Solutions were apparently stable at room temperature for at least one week. Reproducible data were obtained only if this procedure was followed.

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Some Alkanesulfinic Acids and their Derivatives[1]

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In connection with a study of alkanesulfinic acids as activators in an oxidation–reduction type polymerization recipe[2] we have had occasion to prepare the C_8 to C_{18} even-numbered carbon straight-chain members of the alkanesulfinic acid series and have characterized them with derivatives. The methods of preparation for the acids and derivatives are those recently described for 1-dodecanesulfinic acid.[3]

1-Octanesulfinic acid and 1-decanesulfinic acid are low melting and rapidly become colored in air. They obviously oxidize and/or rearrange very quickly and they have only been prepared in a crude state. Their derivatives, however, have been obtained as pure crystalline compounds.

Experimental.—The magnesium salts of the alkanesulfinic acids were prepared by the method of Houlton and Tartar[4] and converted into the various derivatives by standard methods.[3] The results of the work are presented in the tables.

This series of compounds is unstable and decomposes on standing for a few days. This makes their analysis unsatisfactory.

TABLE I

ALKANESULFINIC ACIDS RSO_2H

Decane	Yield of acid from Mg salt, %	M. p., °C.	Analyses, % Carbon Calcd.	Carbon Found	Hydrogen Calcd.	Hydrogen Found	Sulfur Calcd.	Sulfur Found
1-Tetra-	65.5	48–48.4	64.12	64.46	11.43	11.51	12.2	12.06
1-Hexa-	58	54–55	66.21	65.90	11.71	11.58	11.05	11.15
1-Octa.	69.2	60–60.5	67.92	67.68	11.94	12.14	10.05	10.20

TABLE II

N,N-DI-(1-ALKANESULFONYL)-HYDROXYLAMINES $(RSO_2)_2NOH$

	Yield based on sodium salt, %	M. p., °C.	Analyses, % Carbon Calcd.	Carbon Found	Hydrogen Calcd.	Hydrogen Found	Nitrogen Calcd.	Nitrogen Found
1-Octane	77.1	64–65	49.9	50.02	9.09	9.20	3.64	3.43
1-Decane	91.8	68–69	54.44	54.76	9.73	9.45	3.18	3.06
1-Tetradecane	90	74–75	60.75	60.77	10.68	10.77	2.53	2.45
1-Hexadecane	77	75–75.5	63.1	62.87	11.00	10.83	2.30	2.16
1-Octadecane	78.8	83–84	65.00	65.25	11.28	11.10	2.10	2.06

TABLE III

O-ACETYL-N,N-DI-(1-ALKANESULFONYL)-HYDROXYLAMINES $(RSO_2)_2NOCOCH_3$

	Yield based on hydroxylamine, %	M. p., °C.	Analyses, % Carbon Calcd.	Carbon Found	Hydrogen Calcd.	Hydrogen Found	Nitrogen Calcd.	Nitrogen Found
1-Octane	65.6	24–25	50.58	50.19	8.66	8.6	3.29	3.00
1-Decane	72.3	43–45	54.66	54.45	9.31	9.66	2.90	2.69
1-Tetradecane	62	54–57.5	60.49	61.25	10.25	10.75	2.35	2.42
1-Hexadecane	65.9	74–75	62.66	63.05	10.59	11.32	2.14	2.19
1-Octadecane	70.4	78–79	64.5	65.10	10.89	11.39	1.98	2.27

TABLE IV

TRI-(1-ALKANESULFONYL)-AMINE OXIDES $(RSO_2)_3NO$

	M. p., °C.	Analyses, % Carbon Calcd.	Carbon Found	Hydrogen Calcd.	Hydrogen Found	Nitrogen Calcd.	Nitrogen Found
1-Octane	39–40	51.3	51.14	9.26	8.90	2.49	2.76
1-Decane	47–48	55.8	55.86	9.77	9.57	2.17	2.35
1-Tetradecane	69–70	62.0	62.3	10.70	10.45	1.72	1.76
1-Hexadecane	74.5–76	64.25	64.3	11.02	11.25	1.56	1.74
1-Octadecane	76–77	66.06	66.10	11.31	11.49	1.43	1.64

TABLE V

1-ALKANESULFONYLACETIC ACIDS $RSO_2CH_2CO_2H$

	Yield based on sodium salt, %	M. p., °C.	Analyses, % Carbon Calcd.	Carbon Found	Hydrogen Calcd.	Hydrogen Found
1-Octane	82	95–96	50.9	51.2	8.47	8.57
1-Decane	52.6	102–103.5	54.6	54.73	9.09	9.09
1-Tetradecane	47.7	110–111	60.0	60.10	10.00	9.91
1-Hexadecane	47.5	113–114	62.1	62.18	10.34	10.43
1-Octadecane	45	116–117	63.8	64.49	10.62	10.69

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(2) Office of the Publication Board, U. S. Department of Commerce, Item P. B. No. 1636—Activation of Buna-S Polymerization in Mersolat Emulsion with Reducing Agents, Sherlock Swann, Jr., and N. M. Elias.

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