Iopromide *(BAN, USAN, rINN)*

Iopromida; Iopromidum; Jopromid; Jopromidi; ZK-35760. *N,N′*-Bis(2,3-dihydroxypropyl)-2,4,6-tri-iodo-5-(2-methoxyacetamido)-*N*-methylisophthalamide.

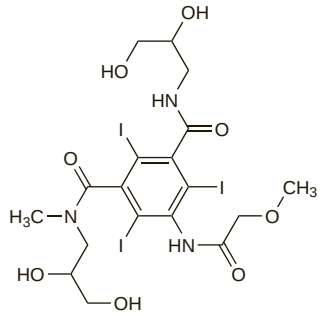
Йопромид

$C_{18}H_{24}I_3N_3O_8$ = 791.1.

CAS — 73334-07-3.

ATC — V08AB05.

ATC Vet — QV08AB05.



Description. Iopromide contains about 48.1% of I.

Pharmacopoeias. In *US*.

USP 31 (Iopromide). A white to slightly yellow powder. Freely soluble in water and in dimethyl sulfoxide; practically insoluble in alcohol, in acetone, and in ether. Protect from light.

Adverse Effects, Treatment, and Precautions

See under the amidotrizoates, p.1475.

Pharmacokinetics

On intravascular use, iopromide is rapidly distributed in the extracellular fluid. It is not metabolised and is eliminated unchanged in the urine; about 2% of a dose is excreted in faeces. An elimination half-life of about 2 hours has been reported; about 60% of a dose is excreted in urine within 3 hours and about 92% within 24 hours. Iopromide is not significantly bound to plasma proteins.

Uses and Administration

Iopromide is a nonionic monomeric iodinated radiographic contrast medium (see p.1474). It may be given intravenously, intra-arterially, or by instillation into body cavities, and is used in procedures including angiography, arthrography, hysterosalpingography, urography, and assessment of dialysis shunt patency. It is also used for contrast enhancement during computed tomography.

Iopromide is usually available as solutions containing 31.2 to 76.9% of iopromide (equivalent to 150 to 370 mg/mL of iodine) and the dose and strength used vary according to the procedure and route.

Preparations

USP 31: Iopromide Injection.

Proprietary Preparations (details are given in Part 3)

Arg.: Clarograf; ***Austral.:*** Ultravist; ***Austria:*** Ultravist; ***Belg.:*** Ultravist; ***Canad.:*** Ultravist†; ***Cz.:*** Ultravist; ***Denm.:*** Ultravist; ***Fin.:*** Ultravist; ***Fr.:*** Ultravist; ***Ger.:*** Ultravist; ***Gr.:*** Ultravist; ***Hung.:*** Ultravist; ***Israel:*** Ultravist; ***Ital.:*** Ultravist; ***Jpn:*** Proscope; ***Neth.:*** Ultravist; ***Norw.:*** Ultravist; ***NZ:*** Ultravist; ***Port.:*** Ultravist; ***Rus.:*** Ultravist (Ультравист); ***S.Afr.:*** Ultravist; ***Spain:*** Clarograf; Ultravist; ***Swed.:*** Ultravist; ***Switz.:*** Ultravist; ***UK:*** Ultravist; ***USA:*** Ultravist.

Iopydol *(BAN, USAN, pINN)*

Iopidol; Iopydolum; Jopydol; Jopydoli. 1-(2,3-Dihydroxypropyl)-3,5-di-iodo-4-pyridone.

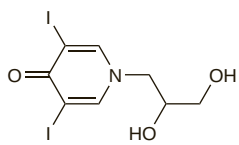
Йопидол

$C_8H_9I_2NO_3$ = 421.0.

CAS — 5579-92-0.

ATC — V08AD02.

ATC Vet — QV08AD02.



Description. Iopydol contains about 60.3% of I.

Profile

Iopydol is an iodinated radiographic contrast medium (p.1474) that has been used with iopydone for bronchography.

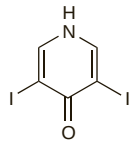
Iopydone *(BAN, USAN, rINN)*

Iopidona; Iopydonum. 3,5-Di-iodo-4-pyridone.

Йопидон

$C_5H_3I_2NO$ = 346.9.

CAS — 5579-93-1.



Description. Iopydone contains about 73.2% of I.

Profile

Iopydone is an iodinated radiographic contrast medium (p.1474) that has been used with iopydol for bronchography.

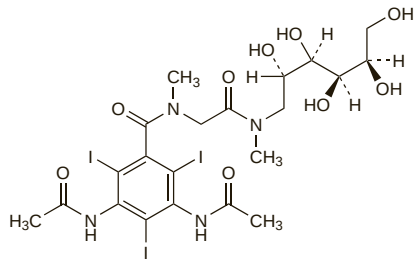
Iosarcol *(pINN)*

Iosarcolum. 3,5-Diacetamido-2,4,6-triiodo-*N*-methyl-*N*-{[methyl(D-*gluco*-2,3,4,5,6-pentahydroxyhexyl)carbamoyl]methyl}-benzamide.

Йозаркол

$C_{21}H_{29}I_3N_4O_9$ = 862.2.

CAS — 97702-82-4.



Description. Iosarcol contains about 44.2% of I.

Profile

Iosarcol is an iodinated nonionic monomeric contrast medium used for a wide range of radiographic imaging procedures.

Preparations

Proprietary Preparations (details are given in Part 3)

Austria: Melitrast; ***Ger.:*** Melitrast.

Iotalamic Acid *(BAN, rINN)*

Acide iotalamique; Ácido iotalámico; Acidum iotalamicum; Iothalamic Acid *(USAN)*; Jotalaamihappo; Jotalaminsav; Jotalamo rūgštis; Jotalamsyra; Kyselina jotalamová; Methalamic Acid; MI-216. 5-Acetamido-2,4,6-tri-iodo-*N*-methylisophthalamic acid.

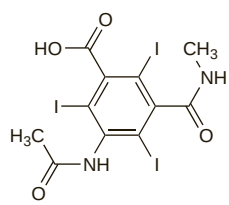
Йоталамовая Кислота

$C_{11}H_9I_3N_2O_4$ = 613.9.

CAS — 2276-90-6.

ATC — V08AA04.

ATC Vet — QV08AA04.



Description. Iotalamic acid contains about 62% of I.

Pharmacopoeias. In *Chin.*, *Eur.* (see p.vii), *Jpn*, and *US*.

Ph. Eur. 6.2 (Iotalamic Acid). A white or almost white powder. Slightly soluble in water and in alcohol; dissolves in dilute solutions of alkali hydroxides. Protect from light.

USP 31 (Iothalamic Acid). A white, odourless, powder. Slightly soluble in water and in alcohol; soluble in solutions of alkali hydroxides. Store at a temperature of 25°, excursions permitted between 15° and 30°.

Meglumine Iotalamate *(BANM, rINNM)*

Iotalamate de Méglumine; Iotalamato de meglumina; Iothalamate Meglumine; Meglumine Iothalamate; Meglumini Iotalamas. The *N*-methylglucamine salt of iotalamic acid.

Меглумина Йоталамат

$C_{11}H_9I_3N_2O_4$,$C_7H_{17}NO_5$ = 809.1.

CAS — 13087-53-1.

ATC — V08AA04.

ATC Vet — QV08AA04.

Description. Meglumine iotalamate contains about 47.1% of I.

Pharmacopoeias. *US* includes only as various injections.

Sodium Iotalamate *(BANM, rINNM)*

Iotalamate de Sodium; Iotalamato de sodico; Iotalamato de sodio; Iothalamate Sodium; Natrii Iotalamas; Sodium Iothalamate.

Натрий Йоталамат

$C_{11}H_8I_3N_2NaO_4$ = 635.9.

CAS — 17692-74-9; 1225-20-3.

ATC — V08AA04.

ATC Vet — QV08AA04.

Description. Sodium iotalamate contains about 59.9% of I.

Pharmacopoeias. *US* includes only as various injections.

Adverse Effects, Treatment, and Precautions

As for the amidotrizoates, p.1475.

Incidence of adverse effects. In 40 patients who underwent phlebography with 60% meglumine iotalamate minor adverse reactions were common despite the use of saline flushing and muscle contraction to clear the veins after examination.[1] The commonest effect was pain at the site of injection, or in the calf and foot; 15 patients of those who had pain in the calf or foot were found to have venous thrombosis. Major complications of phlebography appear to be rare but can cause serious morbidity; examination of 200 case notes and a retrospective study involving 3060 patients revealed 4 cases of necrosis in the skin of the foot and gangrene of the foot in 2.

1. Thomas ML, MacDonald LM. Complications of ascending phlebography of the leg. *BMJ* 1978; **ii:** 317–18.

Pharmacokinetics

On intravascular use the iotalamates are rapidly distributed; suitable concentrations for urography reach the urinary tract within 3 to 8 minutes of a bolus intravenous injection. Protein binding is reported to be low. The iotalamates are eliminated by the kidneys. In patients with normal renal function more than 90% of the dose injected is excreted in urine within 24 hours; an elimination half-life of about 90 minutes has been reported. Small amounts are reported to be excreted via the bile in the faeces. The iotalamates are removed by peritoneal dialysis and haemodialysis.

Uses and Administration

Iotalamic acid is an ionic monomeric iodinated radiographic contrast medium (p.1474) with actions similar to the amidotrizoates (p.1477). It may be given intravenously, intra-arterially, or by instillation into the bladder or uterus, and is used in procedures including angiography, arthrography, cholangiography, urography and hysterosalpingography. It is also used for contrast enhancement in computed tomography. Iotalamates have also been given orally or rectally for imaging of the gastrointestinal tract.

Iotalamic acid is usually available as solutions containing up to 66.8% of sodium iotalamate or up to 60% of meglumine iotalamate. The dose and strength used vary according to the procedure and route. A mixture of the two salts has been given to minimise adverse effects.

Preparations

USP 31: Iothalamate Meglumine and Iothalamate Sodium Injection; Iothalamate Meglumine Injection; Iothalamate Sodium Injection.

Proprietary Preparations (details are given in Part 3)

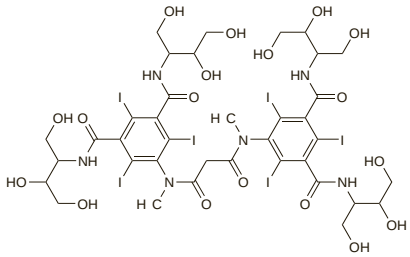
Arg.: Conray; Cysto-Conray; ***Austral.:*** Conray 280; ***Canad.:*** Conray; Cysto-Conray; ***Ger.:*** Conray 30†; Conray 60†; ***Ital.:*** Conray†; ***UK:*** Conray; ***USA:*** Conray; Cysto-Conray.

Iotrolan *(BAN, USAN, rINN)*

Iotrol; Iotrolán; Iotrolane; Iotrolanum; Iotrolum; Jotrolaani; Jotrolan; ZK-39482. *N,N′,N″,N‴*-Tetrakis(2,3-dihydroxy-1-hydroxymethylpropyl)-2,2′,4,4′,6,6′-hexaiodo-5,5′-(*N,N′*-dimethylmalonyldi-imino)di-isophthalamide.

Йотролан

$C_{37}H_{48}I_6N_6O_{18}$ = 1626.2.
CAS — 79770-24-4.
ATC — V08AB06.
ATC Vet — QV08AB06.



Description. Iotrolan contains about 46.8% of I.

Pharmacopoeias. In *Eur.* (see p.vii).
Ph. Eur. 6.2 (Iotrolan). A white or yellowish-white, hygroscopic powder. Very soluble in water; practically insoluble in alcohol; freely soluble in dimethyl sulfoxide. Store in airtight containers. Protect from light.

Adverse Effects, Treatment, and Precautions

As for the amidotrizoates, p.1475. For the adverse effects relating to the use of nonionic contrast media such as iotrolan for myelography, see under Iohexol, p.1483.

Pharmacokinetics

Iotrolan is excreted unchanged in the urine. After intrathecal injection, about 80% is excreted in the urine within 24 hours.

Uses and Administration

Iotrolan is a nonionic dimeric iodinated radiographic contrast medium (p.1474). It is given intrathecally for myelography and for contrast enhancement in computed tomography, and by instillation into body ducts or cavities for procedures including lymphography, arthrography, hysterosalpingography, cholangiopancreatography, and for visualisation of the mammary ducts. It may also be given orally for imaging of the gastrointestinal tract.

Iotrolan is usually available as solutions containing 51.3% or 64.1% of iotrolan (equivalent to 240 or 300 mg/mL of iodine, respectively) and the dose and strength used vary according to the procedure and route.

Preparations

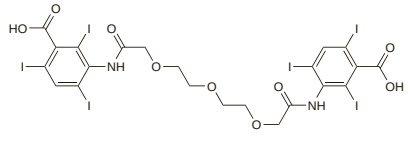
Proprietary Preparations (details are given in Part 3)
Austral.: Isovist†; ***Austria:*** Isovist; ***Canad.:*** Osmovist†; ***Cz.:*** Isovist†; ***Denm.:*** Isovist; ***Fin.:*** Isovist†; ***Ger.:*** Isovist; ***Hung.:*** Isovist; ***Neth.:*** Isovist; ***NZ:*** Isovist; ***S.Afr.:*** Isovist; ***Switz.:*** Isovist; ***UK:*** Isovist.

Iotroxic Acid *(BAN, USAN, rINN)*

Acide Iotroxique; Ácido iotróxico; Acidum Iotroxicum; Jotroksihappo; Jotroxsyra; SH-213AB. 3,3′-(3,6,9-Trioxaundecanedioyldi-imino)bis(2,4,6-tri-iodobenzoic acid).

Йотроксовая Кислота

$C_{22}H_{18}I_6N_2O_9$ = 1215.8.
CAS — 51022-74-3.
ATC — V08AC02.
ATC Vet — QV08AC02.



Description. Iotroxic acid contains about 62.6% of I.

Pharmacopoeias. In *Int.* and *Jpn.*

Meglumine Iotroxate *(BANM, rINNM)*

Dimeglumine Iotroxate; Iotroxate de Méglumine; Iotroxate Meglumine; Iotroxato de meglumina; Meglumine Iotroxinate; Meglumini Iotroxas. The di(*N*-methylglucamine)salt of iotroxic acid.

Меглумина Йотроксат

$C_{22}H_{18}I_6N_2O_9.2C_7H_{17}NO_5$ = 1606.2.
CAS — 68890-05-1.
ATC — V08AC02.
ATC Vet — QV08AC02.

Description. Meglumine iotroxate contains about 47.4% of I.

Adverse Effects, Treatment, and Precautions

See under the amidotrizoates, p.1475.

Pharmacokinetics

After intravenous injection, iotroxic acid binds to plasma proteins and is taken up by the liver; plasma-protein binding is about 60 to 90%. It is excreted primarily unchanged in the bile; a small amount is metabolised and excreted in the urine.

Uses and Administration

Iotroxic acid is an ionic dimeric iodinated radiographic contrast medium (see p.1474); it is taken up by the liver and excreted in bile, and is used in cholecystography and cholangiography.

Iotroxic acid is given intravenously as a solution containing 10.5% of the meglumine salt. The usual dose is 10.5 g of meglumine iotroxate (equivalent to about 5 g of iodine), given by infusion over at least 15 minutes. Alternatively, a solution containing 22.8% of meglumine iotroxate may be used.

Preparations

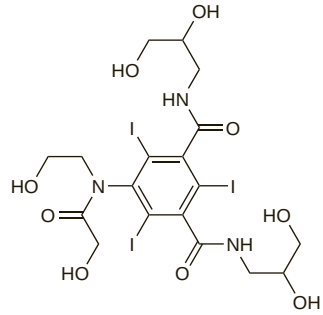
Proprietary Preparations (details are given in Part 3)
Austral.: Biliscopin; ***Austria:*** Biliscopin; ***Ger.:*** Biliscopin; ***Gr.:*** Biliscopin; ***NZ:*** Biliscopin; ***Spain:*** Bilisegrol†; ***Swed.:*** Biliscopin†; ***Switz.:*** Biliscopin; ***UK:*** Biliscopin.

Ioversol *(BAN, USAN, rINN)*

Ioversolum; Joversol; Joversoli; MP-328. *N,N′*-Bis(2,3-dihydroxypropyl)-5-[*N*-(2-hydroxyethyl)glycolamido]-2,4,6-tri-iodoisophthalamide.

Йоверсол

$C_{18}H_{24}I_3N_3O_9$ = 807.1.
CAS — 87771-40-2.
ATC — V08AB07.
ATC Vet — QV08AB07.



Description. Ioversol contains about 47.2% of I.

Pharmacopoeias. In *US.*
USP 31 (Ioversol). Store at a temperature of 25°, excursions permitted between 15° and 30°.

Adverse Effects, Treatment, and Precautions

See under the amidotrizoates, p.1475.

Pharmacokinetics

When given intravascularly, ioversol is rapidly eliminated unchanged in the urine, with a half-life of about 1.5 hours; more than 95% of a dose is eliminated within 24 hours. Binding to plasma or serum proteins is very low.

Uses and Administration

Ioversol is a nonionic monomeric iodinated radiographic contrast medium (p.1474) that is given intra-arterially or intravenously for angiography and urography. It is also used for contrast enhancement during computed tomography. It is usually available as a solution containing 34 to 74% of ioversol (equivalent to 160 to 350 mg/mL of iodine). The dose and strength used vary according to the procedure and route.

◊ References.

1. Floriani I, *et al.* Clinical profile of ioversol: a metaanalysis of 57 randomized, double-blind clinical trials. *Invest Radiol* 1996; **31:** 479–91.

Preparations

USP 31: Ioversol Injection.

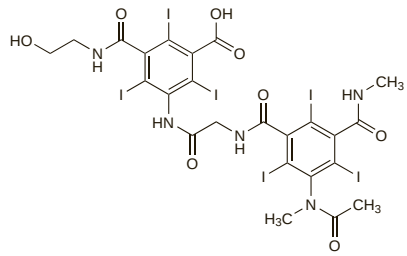
Proprietary Preparations (details are given in Part 3)
Arg.: Optiray; ***Austral.:*** Optiray; ***Austria:*** Optiray; ***Belg.:*** Optiject; Optiray; ***Canad.:*** Optiray; ***Cz.:*** Optiray; ***Denm.:*** Optiray; ***Fin.:*** Optiray; ***Fr.:*** Optiject; Optiray; ***Ger.:*** Optiray†; ***Gr.:*** Optiray; ***Hung.:*** Optiray; ***Israel:*** Optiray; ***Ital.:*** Optiray; ***Neth.:*** Optiray; ***Norw.:*** Optiray; ***Port.:*** Optiray; ***Spain:*** Optiray; ***Swed.:*** Optiray; ***Switz.:*** Optiray; ***UK:*** Optiray; ***USA:*** Optiray.

Ioxaglic Acid *(BAN, USAN, rINN)*

Acide ioxaglique; Ácido ioxáglico; Acidum ioxaglicum; Joksagliinihappo; Joksagliko rūgštis; Joxaglinsav; Joxaglinsyra; Kyselina joxaglová; P-286. *N*-(2-Hydroxyethyl)-2,4,6-tri-iodo-5-[2′,4′,6′-tri-iodo-3′-(*N*-methylacetamido)-5′-methylcarbamoylhippuramido]-isophthalamic acid.

Йоксагловая Кислота

$C_{24}H_{21}I_6N_5O_8$ = 1268.9.
CAS — 59017-64-0.
ATC — V08AB03.
ATC Vet — QV08AB03.



Description. Ioxaglic acid contains about 60% of I.

Pharmacopoeias. In *Eur.* (see p.vii) and *US.*
Ph. Eur. 6.2 (Ioxaglic Acid). A white or almost white hygroscopic powder. Very slightly soluble in water and in dichloromethane; slightly soluble in alcohol. It dissolves in dilute solutions of alkali hydroxides. Store in airtight containers. Protect from light.
USP 31 (Ioxaglic Acid). Store at a temperature of 25°, excursions permitted between 15° and 30°.

Meglumine Ioxaglate *(BANM, rINNM)*

Ioxaglate de Méglumine; Ioxaglate Meglumine *(USAN)*; Ioxaglato de meglumina; Meglumini Ioxaglas; MP-302 (meglumine ioxaglate with sodium ioxaglate). The *N*-methylglucamine salt of ioxaglic acid.

Меглумина Йоксаглат

$C_{24}H_{21}I_6N_5O_8.C_7H_{17}NO_5$ = 1464.1.
CAS — 59018-13-2.
ATC — V08AB03.
ATC Vet — QV08AB03.

Description. Meglumine ioxaglate contains about 52% of I.

Sodium Ioxaglate *(BANM, rINNM)*

Ioxaglate de Sodium; Ioxaglate Sodium *(USAN)*; Ioxaglato sódico; MP-302 (sodium ioxaglate with meglumine ioxaglate); Natrii Ioxaglas; Natriumjoksaglaatti; Natriumjoxaglat.

Натрий Йоксаглат

$C_{24}H_{20}I_6N_5NaO_8$ = 1290.9.
CAS — 67992-58-9.
ATC — V08AB03.
ATC Vet — QV08AB03.

Description. Sodium ioxaglate contains about 59% of I.

Adverse Effects, Treatment, and Precautions

See under the amidotrizoates, p.1475.

Pharmacokinetics

On intravascular use, ioxaglates are rapidly distributed throughout the extracellular fluid. Protein binding is reported to be very low. They are mainly excreted unchanged in the urine, although biliary excretion may predominate in renal impairment. With normal renal function, about 90% of a dose is excreted in the urine within 24 hours; an elimination half-life of about 90 minutes has been reported. Ioxaglates cross the placenta and are distributed into breast milk. They are removed by haemodialysis and peritoneal dialysis.

Uses and Administration

Ioxaglic acid is an ionic dimeric iodinated radiographic contrast medium (p.1474). It is given intravenously, intra-arterially, intra-articularly, or by instillation into body ducts and cavities and is used in diagnostic procedures including angiography, arthrography, hysterosalpingography, and urography. It is also used for contrast enhancement during computed tomography.

Ioxaglic acid is usually available as solutions containing a mixture of the sodium and meglumine salts. Commonly used solutions contain 39.3% of meglumine ioxaglate and 19.6% of sodium ioxaglate (equivalent to 320 mg/mL of iodine) or 24.6% of meglumine ioxaglate and 12.3% of sodium ioxaglate (equivalent to 200 mg/mL of iodine). The dose and strength used depend upon the procedure and route.

Preparations

USP 31: Ioxaglate Meglumine and Ioxaglate Sodium Injection.

Proprietary Preparations (details are given in Part 3)
Arg.: Hexabrix; ***Austral.:*** Hexabrix; ***Austria:*** Hexabrix; ***Belg.:*** Hexabrix; ***Braz.:*** Hexabrix†; ***Canad.:*** Hexabrix; ***Chile:*** Hexabrix; ***Cz.:*** Hexabrix; ***Denm.:*** Hexabrix; ***Fin.:*** Hexabrix; ***Fr.:*** Hexabrix; ***Ger.:*** Hexabrix; ***Gr.:*** Hexabrix; ***Hung.:*** Hexabrix; ***Israel:*** Hexabrix; ***Ital.:*** Hexabrix; ***Neth.:***