SAFETY DATA SHEET

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Trade name or designation of the mixture	Hi-Flow 565U
Registration number	-
Synonyms	None.
Issue date	19-September-2013
Version number	01
Revision date	-
Supersedes date	-

1.2. Relevant identified uses of the substance or mixture and uses advised against

Identified uses	Thermally conductive wax based interface material.
Uses advised against	None known.

1.3. Details of the supplier of the safety data sheet

Manufacturer/Supplier	The Bergquist Company
Address:	18930 West 78th Street Chanhassen, MN. 55317
Non-Emergency calls:	1-800-347-4572
Contact person:	M-SDSadmin@BergquistCompany.com

1.4. Emergency telephone number

Chemical Emergency Call CHEMTREC Day or Night	
Within USA and Canada:	1-800-424-9300
Outside USA and Canada:	+1 703-527-3887 (Collect Calls Accepted)

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

The mixture has been assessed and/or tested for its physical, health and environmental hazards and the following classification applies.

Classification according to Directive 67/548/EEC or 1999/45/EC as amended

This preparation does not meet the criteria for classification according to Directive 1999/45/EC as amended.

Classification according to Regulation (EC) No 1272/2008 as amended

This mixture does not meet the criteria for classification according to Regulation (EC) 1272/2008 as amended.

Hazard summary

Physical hazards	Not classified for physical hazards.
Health hazards	Not classified for health hazards.
Environmental hazards	Not classified for hazards to the environment.
Specific hazards	Elevated temperatures or mechanical action may form dust and fumes which may be irritating to the eye, mucous membranes and respiratory tract. Chronic effects are not expected when this product is used as intended.
Main symptoms	Under normal conditions of intended use, this material does not pose a risk to health.

2.2. Label elements

Label according to Regulation (EC) No. 1272/2008 as amended

Hazard pictograms	None.
Signal word	None.
Hazard statements	The mixture does not meet the criteria for classification.

Precautionary statements

Prevention	Observe good industrial hygiene practices.
Response	Wash thoroughly after handling.
Storage	Store away from incompatible materials.
Disposal	Dispose of waste and residues in accordance with local authority requirements.

Supplemental label information Not applicable.

2.3. Other hazards None known.

SECTION 3: Composition/information on ingredients

3.2. Mixtures

The components are not hazardous or are below required disclosure limits.

SECTION 4: First aid measures

General information If you feel unwell, seek medical advice (show the label where possible).

4.1. Description of first aid measures

Inhalation Move to fresh air. Get medical attention if symptoms occur.

Skin contact Wash skin with soap and water. Get medical attention if irritation persists after washing.

Eye contact Flush thoroughly with water. If irritation occurs, get medical assistance.

Ingestion Rinse mouth thoroughly with water and give large amounts of milk or water to people not unconscious. Do not give anything by mouth to an unconscious person. Get medical attention if any discomfort occurs.

4.2. Most important symptoms and effects, both acute and delayed Under normal conditions of intended use, this material does not pose a risk to health.

4.3. Indication of any immediate medical attention and special treatment needed Treat symptomatically.

SECTION 5: Firefighting measures

General fire hazards This product is not flammable.

5.1. Extinguishing media

Suitable extinguishing media Use fire-extinguishing media appropriate for surrounding materials.

Unsuitable extinguishing media None known.

5.2. Special hazards arising from the substance or mixture None known.

5.3. Advice for firefighters

Special protective equipment for firefighters Self-contained breathing apparatus and full protective clothing must be worn in case of fire. Selection of respiratory protection for firefighting: follow the general fire precautions indicated in the workplace.

Special fire fighting procedures Move containers from fire area if you can do so without risk. In the event of fire, wear self-contained breathing apparatus.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

For non-emergency personnel Avoid contact with skin and eyes. Wear protective clothing as described in section 8 of this safety data sheet.

For emergency responders Keep unnecessary personnel away.

6.2. Environmental precautions Environmental manager must be informed of all major spillages.

6.3. Methods and material for containment and cleaning up Sweep up or vacuum up spillage and collect in suitable container for disposal. For waste disposal, see Section 13.

6.4. Reference to other sections For waste disposal, see Section 13 of the SDS. For personal protection, see Section 8 of the SDS.

SECTION 7: Handling and storage

7.1. Precautions for safe handling Provide adequate ventilation. Avoid generation and spreading of dust. Avoid inhalation and contact with skin and eyes. Observe good industrial hygiene practices.

7.2. Conditions for safe storage, including any incompatibilities Store in closed original container in a dry place. Keep away from ignition, flame and heat sources. Strong oxidising agents.

7.3. Specific end use(s) Thermally conductive wax based interface material.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Occupational exposure limits

Austria. MAK List

Components	Type	Value	Form
Aluminium (CAS 7429-90-5)	MAK	5 mg/m3	Respirable fraction.
		10 mg/m3	Inhalable fraction.
	STEL	20 mg/m3	Inhalable fraction.
		10 mg/m3	Respirable fraction.

Belgium. Exposure Limit Values.

Components	Type	Value	Form
Aluminium (CAS 7429-90-5)	TWA	1 mg/m3	Respirable fraction.

Bulgaria. OELs. Regulation No 13 on protection of workers against risks of exposure to chemical agents at work

Components	Type	Value	Form
Aluminium (CAS 7429-90-5)	TWA	2 mg/m3	
		10 mg/m3	Dust.
		1,5 mg/m3	Respirable fraction.
Aluminium nitride (CAS 24304-00-5)	TWA	2 mg/m3	

Czech Republic. OELs. Government Decree 361

Components	Type	Value	Form
Aluminium (CAS 7429-90-5)	TWA	10 mg/m3	Dust.

Denmark. Exposure Limit Values

Components	Type	Value	Form
Aluminium (CAS 7429-90-5)	TLV	5 mg/m3	Dust and fume.
		5 mg/m3	Fume.
		2 mg/m3	Respirable dust and/or fume.

Estonia. OELs. Occupational Exposure Limits of Hazardous Substances. (Annex of Regulation No. 293 of 18 September 2001)

Components	Type	Value	Form
Aluminium (CAS 7429-90-5)	TWA	4 mg/m3	Respirable dust.
		10 mg/m3	Total dust.
Aluminium nitride (CAS 24304-00-5)	TWA	2 mg/m3	

Finland. Workplace Exposure Limits

Components	Type	Value	Form
Aluminium (CAS 7429-90-5)	TWA	1,5 mg/m3	Welding fume.
Aluminium nitride (CAS 24304-00-5)	TWA	2 mg/m3	

France. Threshold Limit Values (VLEP) for Occupational Exposure to Chemicals in France, INRS ED 984

Components	Type	Value	Form
Aluminium (CAS 7429-90-5)	VME	5 mg/m3	Dust.
		5 mg/m3	Welding fume.
		10 mg/m3	

Germany. DFG MAK List (advisory OELs). Commission for the Investigation of Health Hazards of Chemical Compounds in the Work Area (DFG)

Components	Type	Value	Form
Aluminium (CAS 7429-90-5)	TWA	4 mg/m3	Inhalable dust.
		1,5 mg/m3	Respirable dust.

Germany. TRGS 900, Limit Values in the Ambient Air at the Workplace

Components	Type	Value	Form
Aluminium (CAS 7429-90-5)	AGW	3 mg/m3	Respirable fraction.
		10 mg/m3	Inhalable fraction.

Greece. OELs (Decree No. 90/1999, as amended)

Components	Type	Value	Form
Aluminium (CAS 7429-90-5)	TWA	5 mg/m3	Inhalable
		10 mg/m3	Welding fume.
		10 mg/m3	Respirable.
		10 mg/m3	Pyrophoric powder.

Hungary. OELs. Joint Decree on Chemical Safety of Workplaces

Components	Type	Value	Form
Aluminium (CAS 7429-90-5)	TWA	6 mg/m3	Respirable.

Iceland. OELs. Regulation 154/1999 on occupational exposure limits

Components	Type	Value	Form
Aluminium (CAS 7429-90-5)	TWA	5 mg/m3	Fume.
		10 mg/m3	Dust.
Aluminium nitride (CAS 24304-00-5)	TWA	2 mg/m3	

Ireland. Occupational Exposure Limits

Components	Type	Value	Form
Aluminium (CAS 7429-90-5)	TWA	1 ppm	Respirable dust.

Italy. OELs

Components	Type	Value	Form
Aluminium (CAS 7429-90-5)	TWA	1 mg/m3	Respirable fraction.
Aluminium nitride (CAS 24304-00-5)	TWA	1 mg/m3	Respirable fraction.

Latvia. OELs. Occupational exposure limit values of chemical substances in work environment

Components	Type	Value
Aluminium (CAS 7429-90-5)	TWA	2 mg/m3
Aluminium nitride (CAS 24304-00-5)	TWA	6 mg/m3

Lithuania. OELs. Limit Values for Chemical Substances, General Requirements (Hygiene Norm HN 23:2007)

Components	Type	Value	Form
Aluminium (CAS 7429-90-5)	TWA	5 mg/m3	Inhalable fraction.
		2 mg/m3	Respirable fraction.
Aluminium nitride (CAS 24304-00-5)	TWA	6 mg/m3	

Norway. Administrative Norms for Contaminants in the Workplace

Components	Type	Value	Form
Aluminium (CAS 7429-90-5)	TLV	5 mg/m3	Welding fume.
		5 mg/m3	Pyrophoric powder.

Poland. MACs. Minister of Labour and Social Policy Regarding Maximum Allowable Concentrations and Intensities in Working Environment

Components	Type	Value	Form
Aluminium (CAS 7429-90-5)	TWA	2,5 mg/m3	Fume, total dust.
		1,2 mg/m3	Respirable dust and/or fume.

Portugal. VLEs. Norm on occupational exposure to chemical agents (NP 1796)

Components	Type	Value	Form
Aluminium (CAS 7429-90-5)	TWA	10 mg/m3	Dust.

Romania. OELs. Protection of workers from exposure to chemical agents at the workplace

Components	Type	Value	Form
Aluminium (CAS 7429-90-5)	STEL	3 mg/m3	Fume.
		10 mg/m3	Dust.
	TWA	3 mg/m3	Dust.
		1 mg/m3	Fume.

Slovakia. OELs. Decree of the government of the Slovak Republic concerning protection of health in work with chemical agents

Components	Type	Value	Form
Aluminium (CAS 7429-90-5)	TWA	4 mg/m3	Inhalable fraction.
		1,5 mg/m3	Respirable fraction.

Spain. Occupational Exposure Limits

Components	Type	Value	Form
Aluminium (CAS 7429-90-5)	TWA	5 mg/m3	Welding fume.
		10 mg/m3	Dust.

Sweden. Occupational Exposure Limit Values

Components	Type	Value	Form
Aluminium (CAS 7429-90-5)	TWA	5 mg/m3	Total dust.
		2 mg/m3	Respirable dust.
Aluminium nitride (CAS 24304-00-5)	TWA	1 mg/m3	Total dust.

Switzerland. SUVA Grenzwerte am Arbeitsplatz

Components	Type	Value	Form
Aluminium (CAS 7429-90-5)	TWA	3 mg/m3	Respirable dust.

UK. EH40 Workplace Exposure Limits (WELs)

Components	Type	Value	Form
Aluminium (CAS 7429-90-5)	TWA	4 mg/m3	Respirable dust.
		10 mg/m3	Inhalable dust.

Biological limit values

Germany. TRGS 903, BAT List (Biological Limit Values)

Components	Value	Determinant	Specimen	Sampling time
Aluminium (CAS 7429-90-5)	200 µg/l	Aluminium	Urine	*

* - For sampling details, please see the source document.

Slovakia. BLVs (Biological Limit Value). Regulation no. 355/2006 concerning protection of workers exposed to chemical agents, Annex 2

Components	Value	Determinant	Specimen	Sampling time
Aluminium (CAS 7429-90-5)	60 µg/g	Aluminium	Creatinine in urine	*

* - For sampling details, please see the source document.

Switzerland. BAT-Werte (Biological Limit Values in the Workplace as per SUVA)

Components	Value	Specimen	Sampling time
Aluminium (CAS 7429-90-5)	60 µg/g	Creatinine in urine	*

* - For sampling details, please see the source document.

Recommended monitoring procedures Follow standard monitoring procedures.

Derived no-effect level (DNEL)

Components	Type	Route	Value	Form
Aluminium (CAS 7429-90-5)	Workers	Inhalation	3,72 mg/m3	Long term exposure local effects
		Oral	3,95 mg/m3	Long term exposure systemic effects

Predicted no effect concentrations (PNECs)

Components	Type	Route	Value	Form
Aluminium (CAS 7429-90-5)	Aqua (freshwater)	Not applicable	74,9 µg/l	
	STP	Not applicable	20 µg/l	

8.2. Exposure controls

Appropriate engineering controls Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits. No exposure to these materials is expected during normal use/handling of this product. The exposure limits listed are provided for safety reasons.

Individual protection measures, such as personal protective equipment

General information	Use personal protective equipment as required. Personal protective equipment should be chosen according to the CEN standards and in discussion with the supplier of the personal protective equipment.
Eye/face protection	Risk of contact: Wear approved safety goggles.
Skin protection	
- Hand protection	Use suitable protective gloves if risk of skin contact. Suitable gloves can be recommended by the glove supplier.
- Other	If prolonged or repeated contact is likely, chemical resistant clothing is recommended.
Respiratory protection	In case of inadequate ventilation, use respiratory protection. Use respiratory equipment with particle filter, type P2.
Thermal hazards	Wear appropriate thermal protective clothing, when necessary.
Hygiene measures	Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Discard contaminated clothing and footwear that cannot be cleaned.
Environmental exposure controls	Environmental manager must be informed of all major releases.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Appearance	Grey solid.
Physical state	Solid.
Form	Solid.
Colour	Grey.
Odour	Slight.
Odour threshold	Not available.
pH	Not available.
Melting point/freezing point	Not available.
Initial boiling point and boiling range	Not available.
Flash point	Not available.
Evaporation rate	Not available.
Flammability (solid, gas)	Not available.
Upper/lower flammability or explosive limits	
Flammability limit - lower (%)	Not available.
Flammability limit - upper (%)	Not available.
Vapour pressure	Not available.
Vapour density	Not available.
Relative density	2,3
Solubility(ies)	Insoluble in water.
Partition coefficient (n-octanol/water)	Not applicable.
Auto-ignition temperature	Not available.
Decomposition temperature	Not available.
Viscosity	Not applicable.
Explosive properties	Not available.
Oxidizing properties	Not available.
9.2. Other information	No relevant additional information available.

SECTION 10: Stability and reactivity

10.1. Reactivity	The product is stable and non reactive under normal conditions of use, storage and transport.
10.2. Chemical stability	Material is stable under normal conditions.

10.3. Possibility of hazardous reactions	Hazardous polymerisation does not occur.
10.4. Conditions to avoid	Contact with incompatible materials.
10.5. Incompatible materials	Strong oxidising agents.
10.6. Hazardous decomposition products	In case of fire: Metal oxides. Nitrogen oxides.

SECTION 11: Toxicological information

General information	Occupational exposure to the substance or mixture may cause adverse effects.

Information on likely routes of exposure

Ingestion	Ingestion of dusts generated during working operations may cause nausea and vomiting.
Inhalation	Elevated temperatures or mechanical action may form dust and fumes which may be irritating to the mucous membranes and respiratory tract.
Skin contact	Prolonged skin contact may cause temporary irritation.
Eye contact	Elevated temperatures or mechanical action may form dust and fumes which may be irritating to the eye.
Symptoms	Under normal conditions of intended use, this material does not pose a risk to health.

11.1. Information on toxicological effects

Acute toxicity	Under normal conditions of intended use, this material does not pose a risk to health.
Skin corrosion/irritation	Prolonged skin contact may cause temporary irritation.
Serious eye damage/eye irritation	Elevated temperatures or mechanical action may form dust and fumes which may be irritating to the eye.
Respiratory sensitisation	No data available.
Skin sensitisation	No data available.
Germ cell mutagenicity	No data available.
Carcinogenicity	No data available.
Reproductive toxicity	No data available.
Specific target organ toxicity - single exposure	No data available.
Specific target organ toxicity - repeated exposure	No data available.
Aspiration hazard	No data available.
Mixture versus substance information	Chronic effects are not expected when this product is used as intended.
Other information	Not available.

SECTION 12: Ecological information

12.1. Toxicity	The product is not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.
12.2. Persistence and degradability	This product mainly consists of inorganic compounds which are not biodegradable. The remaining components of the product are expected to be heavily biodegradable.
12.3. Bioaccumulative potential	The product does not contain any substances expected to be bioaccumulating.
Partition coefficient n-octanol/water (log Kow)	Not available.
Bioconcentration factor (BCF)	Not available.
12.4. Mobility in soil	Not available.
Mobility in general	The product is insoluble in water.
12.5. Results of PBT and vPvB assessment	Not available.
12.6. Other adverse effects	The product components are not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Residual waste	Disposal recommendations are based on material as supplied. Disposal must be in accordance with current applicable laws and regulations, and material characteristics at time of disposal.

Contaminated packaging	Since emptied containers retain product residue, follow label warnings even after container is emptied.
EU waste code	16 05 09 The Waste code should be assigned in discussion between the user, the producer and the waste disposal company.

SECTION 14: Transport information

ADR

Not regulated as dangerous goods.

RID

Not regulated as dangerous goods.

ADN

Not regulated as dangerous goods.

IATA

Not regulated as dangerous goods.

IMDG

Not regulated as dangerous goods.

14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code	This substance/mixture is not intended to be transported in bulk.

SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

EU regulations

Regulation (EC) No. 1005/2009 on substances that deplete the ozone layer, Annex I

Not listed.

Regulation (EC) No. 1005/2009 on substances that deplete the ozone layer, Annex II

Not listed.

Regulation (EC) No. 850/2004 On persistent organic pollutants, Annex I as amended

Not listed.

Regulation (EC) No. 689/2008 concerning the export and import of dangerous chemicals, Annex I, part 1 as amended

Not listed.

Regulation (EC) No. 689/2008 concerning the export and import of dangerous chemicals, Annex I, part 2 as amended

Not listed.

Regulation (EC) No. 689/2008 concerning the export and import of dangerous chemicals, Annex I, part 3 as amended

Not listed.

Regulation (EC) No. 689/2008 concerning the export and import of dangerous chemicals, Annex V as amended

Not listed.

Regulation (EC) No. 166/2006 Annex II Pollutant Release and Transfer Registry

Not listed.

Regulation (EC) No. 1907/2006, REACH Article 59(1) Candidate List as currently published by ECHA

Not listed.

Authorisations

Regulation (EC) No. 1907/2006, REACH Annex XIV Substances subject to authorisation, as amended

Not listed.

Restrictions on use

Regulation (EC) No. 1907/2006, REACH Annex XVII Substances subject to restriction on marketing and use as amended

Not listed.

Directive 2004/37/EC: on the protection of workers from the risks related to exposure to carcinogens and mutagens at work

Not regulated.

Directive 92/85/EEC: on the safety and health of pregnant workers and workers who have recently given birth or are breastfeeding

Not regulated.

Other EU regulations

Directive 96/82/EC (Seveso II) on the control of major-accident hazards involving dangerous substances

Not regulated.

Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work

Not listed.

Directive 94/33/EC on the protection of young people at work

Not listed.

Other regulations	The product does not need to be labelled in accordance with EC directives or respective national laws. This Safety Data Sheet complies with the requirements of Regulation (EC) No 1907/2006.
National regulations	Follow national regulation for work with chemical agents.
15.2. Chemical safety assessment	No Chemical Safety Assessment has been carried out.

SECTION 16: Other information

List of abbreviations	DNEL: Derived No-Effect Level. PNEC: Predicted No-Effect Concentration. PBT: Persistent, bioaccumulative and toxic. vPvB: Very Persistent and very Bioaccumulative.
References	Registry of Toxic Effects of Chemical Substances (RTECS) HSDB® - Hazardous Substances Data Bank
Information on evaluation method leading to the classification of mixture	The mixture is classified based on test data for physical hazards. The classification for health and environmental hazards is derived by a combination of calculation methods and test data, if available. For details, refer to Sections 9, 11 and 12.
Full text of any statements or R-phrases and H-statements under Sections 2 to 15	None.
Training information	Follow training instructions when handling this material.
Disclaimer	This Safety Data Sheet was prepared by a globally recognized, third party chemical, regulatory, and compliance information services provider for the Bergquist Company, Thermal Products Division / TIM, and is offered for your consideration and guidance when exposed to this product. The Bergquist Company disclaims all expressed or implied warranties and assumes no responsibility for the accuracy or completeness of the data contained herein. The data in this SDS does not apply to use with any other product or in any other process. This Safety Data Sheet may not be changed or altered in any way without the expressed knowledge and permission of The Bergquist Company.