

Таблица химической стойкости (условные обозначения – см. после таблицы)

ТИП	I	II	III	IV	V	сталь	латунь	нерж. сталь
Acetic Acid Acetone Acetylene	X X X	X X X	X X X	A A X	(7)A (2)	X A	X A	A A
Addinol okoplus HETG 32-68 Addinol okosynth HEES 46 AEROSHHELL Turbine Oil 500	A(4) F(4) F(3)	F(14) F(14) F	X	A	X	A A A	A A A	A A A
Agip Amica S46 Air (1,4) Air (dry) (13)	A(4) A F	F(14) A F	A X	A A	A A	A A A	A A A	A A A
Alcohol (Methanol-Ethanol) Ammonium Chloride Ammonium Hydroxide	F A F	F A F	F A F	F A A	F A A	F X F	A X X	A X A
Ammonium Nitrate Ammonium Phosphate Ammonium Sulfate	A A A	A A A	A A A	F A A	A A A	F X F	X X X	A F F
Amyl Alcohol Anhydrous Ammonia Aniline	X X X	X X X	X X X	F X F	F X A	X X A	A X X	A X A
Animal Fats Aral VitamEHF46 Aromatic 100, 150	F(3) A(4) F(3)	F A(14) F	X X	F	F X	(7)A A	(7)A A	A A A
Asphalt ASTM #3 Oil ATF-M	X F (3)	F F A	X F F	F F A	X X X	X A A	(7)A A	A A A
Automotive Brake Fluid Avia Aviacub synthofluid Avia hydraulik bio	X F(4) A(4)	X A(14) F(14)	X	X		X A A	X A A	X A A
Benzene, Benzol Benzine Borax	X X F(3)	X X F	X X F	F F F	X X A	A A F	A A A	A A A
Boric Acid BP biohyd SE 46 BP energol HLP-HM 68	A (3)A	A F(14) A	A A	X F	A X	X A A	(7)A A	A A A
Brayco 882 Brayco Micronic 776RP Brayco Micronic 889	(3) (3) F(3)	A A F	X F X	A F	X X X	A A A	A A A	A A A
Brine Butane Butyl Alcohol, Butanol	F F(2) F	F F F	F X F	A F	A X F	X A F	F A F	(7)A A
Calcium Chloride Calcium Hydroxide Calcium Hypochlorite	A A X	A A X	A A X	F A A	A A A	F A X	F A (7)	X A X
Calibrating Fluid Carbon Dioxide Carbon Bisulfide	A F(7) X	A F X	A F X	A F F	X (7) X	A A A	A A F	A A A
Carbon Monoxide (hot) Carbon Tetrachloride Carbonic Acid	F X F	F X F	F X F	F F X	(7) X F	F (7) X	(7) (7) X	A (7) F
Castor Oil Castrol 5000 Castrol BioTecAlpin 22	A F(3) (3)	A F A(4)	A X	A A	A X	A A A	A A A	A A A
Cellugard Chevron Clarity AW 32, 46, 68 Chevron FLO-COOL 180	A A F	A A F	A A F	A	A X X	A A A	A A A	A A A
Chevron FR-8, 10, 13, 20 Chevron Hydraulic Oils AW MV 15, 32, 46, 68, 100 Chevron HyJet IV (9)	X A X	X A X	X A X	X A X	A X A	A A A	A A A	A A A
Citric Acid CoolanoMS, 20, 25, 35, 45 Copper Chloride	(3) A (3)	A A A	F A F	X A X	A A A	X A X	(7) A (7)	(7) A X
Copper Sulfate Cosmolubric HF-122, HF-130, HF-144 Cottonseed Oil	A (11) (3)	A (11) A	A X F	X X F	A X X	X A A	X A A	(7) A A
Crude Petroleum Oil DEA econa E46 Deionized Water	(3) A(4) A	A F(14) A	F A	A A	X A	(7) A F	(7) A F	A A A
Dextron IATF Diesel Fuel Diester Fluids	(3) (3) X	A A X	F X X	A A F	X X X	A A A	A A A	A A A
Dow Corning DC 200, 51 0, 550, 560, FC1 26 Dow HD50-4 Dowtherm A,E	A F X	A F X	A F X	F F	X	A A	A A	A A A
Dowtherm G Elf hydref bio 46 Esso hydraulikol HE 46	X A(4) A(4)	X A(14) F(14)	X	X	X	A A A	A A A	A A A
Ethanol Ethers Ethyl Acetate	F X	F X	F X	F F F	F F	F A F	A A A	A A A
Ethyl Alcohol Ethyl Cellulose Ethyl Chloride	F F X	F F X	F F X	F F X	F F A	F X F	A F F	A F F
Ethylene Dichloride Ethylene Glycol Exxon 3110 FR	X (3) A	X A A	X F A	F A A	X A X	X A A	A F A	X A A
Exxon Esstic Exxon Nuto H 46, 68 Exxon Tellura Industrial Process Oils	A A A	A A A	A A A	A A A	A X X	A A A	A A A	A A A
Exxon Terresstic Exxon Turbo Oil 2380	A (3)	A A	A X	A F	A X	A A	A A	A A

# Таблица химической стойкости (условные обозначения – см. после таблицы)

ТИП	I	II	III	IV	V	сталь	латунь	нерж. сталь
Exxon Univolt 60, N61 Finke aviaticon HY-HE46 Formaldehyde	(3)A(4) X	A A(14)X	FX	AA	XA	AA X	AA F	AA A
Formic Acid Fragol Hydraulic TR 46 Fragol Hydraulik HE 46	X A(4) (3)	X F(14) F(14)	X	X	A	XA A	(7)A A	XA A
Freons see refrigerants Fuchs Plantosyn 3268 ECO Fuchs Plantosyn 3268	F(4) (3)	F(14) A(4)				AA	AA	AA
Fuel Oil Fyre-Safe 1 20C.1 26,155,1 090E.11 50,1 220.1300E Fyre-Safe 200C, 225, 211	(3)X (3)	AX A	FX F	AX A	XA A	AA A	AA A	AA A
Fyre-Safe W/O Fyrguard 150, 150-M, 200 Fyrquel 60, 90, 150, 220, 300, 550, 1000	AA X	AA X	AA X	AA X	XA A	AA A	AA A	AA A
Fyrquel EHC, GT, LT, VPF FyrtekMF, 215, 290, 295 Gasoline (2,1,2)	XX X	XX X	XX X	XX X	AX X	AA A	AA A	AA A
Glue. Glycerine, Glycerol Grease	FA A	FA A	FA A	AA	XA X	AA A	FF A	AA A
Gulf-FR Fluid P37, P40, P43, P45, P48 H- 515(NATO) Halon 1211, 1301	XA F	XA F	XA F	FF	AX	AA A	AA A	AA A
Helium Gas Heptane Hexane	X F(3) F(3)	X FF	XX X	XA A	XX X	AA A	AA A	AA A
Houghto-Safe 1055, 1110, 1115, 1120, 1130 (9) Houghto-Safe 271 to 640 Houghto-Safe 41 9R Deicer Fluid	X (3)(3)	XA A	X FA	X F	AA	AA A	AA A	AA A
Houghto-Safe 5046, 5046W, 5047-F HP 100C (Jack hammer oil) Hydrochloric Acid	A (3)X	AA X	AF X	AA X	XX X	AA X	AA (7)	AA X
Hydrofluoric Acid Hydrogen Gas (2,15) Hydrogen Peroxide	XX X	XX X	XX X	XX F	XX X	XA X	(7)A X	XA (7)
Hydrogen Sulfide Hydrolube Hydrolubric120-B, 141,595	XA (3)	XA A	XA F	X FF	AA A	XA A	XA A	(7)A A
Hydrosafe Glycol 200 HyJet IV (9) Isocyanates	AX F(3)	AX F	AX F	AX F	AA X	AA A	FA	AA A
Isooctane Isopar H Isopropyl Alcohol	F(3)X F	FX F	XX F	AX F	XX F	AA F	AA A	AA A
JPSand JP4 Kaeser 150P, 175P, 325R, 687R Kerosene (2, 3, 15)	(3)X (3)	AX A	XX X	FF	XX X	AA A	AA A	AA A
Lacquer Lacquer Solvents Lactic Acids	XX X	XX X	XX X	FF X	XX X	XX X	AA (7)	AA A
Lindol HF Linseed Oil LP-Gas (2)	XA (2)	XA (2)	XA X	FA X	AA X	AA A	AA A	AA A
Magnesium Chloride Magnesium Hydroxide Magnesium Sulfate	A FA	A FA	A FA	AA A	AA A	X FA	(7)F F	X FA
Mercaptans Methane Methanol	X (2,3)F	XA F	X FF	X FF	XX F	A F	AA	AA
Methyl Alcohol Methyl Chloride Methyl Ethyl Ketone (MEK)	FX X	FX X	FX X	FF F	FX X	FA F	AA A	AA A
Methyl Isopropyl-Ketone (15) MIL-B-46176A MIL-H-46170	XX F(3)	XX F	XX X	XX F	XX X	FX A	AX A	AX A
MIL-H-5606 MIL-H-6083 MIL-H-7083	(3)(3) (3)	AA A	FF F	AA A	XX X	AA A	AA A	AA A
MIL-H-83282 MIL-L- 2104, 2104B MIL-L- 23699	(3)(3) F(3)	AA F	FF X	AA A	XX X	AA A	AA A	AA A
MIL-L-7808 Mine Guard FR Mineral Oil	(3,6)A A	AA A	FA A	F	XA X	AA A	AA A	AA A
Mineral Spirits Mobil Aero HFE Mobil DTE 11M, 13M, 15M, 16M, 18M, 19M	(10)(3) (3)	(10)A A	(10)FF	(10)F A	XX X	AA A	AA A	AA A
Mobil DTE 22, 24, 25, 26 Mobil EAL224H Mobil EAL Syndraulik 46	(3)(3) F(4)	AA A(14)	FX	AX	X	AA A	AA A	AA A
MobilGlygoyle11,22, 30, 80 Mobil HFA Mobil Jet 2	A (3)F(3)	AA X	AF X	AA	XX X	AA A	AA A	AA A
Mobil Nyvac 20, 30, 200, FR Mobil Rarus 824, 826, 827 Mobil SHC 600 Series	(3)X (3)	AX A	FX F	FF A	AX X	AA A	AA A	AA A
Mobil SHC 600 Series Mobil SHL 624	(3)(3)	AA	F	AA	XX	AA	AA	AA

Таблица химической стойкости (условные обозначения – см. после таблицы)

ТИП	I	II	III	IV	V	сталь	латунь	нерж. сталь
Mobil Vactra Oil Mobil XRL 161 SB Mobilfluid 423	A X (3)	A X A	A X F	F X A	X A X	A A A	A A A	A A A
Mobilgear SHC 150, 220, 320, 460, 680 Mobilrama525 Molub-Alloy 890	F(3)A X	X A X	F A X	F F F	X X X	A A A	A A A	A A A
Moly Lube „HF“ 902 Monolec 61 20 Hydraulic Oil Morpholine (pure additive)	F(3)A X	F A X	F A X	F A X	X X X	A A X	A A X	A A A
Naptha Napthalene Natural Gas (2)	F(3)X (2)	F X (2)	X X X	A F X	X X X	A A A	A A A	A A A
Nitric Acid Nitrobenzene Nitrogen	X X F(1)	X X F(1)	X X F(1)	X F F(1)	X X F(1)	X X A	X X A	(7)(7) A
Nuto H 46, 68 Nyvac 20, 30, 200, FR Nyvac Light	A (3)X	A A X	A F X	A F	X A A	A A A	A A A	A A A
Oil Synthetic Blends Oxygen (2,15) Ozone	X X F	X X F	X X F	X X	X X A	A X A	A A A	A A A
Panolin HLP synth 46 Perchloroethylene Petroleum Ether	(3)X F(3)	A(4)X F	X X	X F	X X	A F A	A X A	A A A
Petroleum Oils Phenol (Carbolic Acid) Phosphate Ester Blends	A X X	A X X	A X X	A A X	X X X	A X A	A F A	A A A
Phosphate Esters (9) Phosphoric Acid Polyalkylene Glycol	X X F	X X F	X X A	X X	A X X	A X A	A X A	A (7)A
Polyol Ester Potassium Chloride Potassium Hydroxide	(11)A X	F A X	X A X	X A F	X A A	A X (7)	A F X	A (7)A
Potassium Sulfate Propane Propylene Glycol	A (2)(3)	A (2)A	A X F	A X A	A X A	A A F	A A F	A A F
Pydraul60, 150, 625, F9 (9) Pydraul 90, 135, 230, 312, 540, MC (9) PydraulA-200	X X X	X X X	X X X	X X F	A F X	A A A	A A A	A A A
Pyro Gard 43, 230, 630 (9) Pyro Gard C, D, R, 40S, 40W Pyro Guard 53, 55, 51, 42 (9)	X (3)X	X A X	X F X	F F X	X A A	A A A	A A A	A A A
Quintolubric700 Quintolubric 822, 833 Quintolubric 957, 958	A (11)(3)	A (11)A	A X F	A X F	A X A	A A A	F A A	A A A
Refrigerant Freon 113, 114 (5) Refrigerant Freon 12 (5) Refrigerant Freon 22 (5)	X X X	X X X	X X X	X X X	X X X	A A A	A A A	A A A
Refrigerant Freon 502 (5) Refrigerant HFC134A(5) RTV Silicone Adhesive Sealants (15)	X X X	X X X	X X X	X X X	X X X	A A A	A A A	A A A
Safco-SafeT10, T20 Safety-Kleen ISO 32, 46, 68 hydraulic oil Safety-Kleen Solvent	A (3)(10)	A (10)	F (10)	(10)	A X X	F A A	F A A	A A A
Santoflex13 Santosafe 300 SantosafeW/G15to30	F X A	F X	F X	A	F X A	A A A	A A A	A A A
Sea Water Sewage Shell 140 Solvent	F F(3) (10)	F F (10)	F F (10)	F A (10)	A F X	X (7)A	F (7) A	(7)(7) A
Shell Clavus HFC 68 Shell Comptella Oil Shell Comptella Oil 346,68	X F(3) F(3)	X F F	X F F	X A A	X X X	A A A	A A A	A A A
Shell Comptella Oil SM ShellDialaA, (R) Oil AX Shell FRM	F(3)(3) A	F A	F F	A F	X X X	A A A	A A A	A A A
Shell IRUS 902, 905 Shell naturelle HFE 46 Shell Pella-A	A F(4)A	A A(14)A	A A	A	A X	A A A	A A A	A A A
Shell Tellus ShellThermiaOilC Shell Turbo R	(3)A F(3)	A A F	F A X	A A A	X X X	A A A	A A A	A A A
SHF220, 300, 450 Silicate Esters Silicone Oils	(11)A A	(11)F A	X A A	X A	X X	A A A	A A A	A A A
Skydrol 500B-4, LD-4 Soap Solutions Soda Ash, Sodium Carbonate	X F(3)A	X F A	X X A	X F A	A(8)A A	A A A	A A F	A A A
Sodium Bisulfate Sodium Chloride Sodium Hydroxide	F F X	F F X	F F X	A A A	A A A	F X A	A F X	F A A
Sodium Hypochlorite Sodium Nitrate Sodium Peroxide	F F X	F F X	F F X	X A X	F A A	X A X	X (7)X	X A A
Sodium Silicate Sodium Sulfate Soybean Oil	A A (3)	A A A	A A F	A A A	A A A	A A A	A A A	A A A
Steam Stoddard Solvent	X (10)	X (10)	X (10)	X (10)	X X	F A	A A	A A

# Таблица химической стойкости (условные обозначения – см. после таблицы)

ТИП	I	II	III	IV	V	сталь	латунь	нерж. сталь
Sulfur Chloride Sulfur Dioxide Sulfur Trioxide	XX X	XX X	XX X	FX F	X FF	(7)X X	X (7)X	(7)F X
Sulfuric Acid Tannic Acid Tar	F(7)(3) X	FA F	FF F	X FF	F(7)A X	(7)X X	X (7)(7)	(7)X A
Tebiol Esterhyd HE 46 Tellus (Shell) Texaco 760 Hydrafluid	F(4)(3) A	F(14)A	F	A	XX	AA A	AA A	AA A
Texaco 766, 763 (200 - 300) Texaco A-Z Oil Texaco Wway Lubricant 68	AA A	AA	AA	FA	AX X	FA A	FA A	AA A
Toluene, Toluol Transmission Oil Tribol 1440	XA F(3)	XA F	XA X	FA X	XX X	AA A	AA A	AA A
Trichloroethylene Trim-Sol Turpentine	X (3)X	XA X	X FX	FF F	XX X	XA A	AA A	AA A
Ucon Hydrolubes Univis J26 Unleaded Gasoline (2, 1 2)	(3)A X	AA X	FX	FA X	AX X	AA A	AA A	AA A
Urea Urethane Formulations Varnish	FA X	FA X	FA X	AA F	FX	FA F	A F	FA A
Varsol Versilube F44, F55 Vinegar	F(3)A X	FA X	(10)X	(10)AF	XA	AA (7)	AA X	AA A
Volt Esso 35 Water Water /Glycols	AA (3)	AA A	A FA	AA A	XA A	A FA	AA A	AA A
Xylene, Xylol (15) ZeroMSO Zinc Chloride Zinc Sulfate	XA AA	XA AA	XA AA	XA X X)	XX AA	AA XX	AA XA	AA FA

## Характеристика сопротивления:

A = Предпочтительно      F = Подходит      X = не желательно      – = не рекомендуется

- (2) необходимо учитывать требования нормативных актов и страховых компаний  
 (3) рекомендуется использовать шланги из колонки 2  
 (4) Максимально 70 °C (158 °F)  
 (5) шланг 235 и 285 рекомендуются для охлаждающих жидкостей  
 (6) Максимально 85 °C (185 °F)  
 (7) Удовлетворительный при одних температурах и концентрациях, неудовлетворительный при других  
 (8) Может произойти некоторое изменение цвета жидкости, свойства жидкости при этом не изменятся  
 (9) Для сложных фосфатных эфиров см. Колонку V, 235 шланг  
 (10) Подходит для использования в промывании струей жидкости  
 (11) Используйте 381, 481, 772, или 831  
 (12) Рекомендуется 221FR  
 (13) шланги для сухого воздуха см. Колонку 2, 4, 5 и шланг 235  
 (14) Максимально 100 °C (212 °F)  
 (15) рекомендуется использовать шланги 235 и 285

- Колонка I**  
 201, 225, 301SN, 371, 371LT, 401, 421, 421SN, 421WC, 431, 441,  
 451, 451TC, 461, 461LT, 461ST, 463, 471ST, 491, 493, 601, 681,  
 681DB, 691, 691twin, 701, 731, 781, 801, 811, 821, 837, 837BM,  
 881  
**Колонка II**  
 221FR, 381, 421HT, 436, 462, 481, 492, 772, 772ST, 782, 792,  
 831  
**Колонка III**  
 77C, 78C  
**Колонка IV**  
 206, 213, 266, 293, 836, 821FR  
**Колонка V**  
 304, 774, 804