



KONISHI CHEMICAL IND.CO.,LTD.

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Products

**KONISHI
CHEMICAL IND.CO.,LTD.**

List



86-93



No.0128-ISO9002
No.E449-ISO14001



R002

**All our products are produced in conformance with quality system standard ISO 9000.
Our goal is to ensure customer satisfaction and reliability through quality management.**

私達の全ての製品はISO9000により認証された品質システムで生産されています。
私達の目標は、品質管理を通じてお客様の満足と信頼を高めることです。

**We have been certified ISO 14001(Environmental Management System).
We are endeavoring to promote environmental protection by
reducing environmental burdens and economizing the use of resources and energy.**

私たちはISO14001（環境マネジメントシステム）の認証を受け、
環境負荷の低減、省資源、省エネルギーなど、
環境保全活動のスパイラルアップに努めております。

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Laboratory Products

Bisphenol S Derivatives

L-1	24BS	2,4'-Dihydroxy diphenyl sulfone	20
L-2	THS	2,2',5,5'-Tetrahydroxy diphenyl sulfone	20
L-3	BS-MIPE	4-Isopropoxyphenyl-4'-hydroxyphenyl sulfone	20
L-4	BS-MBE	4-Benzyloxyphenyl-4'-hydroxyphenyl sulfone	21
L-5	BS-MME	4-Methoxyphenyl-4'-hydroxyphenyl sulfone	21
L-6	BS-MHE	4-n-Hexyloxyphenyl-4'-hydroxyphenyl sulfone	21
L-7	BS-MOE	4-n-Octyloxyphenyl-4'-hydroxyphenyl sulfone	22
L-8	BS-EO	4,4'-Bis(2-hydroxy ethoxy) diphenyl sulfone	22
L-9	BS-DOE	4,4'-Di-n-octyloxy diphenyl sulfone	22
L-10	BS-DBE	4,4'-Dibenzyloxy diphenyl sulfone	23
L-11	3BAPS	Bis[4-(3-aminophenoxy)phenyl] sulfone	23
L-12	4BAPS	Bis[4-(4-aminophenoxy)phenyl] sulfone	23
L-13	BS-DM	3,3'-Dimethyl-4,4'-dihydroxy diphenyl sulfone	24
L-14	BS-TM	3,3',5,5'-Tetramethyl-4,4'-dihydroxy diphenyl sulfone	24
L-15	BS-2TM	4,4',5,5'-Tetramethyl-2,2'-dihydroxy diphenyl sulfone	24
L-16	BS-4TM	2,2',5,5'-Tetramethyl-4,4'-dihydroxy diphenyl sulfone	25
L-17	BS-DC	3,3'-Dichloro-4,4'-dihydroxy diphenyl sulfone	25
L-18	BS-DN	3,3'-Dinitro-4,4'-dihydroxy diphenyl sulfone	25
L-19	BS-DA	3,3'-Diamino-4,4'-dihydroxy diphenyl sulfone	26
L-20	BS-PR	Bisphenol-S/Phenol resin	26
L-21	BS-PSR	Bisphenol-S/Phenolsulfonic acid resin	26

Diphenyl Sulfone group

L-22	DCS	4,4'-Dichloro diphenyl sulfone	26
L-23	TCS	3,3',4,4'-Tetrachloro diphenyl sulfone	27
L-24	DNS	3,3'-Dinitro diphenyl sulfone	27
L-25	DNDCS	3,3'-Dinitro-4,4'-dichloro diphenyl sulfone	27
L-26	4DAS	4,4'-Diamino diphenyl sulfone	27
L-27	TAS	3,3',4,4'-Tetraamino diphenyl sulfone	28
L-28	DSSK	Diphenyl sulfone-3-sulfonic acid potassium salt	28
L-29	PYS	4,4'-Dipyridyl sulfone	28
L-30	BPDS	Biphenyl-4,4'-disulfonic acid disodium salt	29
L-31	DETS	Diphenylether-2,2',4,4'-tetrasulfonic acid tetrasodium salt	29

Others (Sulfonic acid, Sulfonylchloride, Sulfonamide)

L-32	MBA	Nitrobenzene-3-sulfonic acid	29
L-33	MBAM	Nitrobenzene-3-sulfonic acid ammonium salt	29
L-34	OAPS	2-Methoxyaniline-5-sulfonic acid	30
L-35	PCAS	4-Chloroaniline-2-sulfonic acid	30
L-36	PFAS	4-Fluoroaniline-2-sulfonic acid	30
L-37	PCS	Chlorobenzene-4-sulfonic acid sodium salt	30
L-38	PCSC	Chlorobenzene-4-sulfonylchloride	31
L-39	PCSA	Chlorobenzene-4-sulfonamide	31
L-40	CMS	Catechol-4-sulfonic acid sodium salt	31
L-41	CDS	Catechol-3,5-disulfonic acid disodium salt	31
L-42	SOP	4-Sulfophthalic acid	32
L-43	SOPS	4-Sulfophthalic acid sodium salt	32
L-44	TMBS	1,3,5-Trimethylbenzene-2-sulfonic acid	32
L-45	PSA-Na	Phenolsulfonic acid sodium salt dihydrate	32
L-46	SIPA-Li	5-Sulfoisophthalic acid monolithium salt	33
L-47	m-DEB	m-Diethylbenzene	33
L-48	CIM	2-(2-Chlorophenyl)-4,5-diphenylimidazole	33
L-49	CIM-S	2-(2-Chlorophenyl)-4,5-diphenylimidazole sulfonic acid	33

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Abbreviation

BS

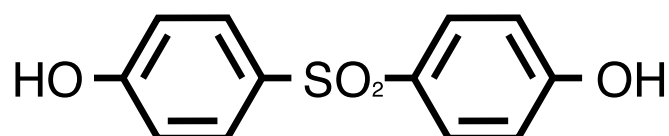
Name

Bisphenol S

(4,4'-Dihydroxy diphenyl sulfone)

(4,4'-Sulfonyldiphenol)

Formula



M.W. 250.3

$C_{12}H_{10}O_4S$

ENCS

Registry NO. 3-2169

CAS

Registry NO. 80-09-1

Packing

20 kg as actual in paper bag with inner poly(1.4cft)

1,000 kg as actual in flexible container.

Uses

Intermediates for

polymer

developer for heat sensitive paper

fire retardant

coupler for color photography

nylon fixing agent

synthetic tanning agent

Brightening agent for electroplating

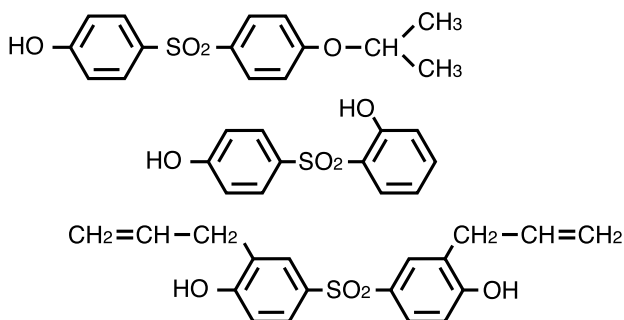
Specifications

Type	BS-PN	BS-FD	BS-3	BS-CR
Appearance	White powder	White powder	Pink powder	Red-brown Powder
Moisture	0.1% max.	0.2% max.	1.0% max.	1.0 % max.
Melting point	249℃ min.	247℃ min.	240℃ min.	220℃ min.
Purity	99.8% min.※	99.5% min.※	95% min.†	92% min.†
2,4'-isomer content	0.1% max.	0.5% max.	—	—
Acid content	—	—	—	3.0 % max.

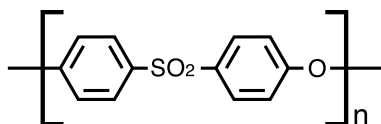
※:HPLC area%, †:hydroxy value.

Bisphenol S Derivatives

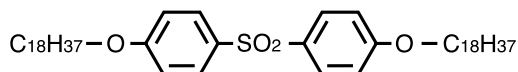
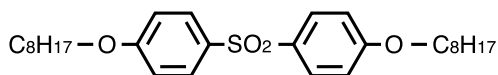
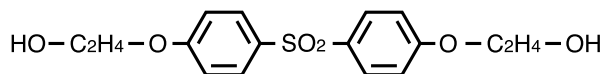
●Developer for Heat Sensitive Paper



●Polyethersulfone Resin



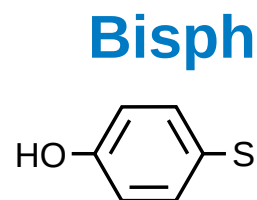
●Modifying agent for Polymer



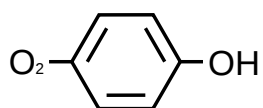
●Nylon Fixing Agent

●Synthetic Tanning Agent

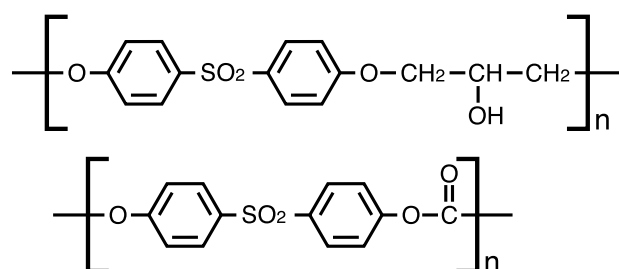
●Water Reducing Agent for Cement



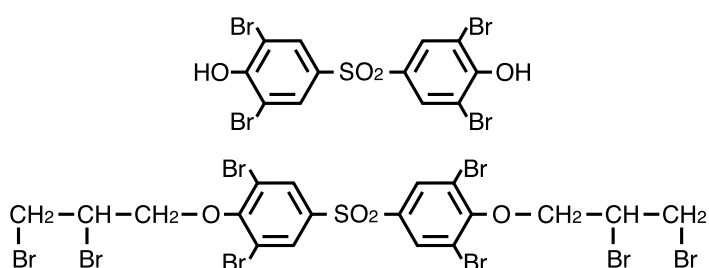
enol S



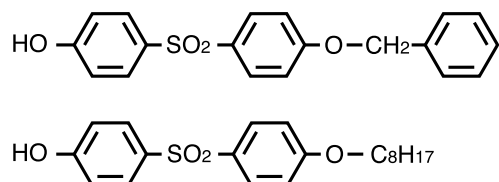
●Epoxy Resin and Polycarbonate Resin



●Fire Retardant

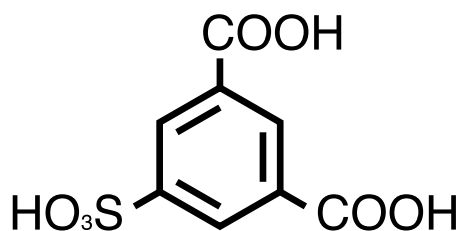


●Yellow Coupler for Color Photography



NO. C-2

Formula



M.W. 246.2

C₈H₆O₇S

ENCS

Registry NO. 3-2131

CAS

Registry NO. 22326-31-4

Abbreviation

SIP

Name

5-Sulfoisophthalic acid

Specifications

Appearance Light pink wet powder

Purity 85 % min.

Sulfuric acid 5 % max.

Packing

25 kg as actual in paper bag with inner poly.(1.7cft)

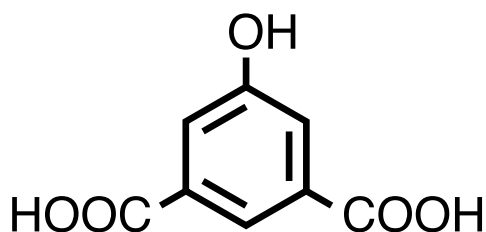
Uses

Intermediate for X-ray contrast agents

Improving agent for anodizing aluminium

NO. C-3

Formula



M.W. 182.1

C₈H₆O₅

ENCS

Registry NO. 3-3476

CAS

Registry NO. 618-83-7

Abbreviation

5-HIA

Name

5-Hydroxy isophthalic acid

Specifications

Appearance White powder

Purity(HPLC) 99 % min.

Loss on drying 0.5 % max.

Packing

50 kg as actual in fiber drum with inner poly.(1.7cft)

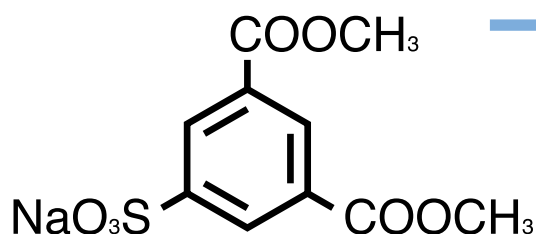
Uses

Intermediate for X-ray contrast agents

Modifying agent to improve properties of polyamide

NO. C-4

Formula



M.W. 296.2

$C_{10}H_9NaO_7S$

ENCS

Registry NO. 3-1885

CAS

Registry NO. 3965-55-7

Abbreviation

SIPM

Name

5-Sulfoisophthalic acid dimethyl ester sodium salt

Specifications

Appearance	White powder
Saponification value	375.0 KOH mg/g min.
Acid value	0.4 KOH mg/g max.
Weak acid value	0.8 KOH mg/g max.
Moisture	0.5 % max.
Iron content	10 ppm max.

Packing

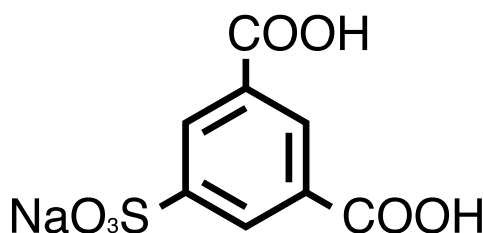
20 kg as actual in paper bag with inner poly.

Uses

Modifying agent to improve properties(dyeing capability, reduction of pilling effect etc.) of fiber(polyester and polyamide).

NO. C-5

Formula



M.W. 268.2

$C_8H_5NaO_7S$

ENCS

Registry NO. 3-3168

CAS

Registry NO. 6362-79-4

Abbreviation

SIPA

Name

5-Sulfoisophthalic acid monosodium salt

Specifications

Appearance	White powder
Acid value	419 ± 4 KOH mg/g
Moisture	0.5 % max.

Packing

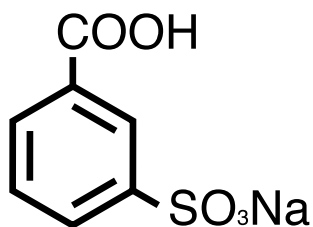
20 kg as actual in paper bag with inner poly.

Uses

Modifying agent to improve dyeing capability of fiber (polyester, polyamide)
Improving agent for anodizing aluminium.

NO. C-6

Formula



M.W. 224.2

$C_7H_5NaO_5S$

ENCS

Registry NO.3-2132

CAS

Registry NO.17625-03-5

Abbreviation

MSB

Name

m-Sulfobenzoic acid monosodium salt

Specifications

Appearance	White powder
Purity (HPLC)	99 % min.
Moisture	0.5 % max.
Acid value (KOHmg/g)	248 min.
Sodium sulfate	0.5 % max.

Packing

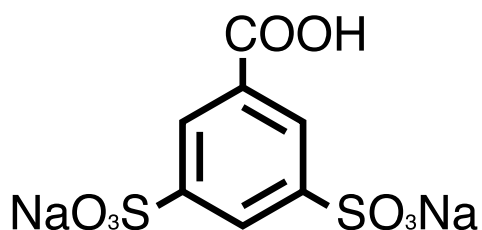
20 kg as actual in paper bag with inner poly.

Uses

Modifying agent for polyester fiber and polyamide
Soil release agent for granular laundry detergents

NO. C-7

Formula



M.W. 326.2

$C_7H_4Na_2O_8S_2$

ENCS

Registry NO. 3-3171

CAS

Registry NO.19089-55-5

Abbreviation

DSB

Name

3,5-Disulfobenzoic acid disodium salt

Specifications

Appearance	White powder
Purity (HPLC)	99 % min.
Moisture	0.5 % max.
Sodium sulfate	0.5 % max.

Packing

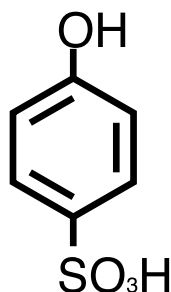
20 kg as actual in paper bag with inner poly.

Uses

Modifying agent for polyamide
Intermediate for pharmaceuticals

NO. C-8

Formula



M.W. 174.2

C₆H₆O₄S

ENCS

Registry NO. 3-1956

CAS

Registry NO. 98-67-9

Abbreviation

PSA

Name

Phenol sulfonic acid solution

Specifications

	65 %	60 %
Appearance	Clear red brown liquid	Clear red brown liquid
Purity	65 % min.	60 % min.
Sulfuric acid content	3 % max.	3 % max.
Phenol content	1 % max.	1 % max.

Packing

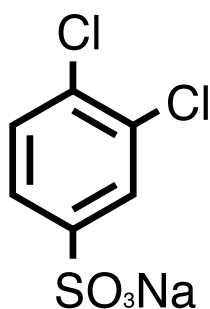
250 kg as actual in iron drum
Lorry

Uses

Tin electroplating agent
Hardening agent for phenolic foam resin

NO. C-9

Formula



M.W. 249.1

C₆H₃Cl₂NaO₃S

ENCS

Registry NO. 3-2014

CAS

Registry NO. 38950-28-6

Abbreviation

DCBS

Name

1,2-Dichlorobenzene-4-sulfonic acid sodium salt

Specifications

Appearance	White powder
Purity (HPLC)	99 % min.
Moisture	0.2 % max.
Sodium sulfate	0.5 % max.

Packing

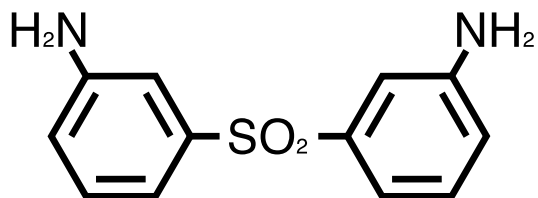
20 kg as actual in paper bag with inner poly.

Uses

Fire retardant for polycarbonate
Intermediate for pharmaceuticals

NO. C-10

Formula



M.W. 248.3
 $C_{12}H_{12}N_2O_2S$

ENCS

Registry NO. 3-2163

CAS

Registry NO. 599-61-1

Abbreviation

DAS

Name

3,3'-Diamino diphenyl sulfone

Specifications

Appearance	Light yellowish powder
Purity	99 % min.
Moisture	0.1 % max.
Melting point	170°C min.

Packing

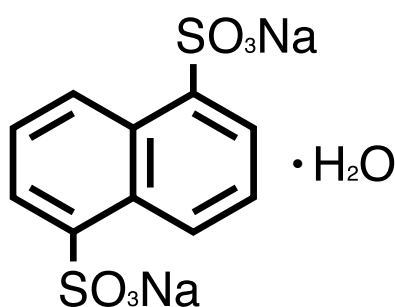
20 kg as actual in paper bag with inner poly(1.7cft)

Uses

Curing agent for epoxy resin
Intermediate for polymer
Intermediate for dyestuff

NO. C-11

Formula



MW.350.3
 $C_{10}H_6Na_2O_6S_2 \cdot H_2O$

ENCS

Registry NO. 4-468

CAS

Registry NO. 1655-29-4

Abbreviation

N15DS

Name

Naphthalene-1,5-disulfonic acid disodium salt

Specifications

	Type 1	Type 2
Appearance	White powder	Brownish powder
Purity	95 % min.	90 % min.
pH(1% aq.soln.)	4~8	2~4

Packing

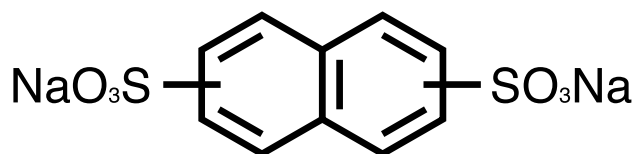
Type1 20 kg as actual in paper bag with inner poly(1.2 cft)
Type2 25 kg as actual in paper bag with inner poly(1.3 cft)

Uses

Intermediate for dyestuff
Intermediate for agro chemicals
Stabilizer for diazo component of blue-print
Brightening agent for electroplating

NO. C-12

Formula



M.W. 332.3

$C_{10}H_6Na_2O_6S_2$

ENCS

Registry NO. 4-468

CAS

Registry NO. 1655-35-2

Abbreviation

NDS

Name

Naphthalene disulfonic acid disodium salt

Specifications

Appearance Slight brownish powder

pH(1% aq.soln.) 6~10

Packing

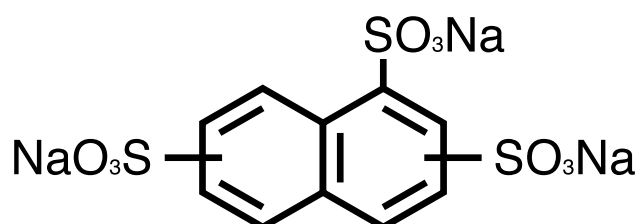
20 kg as actual in paper bag with inner poly.(1.1cft)

Uses

Brightening agent for electroplating

NO. C-13

Formula



M.W. 434.3

$C_{10}H_5Na_3O_9S_3$

ENCS

Registry NO. 4-471

CAS

Registry NO. 5182-30-9

Abbreviation

NTS

Name

Naphthalene trisulfonic acid trisodium salt

Specifications

Appearance Slight brownish powder

Assay 80 % min.

pH(1% aq.soln.) 6~10

Packing

20 kg as actual in paper bag with inner poly.(1.1cft)

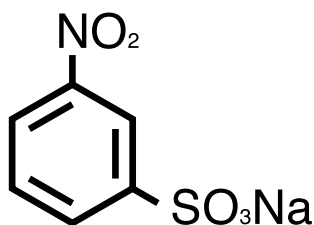
Uses

Stabilizer for diazo components of blue-print

Brightening agent for electroplating

NO. C-14

Formula



M.W. 225.2
 $C_6H_4NNaO_5S$

ENCS

Registry NO. 3-2006

CAS

Registry NO. 127-68-4

Abbreviation

MB

Name

m-Nitrobenzene sulfonic acid sodium salt

Specifications

	MB	MB 60	MB Liquid
Appearance	Light yellowish powder	Light yellowish powder	Yellowish liquid
Purity	95 % min.	56 % min.	20 % min.
pH(1 % aq.soln)	6 ~ 10	6 ~ 10	—

Packing

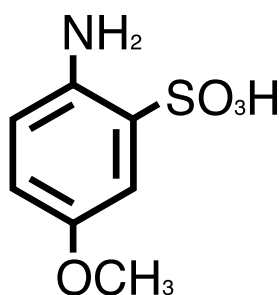
20 kg as actual in paper bag with inner poly.(1.7cft.)
20 kg as actual in tin-can

Uses

Developing agent for nickel plating
Dyeing assistant
Intermediate for dyestuff

NO. C-15

Formula



M.W. 203.2
 $C_7H_9NO_4S$

ENCS

Registry NO. 3-2039

CAS

Registry NO. 13244-33-2

Abbreviation

PAMS

Name

4-Methoxyaniline-2-sulfonic acid

Specifications

Appearance	Light grayish powder
Purity	98 % min.

Packing

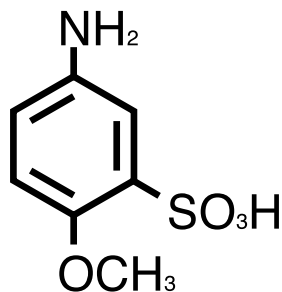
120 kg as actual in fiber drum with inner poly.

Uses

Intermediate for dyestuff
direct dye
reactive dye

NO. C-16

Formula



M.W. 203.2

$C_7H_9NO_4S$

ENCS

Registry NO. 3-2039

CAS

Registry NO. 6470-17-3

Abbreviation

PAOS

Name

4-Methoxyaniline-3-sulfonic acid

Specifications

Appearance	Brownish wet powder
Purity	85% min.

Packing

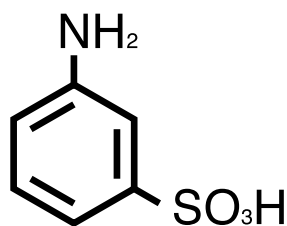
25 kg as actual in paper bag with inner poly.
120 kg as actual in fiber drum with inner poly.

Uses

Intermediate for dyestuff
direct dye
reactive dye

NO. C-17

Formula



M.W. 173.2

$C_6H_7NO_3S$

ENCS

Registry NO. 3-1971

CAS

Registry NO. 121-47-1

Abbreviation

MA

Name

Metanilic acid

Specifications

Appearance	Light brownish powder
Purity	98% min.

Packing

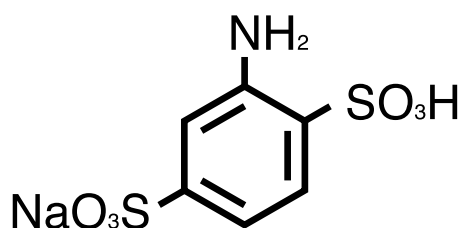
20 kg as actual in paper bag with inner poly(1.3 cft)

Uses

Intermediate for dyestuff
fluorescent brightening agent
acid dye
direct dye

NO. C-18

Formula



M.W. 275.2

$\text{C}_6\text{H}_6\text{NNaO}_6\text{S}_2$

ENCS

Registry NO. 3-3169

CAS

Registry NO. 24605-35
76684-33-8

Abbreviation

A25DS

Name

Aniline-2,5-disulfonic acid monosodium salt

Specifications

	Regular	High
Appearance	Grayish wet powder	Light grayish
powder Purity	80 % min.	
98 % min.		

Packing

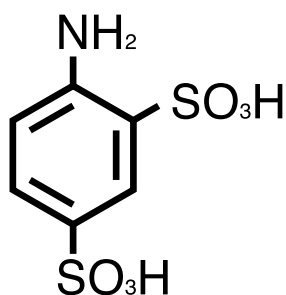
20 kg as 100 % in paper bag with inner poly(1.3 cft)
25 kg as actual in paper bag with inner poly(1.4 cft)

Uses

Intermediate for dyestuff
reactive dye
acid dye
direct dye
fluorescent brightening agent
Intermediate for photographic dyestuff
Assistant for electroplating

NO. C-19

Formula



M.W. 253.2

$\text{C}_6\text{H}_7\text{NO}_6\text{S}_2$

ENCS

Registry NO. 3-2101

CAS

Registry NO. 137-51-9

Abbreviation

A24DS

Name

Aniline-2,4-disulfonic acid

Specifications

Appearance	Light grayish wet powder
Purity	70 % min.

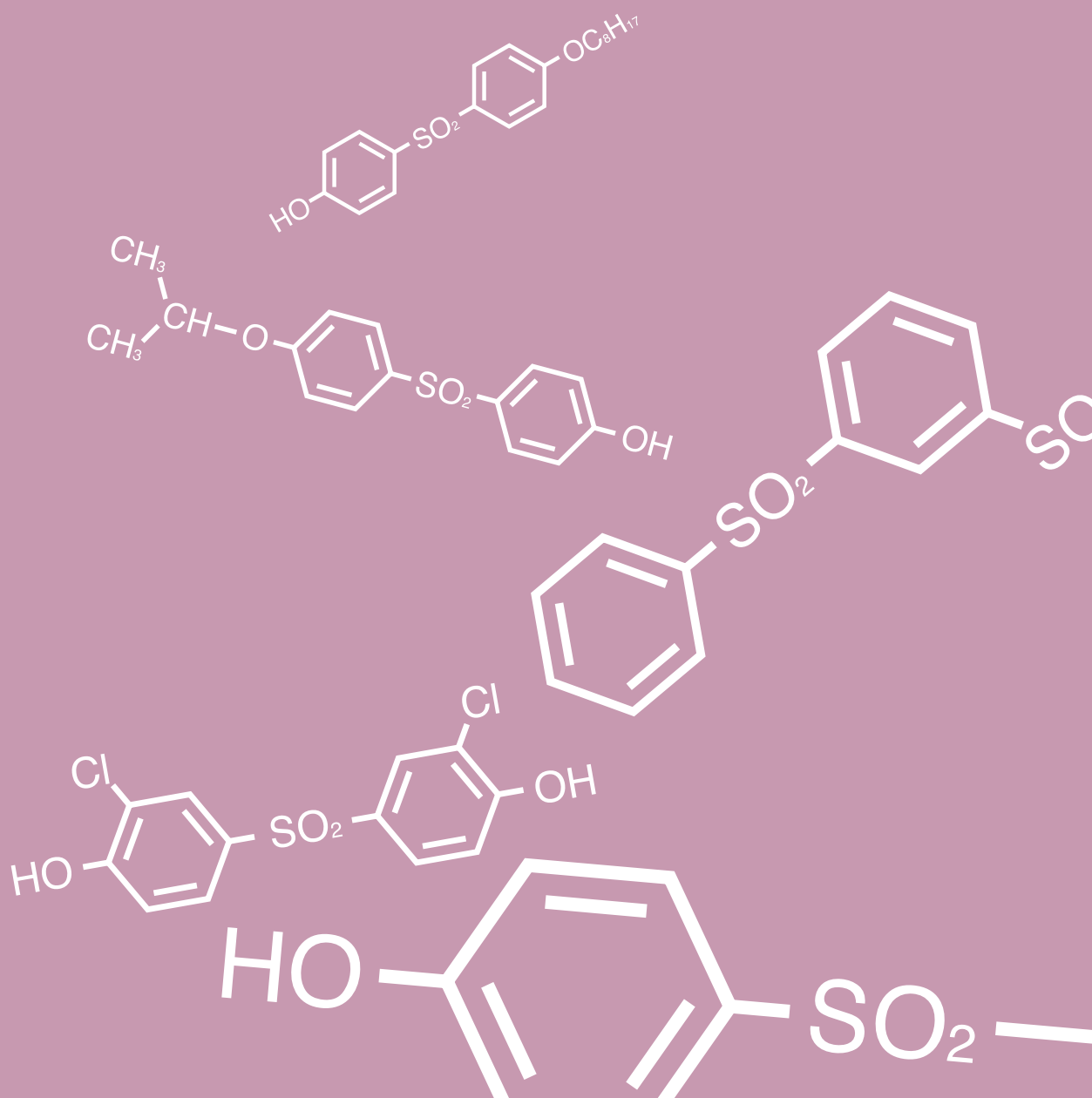
Packing

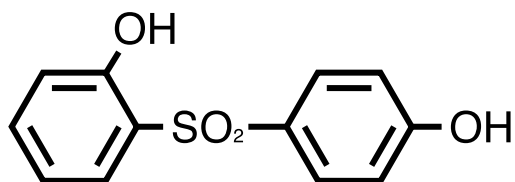
25 kg as actual in paper bag with inner poly(1.4 cft)

Uses

Intermediate for dyestuff

Laboratory Products



NO. **L-1****Formula**

M.W. 250.3

 $C_{12}H_{10}O_4S$ **Abbreviation****24BS****Name****2,4'-Dihydroxy diphenyl sulfone****ENCS**

Registry NO. 3-2169

CAS

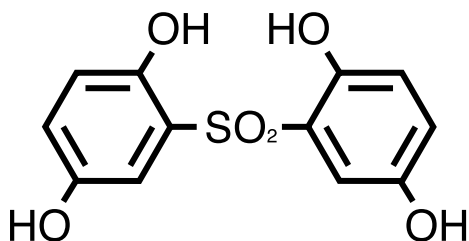
Registry NO. 5397-34-2

Uses

Developer for heat sensitive paper

Brightening agent for tin electroplating

Intermediate for pharmaceuticals

NO. **L-2****Formula**

M.W. 282.3

 $C_{12}H_{10}O_6S$ **Abbreviation****THS****Name** 2,2',5,5'-Tetrahydroxy diphenyl sulfone**ENCS**

Registry NO. —

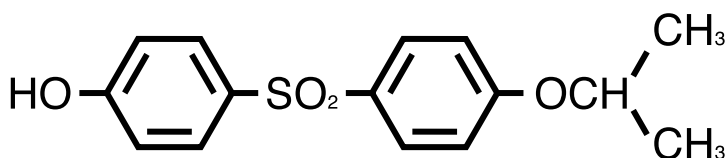
CAS

Registry NO. 19116-81-5

Uses

Intermediate for photoresist

Intermediate for epoxy resin

NO. **L-3****Formula**

M.W. 292.4

 $C_{15}H_{16}O_4S$ **Abbreviation****BS-MIPE****Name** 4-Isopropoxyphenyl-4'-hydroxyphenyl sulfone
(monoisopropylether of Bisphenol S)**ENCS**

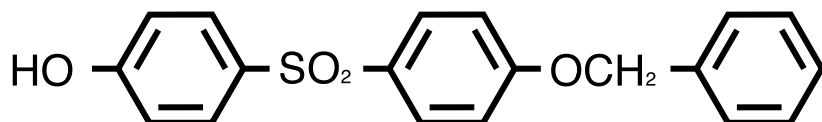
Registry NO. 3-3911

CAS

Registry NO. 95235-30-6

Uses

Developer for heat sensitive paper

NO. **L-4***Formula*

M.W. 340.4

 $C_{19}H_{16}O_4S$ *Abbreviation***BS-MBE**

Name 4-Benzyloxyphenyl-4'-hydroxyphenyl sulfone
(monobenzylether of Bisphenol S)

ENCS

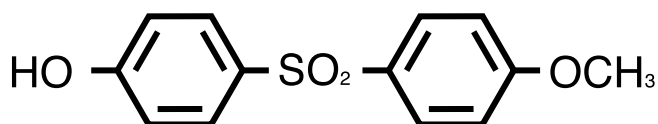
Registry NO. —

CAS

Registry NO. 63134-33-8

Uses

Intermediate for photo color coupler
Developer for heat sensitive paper

NO. **L-5***Formula*

M.W. 264.3

 $C_{13}H_{12}O_4S$ *Abbreviation***BS-MME**

Name 4-Methoxyphenyl-4'-hydroxyphenyl sulfone
(monomethylether of Bisphenol S)

ENCS

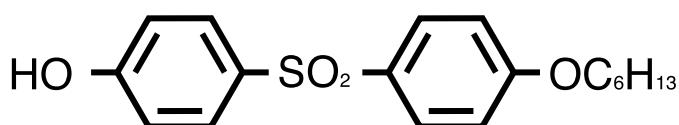
Registry NO. —

CAS

Registry NO. 98116-80-4

Uses

Developer for heat sensitive paper

NO. **L-6***Formula*

M.W. 334.4

 $C_{18}H_{22}O_4S$ *Abbreviation***BS-MHE**

Name 4-n-Hexyloxyphenyl-4'-hydroxyphenyl sulfone
(monohexylether of Bisphenol S)

ENCS

Registry NO. —

CAS

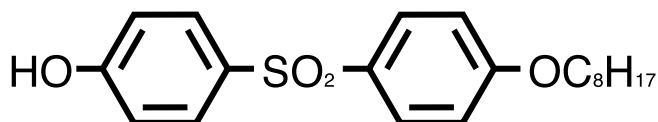
Registry NO. 125300-47-2

Uses

Developer for heat sensitive paper

NO. **L-7**

Formula



M.W. 362.5

C₂₀H₂₆O₄S

Abbreviation

BS-MOE

Name 4-n-Octyloxyphenyl-4'-hydroxyphenyl sulfone
(mono-n-octylether of Bisphenol S)

ENCS

Registry NO. —

CAS

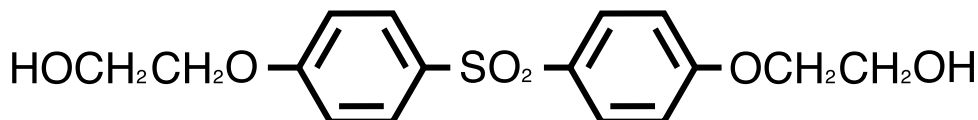
Registry NO. 84796-05-4

Uses

Intermediate for photo color coupler

NO. **L-8**

Formula



M.W. 338.4

C₁₆H₁₈O₆S

Abbreviation

BS-EO

Name

4,4'-Bis(2-hydroxy ethoxy) diphenyl sulfone

ENCS

Registry NO. 3-3814

CAS

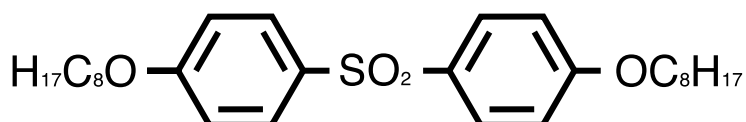
Registry NO. 27205-03-4

Uses

Modifying agent to improve properties of polymer
(polyester, polycarbonate, polyurethane)

NO. **L-9**

Formula



M.W. 474.7

C₂₈H₄₂O₄S

Abbreviation

BS-DOE

Name 4,4'-Di-n-octyloxy diphenyl sulfone
(Di-n-octylether of Bisphenol S)

ENCS

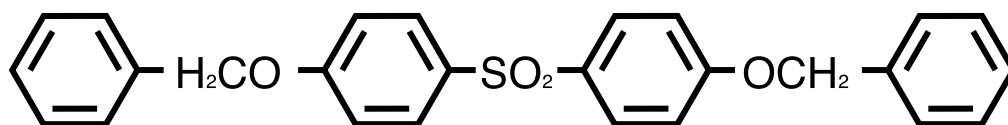
Registry NO. —

CAS

Registry NO. 116763-19-0

Uses

Polyester spinnability
improving agent

NO. **L-10****Formula**

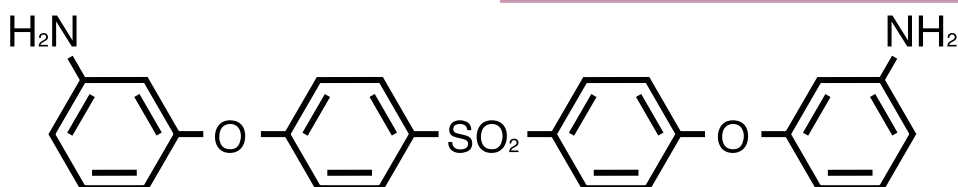
M.W. 430.5

 $C_{26}H_{22}O_4S$ **Abbreviation****BS-DBE****Name** 4,4'-Dibenzoyloxy diphenyl sulfone
(Dibenzylether of Bisphenol S)**ENCS**

Registry NO. —

CAS

Registry NO. 71338-01-7

UsesPolyester molding
compositionsNO. **L-11****Formula**

M.W. 432.5

 $C_{24}H_{20}N_2O_4S$ **Abbreviation****3BAPS****Name**

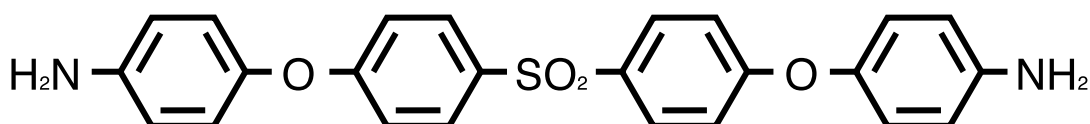
Bis[4-(3-aminophenoxy)phenyl] sulfone

ENCS

Registry NO. 3-2174

CAS

Registry NO. 30203-11-3

UsesStabilizer for heat sensitive paper
Intermediate for polyimide-siloxaneNO. **L-12****Formula**

M.W. 432.5

 $C_{24}H_{20}N_2O_4S$ **Abbreviation****4BAPS****Name**

Bis[4-(4-aminophenoxy)phenyl] sulfone

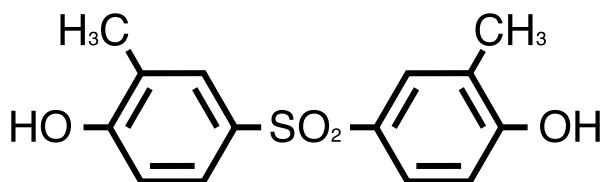
ENCS

Registry NO. —

CAS

Registry NO. 13080-89-2

UsesIntermediate for epoxy resin
and polyimide

NO. **L-13****Formula**

M.W. 278.3

 $C_{14}H_{14}O_4S$ **Abbreviation****BS-DM****Name****3,3'-Dimethyl-4,4'-dihydroxy diphenyl sulfone****ENCS**

Registry NO. 3-2169

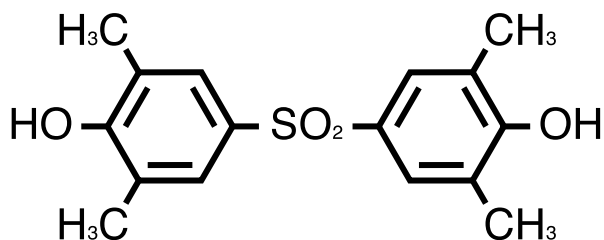
CAS

Registry NO. 16346-97-7

Uses

Intermediate for polymer

Developer for heat sensitive paper

NO. **L-14****Formula**

M.W. 306.3

 $C_{16}H_{18}O_4S$ **Abbreviation****BS-TM****Name****3,3',5,5'-Tetramethyl-4,4'-dihydroxy diphenyl sulfone****ENCS**

Registry NO. 3-2169

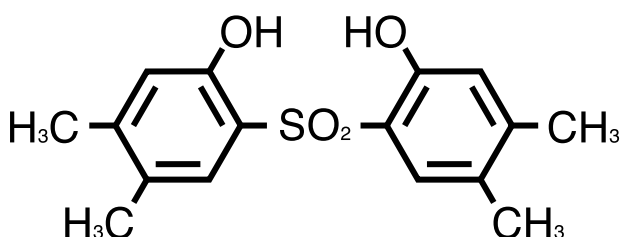
CAS

Registry NO. 13288-70-5

Uses

Intermediate for polymer

Developer for heat sensitive paper

NO. **L-15****Formula**

M.W. 306.3

 $C_{16}H_{18}O_4S$ **Abbreviation****BS-2TM****Name****4,4',5,5'-Tetramethyl-2,2'-dihydroxy diphenyl sulfone****ENCS**

Registry NO. 3-2169

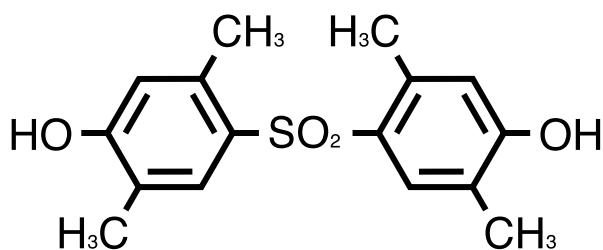
CAS

Registry NO. 3841-99-4

Uses

Intermediate for polymer

Developer for heat sensitive paper

NO. **L-16****Formula**

M.W. 306.3

 $C_{16}H_{18}O_4S$ **Abbreviation****BS-4TM****Name****2,2',5,5'-Tetramethyl-4,4'-dihydroxy diphenyl sulfone****ENCS**

Registry NO. 3 -2169

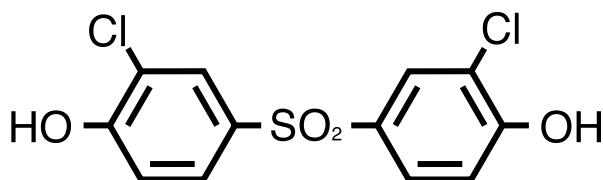
CAS

Registry NO. 19855-67-5

Uses

Intermediate for polymer

Developer for heat sensitive paper

NO. **L-17****Formula**

M.W. 319.2

 $C_{12}H_8Cl_2O_4S$ **Abbreviation****BS-DC****Name****3,3'-Dichloro-4,4'-dihydroxy diphenyl sulfone****ENCS**

Registry NO. 3 -2170

CAS

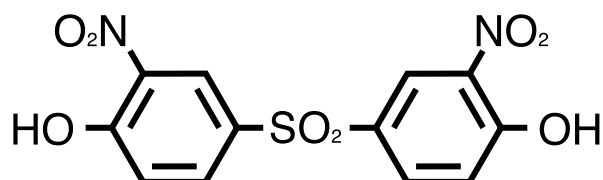
Registry NO. 46947-87-9

Uses

Intermediate for polymer

Developer for heat sensitive paper

Color photographic photosensitive materials

NO. **L-18****Formula**

M.W. 340.3

 $C_{12}H_8N_2O_8S$ **Abbreviation****BS-DN****Name****3,3'-Dinitro-4,4'-dihydroxy diphenyl sulfone****ENCS**

Registry NO. —

CAS

Registry NO. 7149-20-4

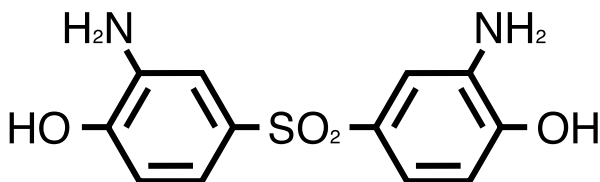
Uses

Intermediate for organic synthesis

Intermediate for epoxy resin

NO. L-19

Formula



M.W. 280.3
C₁₂H₁₂N₂O₄S

Abbreviation BS-DA

Name 3,3'-Diamino-4,4'-dihydroxy diphenyl sulfone

ENCS

Registry NO. —

CAS

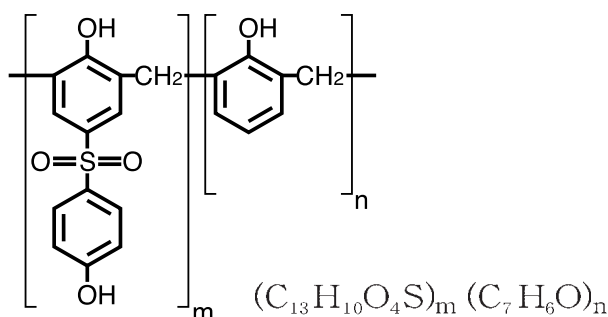
Registry NO. 7545-50-8

Uses

Intermediate for dyestuff
Intermediate for epoxy resin

NO. L-20

Formula



Abbreviation BS-PR

Name Bisphenol-S/Phenol resin

ENCS

Registry NO. —

CAS

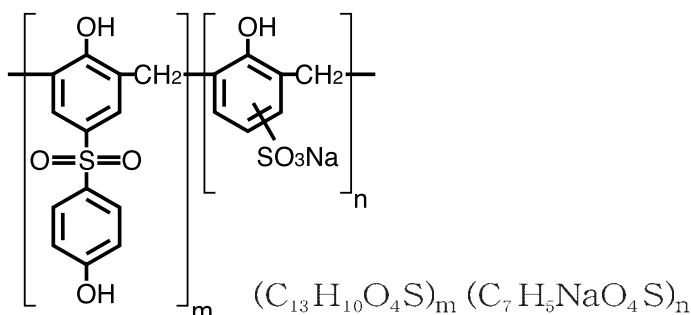
Registry NO. 77810-18-5

Uses

Waterproof and oilproof treatment for assistant agent

NO. L-21

Formula



Abbreviation BS-PSR

Name Bisphenol-S/Phenolsulfonic acid resin

ENCS

Registry NO. 9-2533

CAS

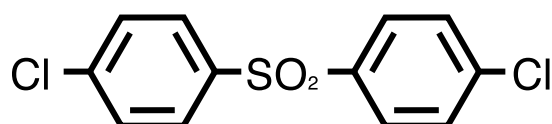
Registry NO. 71832-81-0

Uses

Nylon fixing agent
Paper fixing agent
Cationic substance binder for fiber (polyester, cellulose)

NO. L-22

Formula



M.W. 287.2
C₁₂H₈Cl₂O₂S

Abbreviation DCS

Name 4,4'-Dichloro diphenyl sulfone

ENCS

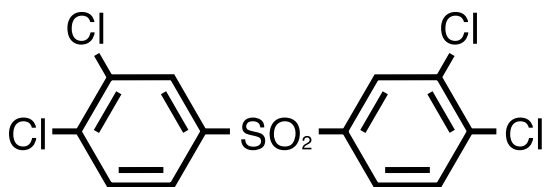
Registry NO. 3-2160

CAS

Registry NO. 80-07-9

Uses

Intermediate for polyethersulfone resin
Intermediate for organic synthesis (pharmaceuticals, dyestuff, curing agent etc.)

No. **L-23****Formula**

M.W. 356.1
 $C_{12}H_6Cl_4O_2S$

Abbreviation TCS

Name 3,3',4,4'-Tetrachloro diphenyl sulfone

ENCS

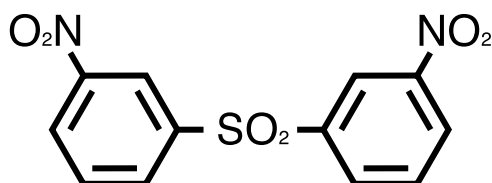
Registry NO. 3-61

CAS

Registry NO. 22588-79-0

Uses

Intermediate for fire-resistant polymers
 Anionic initiator for polymerizing
 lactams

No. **L-24****Formula**

M.W. 308.3
 $C_{12}H_8N_2O_6S$

Abbreviation DNS

Name 3,3'-Dinitro diphenyl sulfone

ENCS

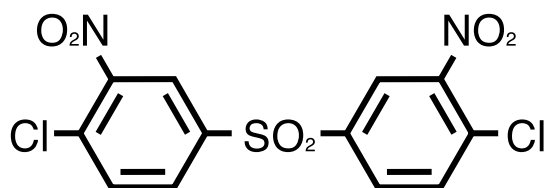
Registry NO. 3-2166

CAS

Registry NO. 1228-53-1

Uses

Intermediate for organic synthesis

No. **L-25****Formula**

M.W. 377.2
 $C_{12}H_6Cl_2N_2O_6S$

Abbreviation DNDCS

Name 3,3'-Dinitro-4,4'-dichloro diphenyl sulfone

ENCS

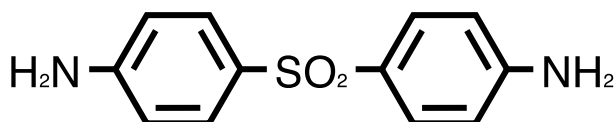
Registry NO. 3-2168

CAS

Registry NO. 1759-05-3

Uses

Intermediate for pharmaceuticals
 Dyeing assistant
 Intermediate for dyestuff

No. **L-26****Formula**

M.W. 248.3
 $C_{12}H_{12}N_2O_2S$

Abbreviation 4DAS

Name 4,4'-Diamino diphenyl sulfone

ENCS

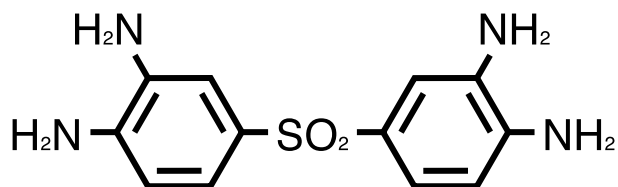
Registry NO. 3-2163

CAS

Registry NO. 80-08-0

Uses

Intermediate for polyimide
 Intermediate for pharmaceuticals
 Curing agent for heat-resistant epoxy resin

NO. **L-27****Formula**

M.W. 278.3
 $C_{12}H_{14}N_4O_2S$

Abbreviation**TAS****Name****3,3',4,4'-Tetraamino diphenyl sulfone****ENCS**

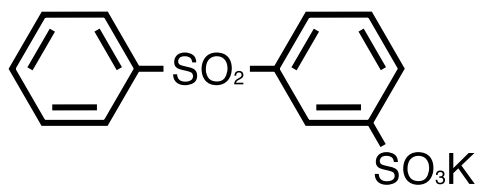
Registry NO. —

CAS

Registry NO. 13224-79-8

Uses

Intermediate for polyimidazol
 Curing agent for epoxy resin

NO. **L-28****Formula**

M.W. 336.4
 $C_{12}H_9KO_5S_2$

Abbreviation**DSSK****Name****Diphenyl sulfone-3-sulfonic acid potassium salt****ENCS**

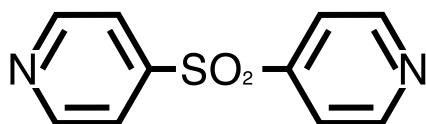
Registry NO. 3-4126

CAS

Registry NO. 63316-43-8

Uses

Fire retardant for polycarbonate resin

NO. **L-29****Formula**

M.W. 220.2
 $C_{10}H_8N_2O_2S$

Abbreviation**PYS****Name****4,4'-Dipyridyl sulfone****ENCS**

Registry NO. —

CAS

Registry NO. 101728-06-7

Uses

Intermediate for antimicrobial agents

No. **L-30****Formula**

M.W. 358.3
 $C_{12}H_8Na_2O_6S_2$

Abbreviation BPDS**Name** Biphenyl-4,4'-disulfonic acid disodium salt**ENCS**

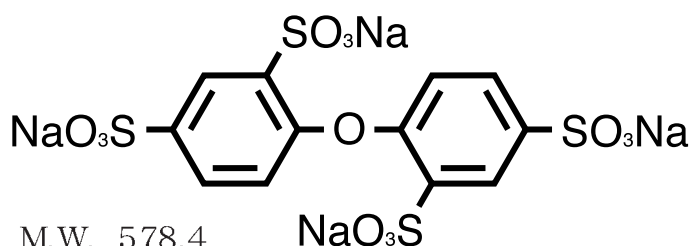
Registry NO. 9-721

CAS

Registry NO. 31139-42-1

Uses

Intermediate for liquid crystal polymer

No. **L-31****Formula**

M.W. 578.4
 $C_{12}H_6Na_4O_{13}S_4$

Abbreviation DETS**Name** Diphenylether-2,2',4,4'-tetrasulfonic acid tetrasodium salt**ENCS**

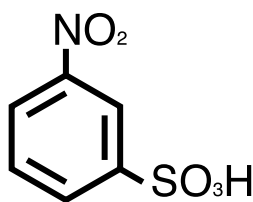
Registry NO. —

CAS

Registry NO. —

Uses

Intermediate for liquid crystal polymer

No. **L-32****Formula**

M.W. 203.2
 $C_6H_5NO_5S$

Abbreviation MBA**Name** Nitrobenzene-3-sulfonic acid**ENCS**

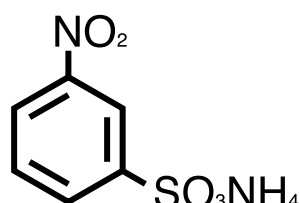
Registry NO. 3-2005

CAS

Registry NO. 98-47-5

Uses

Developing agent for nickel plating
 Photoresist remover

No. **L-33****Formula**

M.W. 220.2
 $C_6H_5N_2O_5S$

Abbreviation MBAM**Name** Nitrobenzene-3-sulfonic acid ammonium salt**ENCS**

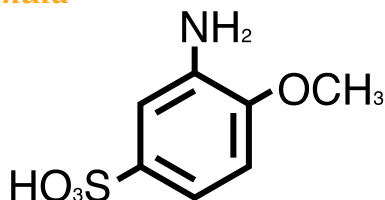
Registry NO. 3-2005

CAS

Registry NO. 70027-52-0

Uses

Developing agent for nickel plating
 Dyeing assistant

NO. **L-34****Formula**

M.W. 203.2
 $C_7H_9NO_4S$

Abbreviation OAPS

Name 2-Methoxyaniline-5-sulfonic acid

ENCS

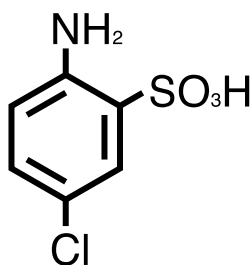
Registry NO. 3-2037

CAS

Registry NO. 98-42-0

Uses

Intermediate for dyestuff
 (reactive and direct dye)

NO. **L-35****Formula**

M.W. 207.6
 $C_6H_6ClNO_3S$

Abbreviation PCAS

Name 4-Chloroaniline-2-sulfonic acid

ENCS

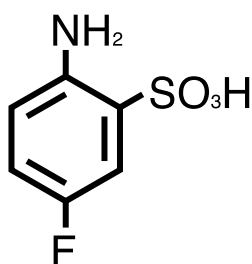
Registry NO. 3-2019

CAS

Registry NO. 133-74-4

Uses

Intermediate for pharmaceuticals
 Intermediate for dyestuff

NO. **L-36****Formula**

M.W. 191.2
 $C_6H_6FNO_3S$

Abbreviation PFAS

Name 4-Fluoroaniline-2-sulfonic acid

ENCS

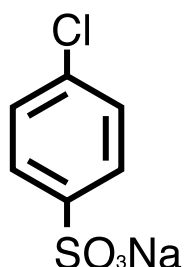
Registry NO. —

CAS

Registry NO. —

Uses

Intermediate for pharmaceuticals
 Intermediate for dyestuff

NO. **L-37****Formula**

M.W. 214.6
 $C_6H_4ClNaO_3S$

Abbreviation PCS

Name Chlorobenzene-4-sulfonic acid sodium salt

ENCS

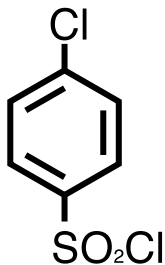
Registry NO. —

CAS

Registry NO. 5138-90-9

Uses

Fire retardant for polycarbonate resin
 Cleaning agent and disinfectant for household

No. **L-38****Formula**

M.W. 211.1
 $C_6H_4Cl_2O_2S$

Abbreviation PCSC

Name Chlorobenzene-4-sulfonylchloride

ENCS

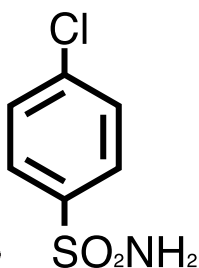
Registry NO. 3-1955

CAS

Registry NO. 98-60-2

Uses

Intermediate for pharmaceuticals

No. **L-39****Formula**

M.W. 191.6
 $C_6H_5ClNO_2S$

Abbreviation PCSA

Name Chlorobenzene-4-sulfonamide

ENCS

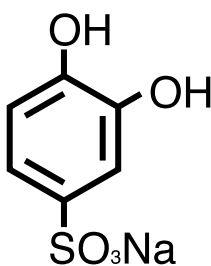
Registry NO. 3-1954

CAS

Registry NO. 98-64-6

Uses

Intermediate for pharmaceuticals
 Intermediate for agricultural bactericides

No. **L-40****Formula**

M.W. 212.2
 $C_6H_5NaO_5S$

Abbreviation CMS

Name Catechol-4-sulfonic acid sodium salt

ENCS

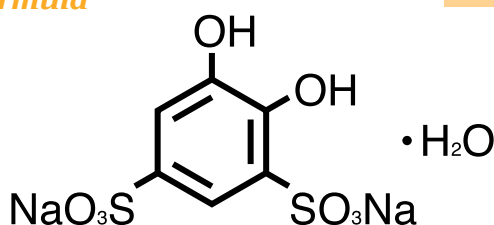
Registry NO. 3-2017

CAS

Registry NO. 25338-50-5

Uses

Chelating agent
 Modifying agent for polyamide

No. **L-41****Formula**

M.W. 332.2
 $C_6H_4Na_2O_8S_2 \cdot H_2O$

Abbreviation CDS

Name Catechol-3,5-disulfonic acid disodium salt

ENCS

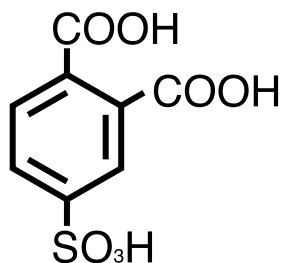
Registry NO. 3-3848

CAS

Registry NO. 149-45-1

Uses

Chelating agent
 Support for photographic material

NO. **L-42****Formula**

M.W. 246.2
 $C_8H_6O_7S$

Abbreviation SOP

Name 4-Sulfophthalic acid

ENCS

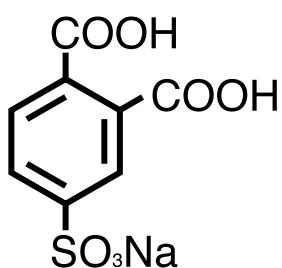
Registry NO. 3-2131

CAS

Registry NO. 89-08-7

Uses

Improving agent for anodizing aluminium
 (coloring, lithographic printing plate)

NO. **L-43****Formula**

M.W. 268.2
 $C_8H_5NaO_7S$

Abbreviation SOPS

Name 4-Sulfophthalic acid sodium salt

ENCS

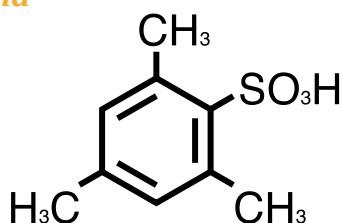
Registry NO. 3-2132

CAS

Registry NO. 33562-89-9

Uses

Intermediate for dye and pigment

NO. **L-44****Formula**

M.W. 200.3
 $C_9H_{12}O_3S$

Abbreviation TMBS

Name 1,3,5-Trimethylbenzene-2-sulfonic acid

ENCS

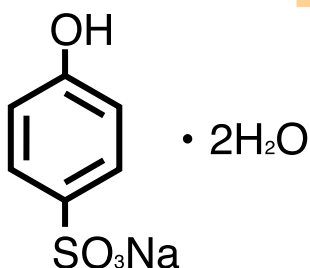
Registry NO. 3-4028

CAS

Registry NO. 3453-83-6

Uses

Intermediate for pharmaceuticals
 New sulfonating agent

NO. **L-45****Formula**

M.W. 232.2
 $C_6H_5NaO_4S \cdot 2H_2O$

Abbreviation PSA-Na

Name Phenolsulfonic acid sodium salt dihydrate

ENCS

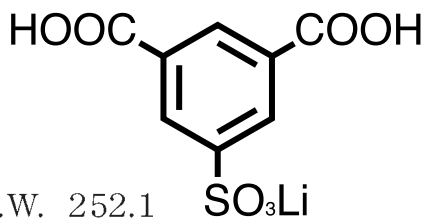
Registry NO. 3-1958

CAS

Registry NO. 10580-19-5

Uses

Electroplating agent

NO. **L-46****Formula**

M.W. 252.1
 $C_8H_5LiO_7S$

Abbreviation SIPA-Li

Name 5-Sulfoisophthalic acid monolithium salt

ENCS

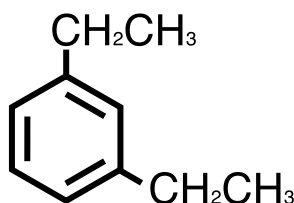
Registry NO. 3-3168

CAS

Registry NO. 46728-75-0

Uses

Modifying agent to improve dyeing capability of fiber (polyester, polyamide)

NO. **L-47****Formula**

M.W. 134.1
 $C_{10}H_{14}$

Abbreviation m-DEB

Name m-Diethylbenzene

ENCS

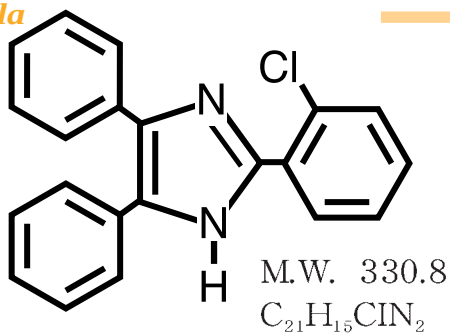
Registry NO. 3-13

CAS

Registry NO. 141-93-5

Uses

Photoinitiator for polyacrylates

NO. **L-48****Formula**

Abbreviation CIM

Name 2-(2-Chlorophenyl)-4,5-diphenylimidazole

ENCS

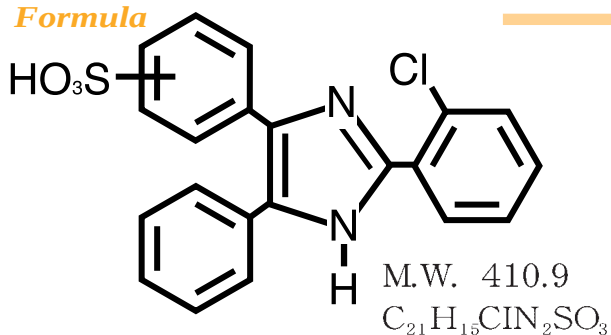
Registry NO. —

CAS

Registry NO. 1707-67-1

Uses

Intermediate for photo radical polymerization initiators and for photochromics materials

NO. **L-49****Formula**

Abbreviation CIM-S

Name 2-(2-Chlorophenyl)-4,5-diphenylimidazole sulfonic acid

ENCS

Registry NO. —

CAS

Registry NO. —

Uses

Intermediate for photochemicals

Principal reactions

■ Sulfonation



(Sulfonating agent)

Sulfur trioxide

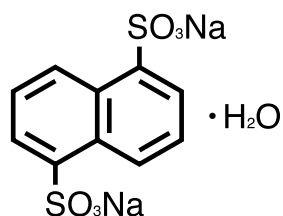
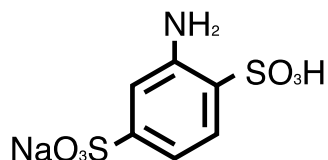
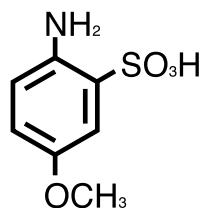
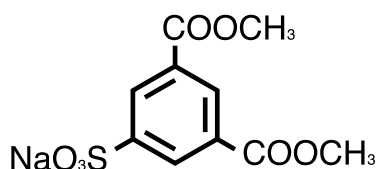
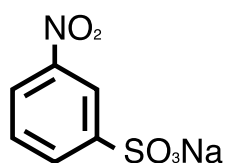
Oleum

Sulfuric acid

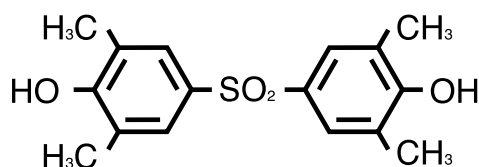
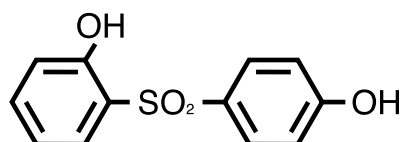
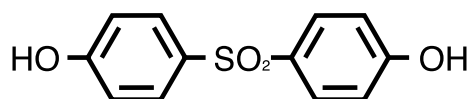
Chlorosulfonic acid

Polyalkylbenzene sulfonic acid

(New sulfonation process = Patent application)



■ Condensation



■ Etherification



■ Esterification



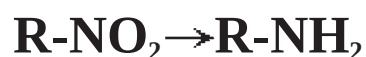
■ Chlorosulfonation



■ Nitration



■ Reduction



Main Equipments

	Material	Size	Limitation
Reactors Autoclave Autoclave Vacuum Reactor Reactor Reactor Reactor	SUS GL SUS SS SUS GL	7.5 M ³ 7.5 M ³ 2 M ³ 1.5 M ³ 0.2~15 M ³ 0.1~ 6 M ³	Max. 3 Kg/cm ² Max. 3 Kg/cm ² Max. 180 °C Max. 160 °C Max. 200 °C
Filters Centrifuge Centrifuge Centrifuge Filter Press Pressure filter Leaf filter	 Hastelloy SUS Rubber PP SUS SUS	48 Inchs 48 Inchs 32~48 Inchs 7~14 M ² 2.1~2.5 M ² 3.4 M ²	Max. 200 °C
Dryers Vacuum dryer Conical Vacuum dryer Tray dryer Filter dryer Paddle dryer Drum dryer	 SUS SUS SUS SUS SUS SUS	3 M ³ 2~4 M ³ 2500×1050×4050 5 M ³ 3400×600×900 500Φ×1500	
Distillation Rectifying column	 SS	14M×450mm	
Other addition Mixer	 SUS	1~3 M ³	