexane	100	100
Calcium Hypochlorite	All	150	D		
Chlorine Dioxide, Wet	Sat'd.	170	Di-ammonium Phosphate	65	180
Sodium Hypochlorite	18	153	Dibutyl Sebacate	All	100
Borax	100	180	Dichloropropane	100	N.R.
Boric Acid	All	180	Diesel Fuel	100	150
			Diethanolamine	100	100

TECHNICAL INFORMATION

Corrosion Resistance Guide

CHEMICAL	% CONCENTRATION	MAX TEMP °F
Dimethyl Formamide	100	N.R.
Dimethyl Phthalate	100	125
Diocetyl Phthalate	100	125
Diphenyl Oxide	100	65
E		
ESTERON Herbicide	100	100
Esters, Fatty Acid	100	150
Ethanol	95	65
Ethanolamine	100	N.R.
Ethyl Acetate	100	N.R.
Ethylene Glycol	All	180
Ethylenediaminetetraacetic Acid		85
F		
Ferric Chloride	All	180
Ferric Sulfate	All	180
Ferrous Chloride	All	180
Ferrous Sulfate	All	180
Fluosilicic Acid	10	150
Formaldehyde	All	125
Formic Acid	10	150
Fuel Oil	100	150
G		
Gasohol (5% MEOH)	100	100
Gasoline, Aviation	100	150
Gasoline, No Lead, No Methanol	100	100
Glyconic Acid	50	150
Glucose	100	180
Glycerine	100	180
Glycolic Acid (Hydroxyacetic)	70	85
H		
Herbicides		100
Hydraulic Fluid	100	150
Hydrazine	100	N.R.
Hydrobromic Acid	48	125
Hydrochloric Acid	20	150
Hydrofluoric Acid	10	125
Hydrogen Peroxide	30	125
Hypophosphorous Acid	50	100
I		
Insecticides		100
Isodecanol		100
Isopropyl Alcohol	All	100
Isopropyl Myristate	100	100
J		
Jet Fuel (JP-4)	100	150
K		
Kerosene	100	150

CHEMICAL	% CONCENTRATION	MAX TEMP °F
L		
Lactic Acid	All	180
Lauryl Alcohol	100	125
Lead Acetate	All	180
Linseed Oil	100	180
Lithium Chloride	Sat'd	180
Lithium Hypochlorite	All	150
M		
Magnesium Carbonate	All	150
Magnesium Chloride	All	180
Magnesium Fluosilicate	All	150
Magnesium Hydroxide	100	180
Magnesium Sulfate	All	180
Maleic Acid	100	180
Manganese Chloride	All	180
Mercurous Chloride	All	180
Methanol	5	100
Methyl Ethyl Ketone	100	N.R.
Milk	100	180
Mineral Oils	100	180
Molasses	100	100
Molybdenum Disulfide (Manufacturing)		170
Morpholine	100	N.R.
Motor Oil		180
Myristic Acid	100	180
N		
Nickel Chloride	All	180
Nickel Sulfate	All	180
Nitric Acid	20	100
Nitrobenzene	100	N.R.
O		
Octanoic Acid (Caprylic Acid)	100	150
Oleic Acid	All	180
Olive Oils	100	180
Oxalic Acid	Sat'd.	100
P		
Palmitic Acid	100	180
Paper Mill Effluent		150
Peanut Oil	100	150
Perchloroethylene	100	65
Perchloric Acid	10	125
Perchloric Acid	30	85
Phosphoric Acid	100	180
Phosphorous Trichloride		N.R.
Pine Oil	100	N.R.
Polyethyleneimine	12	125
Polyvinyl Alcohol	All	85

TECHNICAL INFORMATION

Corrosion Resistance Guide

CHEMICAL	% CONCENTRATION	MAX TEMP °F	CHEMICAL	% CONCENTRATION	MAX TEMP °F
Potassium Bicarbonate	50	150	Sodium Phosphate	10	180
Potassium Carbonate	50	150	Sodium Sulfate	All	180
Potassium Chloride	All	180	Sodium Sulfide	All	180
Potassium Dichromate	All	180	Sodium Sulfite	All	180
Potassium Hydroxide	10	125	Sodium Thiosulfate	All	155
Potassium Iodide	All	100	Sorbital Solutions	All	135
Potassium Nitrate	All	180	Stearic Acid	All	180
Potassium Permanganate	All	180	Styrene	100	N.R.
Potassium Persulfate	All	180	Styrene-Butadiene Latex		110
Potassium Sulfate	All	180	Surfural Acid	70	155
Propionic Acid	50	155	Surfural Acid	75	85
Pyridine	100	N.R.	T		
Q			Tartaric Acid	All	180
R			Tetrachloroethylene (Perchloroethylene)	100	65
S			Thioglycolic Acid		
Salicylic Acid	100	115	(Mercaptoacetic Acid)	All	N.R.
Skydrol	100	100	Thionyl Chloride		N.R.
Sodium Acetate	All	180	Toluene	100	65
Sodium Aluminate	All	100	Trichloroacetic Acid	50	180
Sodium Benzoate	100	155	Trisodium Phosphate	All	180
Sodium Bicarbonate	Sat'd	155	Turpentine	100	125
Sodium Bisulfate	All	180	U		
Sodium Borate	Sat'd	180	Urea	50	125
Sodium Bromide	All	180	V		
Sodium Carbonate	35	155	Vinegar	100	180
Sodium Chlorate	50	180	W		
Sodium Chloride, pH 5-10, Cl ₂	Sat'd	155	X		
Sodium Ferricyanide	All	180	Xylene	100	65
Sodium Fluoride	All	155	Y		
Sodium Hydroxide	10	155	Z		
Sodium Hydroxide	50	180	Zinc Chloride	70	180
Sodium Hypochlorite	18	180	Zinc Sulfate	All	180
Sodium Lauryl Sulfate	All	135			

POLYCAST polymer concrete products are manufactured using polyester resin for normal environments and **Vinyl Ester** resins when higher temperature capabilities or increased corrosion resistance is required. Additional benefits include high strength-to-weight ratio, excellent impact resistance, low water absorption, and nonconductivity.

This bulletin lists various chemical reagents and provides recommended corrosion resistance data for each. The recommendations are based upon tests performed by POLYCAST's Vinyl Ester resin suppliers using coupons of the binding polymer under laboratory conditions. These laboratory tests may not be representative of the conditions in your application. This bulletin is intended to be used as a guide only and specifically for **Vinyl Ester** resin products manufactured by POLYCAST. At the time of publication, the information and recommendations contained herein were considered accurate and reliable.

POLYCAST recommends that a coupon of polymer concrete be exposed to the environment for a minimum period of 60 days to verify suitability. POLYCAST will provide these coupons upon request and can analyze the effects of the exposure if the coupons are returned to our laboratory.

