

## SULPHURIC ACID

Sector of Use	NACE	Main applications	Typical examples	Product Category	Process Category	Caretaker company	Informing Company	Environmental Release Category	Comments
SU8		Fertilisers	Phosphates	PC19	1,2 and 3	Police		6A	
SU8			Ammonium sulphate	PC19	1,2 and 3	Police		6A	
SU8			Nitrogen fertilisers	PC19	1,2 and 3	Police		6A	
SU8			NPK (complex fertilisers - includes granulation)	PC19	1,2 and 3	Police		6A	
SU9		Animal feed	Stabiliser e.g. 2-Hydroxy 4-Methyl thio butyric acid	PC20	<del>1 or 3</del> 5, 8a, 8b	Befesa pH regulator?		6B / 2	How would sulphuric acid be used in animal feed?
SU8		Explosives	Nitration of toluene	PC20	1 or 3	Fertiberia		1 or 6A, 6B	It may be used as processing aid / water adsorption
SU8			Nitration of cellulose	PC20	1 or 3	Fertiberia		1 or 6A	
SU8			Nitration of glycerine	PC20	1 or 3	Fertiberia		1 or 6A	
SU2		Metal mining	Zinc (leaching - dissolution of ores)	PC19	4	Asturiana de Zinc		1 or 6A	

SU2			Copper (leaching - dissolution of ores)	PC19	4	Freeport		1 or 6A	
SU2			Nickel	PC19	4	Asturiana de Zinc		1 or 6A	
SU2			Uranium	PC19	4			1 or 6A	
SU2			Metal removal (dissolution) from sand and clay (includes Titanium (Ilmenite Leaching))	PC19	4	Sachtleben		1 or 6A	
SU14	C24.1	Metal treatme	Pickling of steel	PC0; UCN codes: G05000, M15000	13	Lanxess		4, 6B	
SU14	C24.1		Pickling of galvanised steel	PC0; UCN codes: G05000, M15000	13	Lanxess		4, 6B	
SU14			Scouring and descaling, cleaning of surfaces prior to electrolysis	PC0; UCN codes: G05000, M15000	13	Lanxess		4, 6B	
SU14	C24.4		Brass bright dip	PC0; UCN codes: G05000, M15000	13	Lanxess		4, 6B	

SU2			high purity Indium and Gallium	PC40 / PC19	4, 8b			1 or 6A	
SU14	C24.4.2		Aluminium neutralisation (extraction)	PC19	4, 8b			1 or 6A	
SU14	C24.4.2		Aluminium treatment	PC14	13	Lanxess		4, 6B	
SU14		Electrolysis	Metal refining	PC7 and 14,	14	Freeport		1 or 6A, 6B?	
<b>SU14</b>	<b>C24.4.3</b>	<b>Hydrometallurgical production of metals</b>	<b>Production of zinc (roasting, leaching, purification &amp; electrolysis)</b>	<b>PC14 and PC19</b>	<b>2, 4</b>	<b>Asturiana de Zinc</b>		<b>1, 6A</b>	<b>The main application in zinc industry is the leaching of calcine (roasted ore) and other zinc-containing materials. Sulphuric acid is, in this case, an internal isolated intermediate. Usually this is a continuous process.</b>

SU4		Food industry	Cellulose for sausage casings	PC19, PC40?	1 or 3, 4?	Befesa		1 or 6A, 6B?	How would sulphuric acid be used?
SU4			Production of starch and starch products including potato starch	PC 19 and 20	1 or 3	Clariant		1 or 6A	
SU4			Sugar and ethyl alcohol from beets	PC 19 and 20	1 or 3	Clariant		1 or 6A	
SU4			Vegetable oils	PC 19 and 20	1 or 3	Clariant		1 or 6A	
SU4			Gelatin	PC 19 and 20	1 or 3			1 or 6A	
SU4			Aromatics	PC20, PC40?	1 or 3, 4?			1 or 6B	Not clear what does it mean? Maybe in the petroleum fraction the extraction of aromatics using sulphuric acid?
SU4			Isolation of casein	PC 19 and 20	1 or 3			1 or 6A	Shall we decide between PC19 and PC20?
SU4			Manufacture of aspartam	PC 19 and 20	1 or 3	Clariant		1 or 6A,	

SU4			Yeast and malt.	PC20	3, 4?	Clariant		1 or 6A, 6B?	
SU9			Recovery of protein from plant/animal residues	PC40	3, 4?	Clariant		1 or 6A, 6B ?	
SU4			Bottle cleaning	PC35	4, 8a, 8b			8A, 8B?	
SU8		Glass product	Sodium sulphate	PC19	1 or 3	Lanxess		1 or 6A,	reaction of sulphuric acid to sodium sulphate for the glass production. Or sodium sulphate as a byproduct i.e. chrom

SU3		Adhesives and glues produc	PC19, PC 20	1 or 3				NB for gelatin, see row 31 above. Can also be used in chemically etching the surfaces to be glued, equivalent to abrading, to give the adhesive an uneven surface. Main use seems to be as an intermediate.
SU8		Soap & detergent	Purification of oil used for lipolysis	PC40	3 or 4			4 or 6A, 4, 6B process needs to be clarified.
SU8			black liquor soap cooking in order to produce tall-oil	PC19, 20	3 or 4	Befesa		1 or 6A, 4, 6B
			Direct use as drain cleaner	PC35	4			2 or 8a
SU8			Sulphonates	PC19,	1 or 3	Lanxess		1 or 6A

SU8		Gas purification	From coke ovens	PC0; UCN codes: A05400	1	Police		7	water and SO3 absorption
SU8			Drying of industrial gases	PC0; UCN codes: A05400	1	Lanxess		7	water and SO3 absorption
SU6		Paper & Pulp	Parchmentizing	PC20	2, 3, 4	Grillo		6B	
SU6			Acidification after alkaline pulping	PC20	2, 3, 4	Grillo		4 or 6A, 6B	
SU6			Speciality papers, glass fibres, non-wovens	PC20	2, 3, 4	Grillo		6B	
SU12		Plastics industry	Caprolactam	PC19	1	Lanxess		6A	use of sulphuric acid to manufacture of caprolactam process?
SU12			Celluloid	PC20, 19	1 or 3			6D, 6A	
SU12			Rayon	PC19	3	Police		6A	
SU12			Aramid	PC20, 19	1 or 3			6D, 6A	
SU12			Solvent for polymers	PC20	1 or 3			4	
SU12			Hexamethylenediamine	PC20	1 or 3			1 or 6A, 6B	
SU12			methyl acrylate	PC19	1 or 3			1 or 6A,	
SU15			Foundry resins catalyst	PC20	1 or 3			6D	
SU5		Textile industry	Caprolactam	PC20, 34	1 or 3	Domo		6D	

SU5			Carbonisation of wool.	PC20, 34	4			6B	
SU23			Removal of dyes from recycled wool	PC20, 40	4			6B	
SU5			Additive when dyeing with chrome and azo dyes	PC34	1 or 3, 4?			1 or 6A, 4, 6B	
SU5		Leather industry	as PH regulator in the Tanning process (mostly used is formic acid)	PC 20	13, 4	Lanxess		6A, 6B	
SU5			production of tanning agent (Pickling)	PC23, 19	13, 4	Lanxess		6A	
					2, 3, 4, 9, 13	Police			
SU16	SU 0-1; NACE Code: C 27.2.0	Electrolyte for	Battery production and recycling	PC20	4	Police		2, 7	ERC 2, 4, 7, 9B

SU17	C25.6.1	Electroplating	Zinc. Electrogalvanizing of iron & steel articles	PC14, 19	1, 2 and 13	Asturiana de Zinc		1 or 6A, 4, 6B	Zinc granules are dissolved with H2SO4. Iron & Steel articles are electro-coated with this solution.
			Chromium	PC14	13	Lanxess			
SU16		Electronic chip	Etching	PC14	1 or 3			1 or 6A	process?
SU9		Production of catalysts		PC19	1 or 3			1 or 6A	process?
SU16		Engraving industry		PC14	13			1 or 6A, 8A, 6	i.e. glass etching
SU9		Photographic applications		PC30	1 or 3, 4?			1 or 6A, 8A	
SU8		Organic chem	Caprolactam	PC20, 19	1	Lanxess		6D, 1 or 6A	
SU9			Citric acid and citrates	PC19, 20?	1 or 3, 4?			1 or 6A	Process?
SU9			Lactic acid and lactates	PC19, 20?	1 or 3, 4?	Befesa		1 or 6A	Process?
SU9			Tartaric acid	PC19, 20?	1 or 3, 4?	Befesa		1 or 6A	Process?
SU9			isopropyl alcohol	PC19, 20?	1 or 3, 4?			1 or 6A	Process?
SU9			polyurethane	PC19, 20?	1 or 3, 4?			6D	Process?
SU9			Collagen production	PC19, 20?	1 or 3, 4?			6D	Process?
SU9			Alginates	PC19, 20?	1 or 3, 4?			1 or 6A	Process?
SU9			Concrete super fluidizer	PC19, 20?	1 or 3, 4?			1 or 6A	Process?

SU8			Petrochemicals	PC19, 20?	1 or 3, 4?			1 or 6A	Process?
SU9			Dyes	PC19, 20?	1 or 3, 4?			1 or 6A	Process?
SU8		Rubber industry	as PH regulator in the synthesis of Accelerator for vulcanisation	PC 20	1 or 3	Lanxess		6D, 6B	
SU8			Wiredrawing/coating for tyres	PC19	1 or 3			6C	process?
SU8		Inorganic chemicals	Pigments (titanium dioxide)	PC19	2	Sachtleben		6A	
SU8			Aluminium sulphate and others	PC19	1 or 3	Lanxess		6A	
SU8			Manganese sulphate	PC19	1 or 3	Lanxess		6A	
SU8			Manganese nitrate	PC19	1 or 3	Lanxess		6A	
SU8			Iron sulphate and others	PC19	1 or 3	Lanxess		6A	
SU8			Phosphoric acid	PC19	2	Police		6A	
SU8			Hydrofluoric acid	PC19	1 or 3	Lanxess		6A	
SU8			Hydrochloric acid/hydrogen chloride	PC19	1 or 3	Lanxess		6A	
SU8			Hydroxylamine sulphate	PC19	1 or 3	Lanxess		6A	

SU8			Potassium sulphate	PC19	1 or 3	Lanxess		6A	
SU8			Sodium sulphate	PC19	1 or 3	Lanxess		6A	
SU8			Silicates	PC19	1 or 3	Lanxess		6A	
SU8			Silicone	PC19	1 or 3	Lanxess		6A	
SU8			Hydrogen peroxide/other peroxides	PC19	1 or 3	Lanxess		6A	
SU8			Dihydrizin sulfate	PC19	1 or 3	Lanxess		6A	
SU8			Chlorine	PC20	1 or 3	Lanxess		1 or 6A, 6B?	process? As water adsorption?
SU8			Chlorine dioxide production	PC20	1 or 3			1 or 6A, 6B?	
SU8			Ammonium perchlorate production	PC19	1 or 3			1 or 6A	
SU8			Calcium production	PC19	1 or 3			1 or 6A	
SU8			Copper sulphate and other copper salts	PC19	1 or 3	Freeport		1 or 6A	
SU8			Barium salts	PC19	1 or 3	Sachtleben		1 or 6A	
SU8			Chromium salts	PC19	1 or 3	Lanxess		1 or 6A	
SU8			Zinc salts	PC19	1 or 3	Lanxess		1 or 6A	
SU8		Petroleum ind	Refining	PC19	1 or 3			1 or 6A	extraction/cleaning?

SU8			Purification of lubricants/paraffins/transformer oil	PC19	1 or 3			1 or 6A	process?
SU8			Alkylation of aliphatics.	PC19, 20?	1 or 3	Lanxess		1 or 6A, 6B	catalyst
SU170			Additive for lubricant	PC24	1 or 3	Befesa		4?	process?
SU8		Biofuels	Esterification	PC19, 20?	1 or 3	Grillo		1 or 6A, 6B	catalyst
SU9		Pharmaceutic	(diluted) manufacture of sulphate	PC19	1 or 3	Lanxess		1 or 6A	
			PH regulator catalyst	PC 20 PC20?	1 or 3 1 or 3	Lanxess Lanxess		6B 6B	
SU 3	SU 0-2; NACE Code: M71.2	Laboratory ch	diluted and concentrate	PC21	15	Lanxess		1 or 6A	ERC 8B
SU22		pH adjuster (v	Swimming pools	PC37	4	Befesa		8B, 8A	
SU22			Effluent neutralisation	PC20	1, 3, 4	Lanxess		8B, 8A	
SU3	SU 0-2; NACE Code: E36		Acidification of hard water and cooling water	PC37	4	Freeport		8B, 8A	ERC 6B
SU8		Drying Operat	Chlorine, methyl chloride	PC20, 2	1, or 3	Grillo		1 or 6A, 7	water adsorption
SU3		Cleaning of industrial installa		PC35	PROC 5, 7, 10	Clariant		8B, 8A	ERC 6B

SU22	SU 0-2; NACE Code: E36	Drinking water	neutralisation , adjust pH, flocculation.	PC37	1 or 3	Clariant		8B	
SU23	SU 0-2; NACE Code: E37	Waste water t	neutralisation , adjust pH, flocculation.	PC37, 20	1 or 3	Lanxess		8B?	
SU23	SU 0-2; NACE Code: E37	Waste water t	Ion exchange resin regeneration	PC37, 20	1 or 3	Lanxess		8B?	
SU23		Waste treatm	Removal of fabrics from rubber	PC40	13			6B	
SU13		Stabiliser	Briquette and pellet production	PC13	13			6B	
SU3			Ion exchange resin regeneration( Demineralis ed water manufacture)	PC37	1, 3			8B, 6B	