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## SECTION 1 – PRODUCT INFORMATION

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**MANUFACTURER:** ModulR TS

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**PRODUCT NAME:** ProtecRSS Composite System (flat or tapered)

**PRODUCT USE:** Factory laminated flat or tapered Polyisocyanurate foam roofing insulation with mineral wool overlay insulation.

### Section 1 Notes:

Mineral wool is a manufactured article, as defined under the Hazardous Products Act. Under normal conditions of use, when installed, exposures to its components are unlikely. However, there is potential for exposure to the components and their thermal decomposition.

Tapered Polyiso System, Polyisocyanurate foam panel does not present an inhalation, ingestion, or contact health hazard unless subjected to operations such as sawing, sanding, or machining that result in the generation of airborne particulates (dusts). Exposure to high dust levels may irritate the skin, eyes, nose, throat, or upper respiratory tract. Inhalation of high amounts of dust over long periods may overload lung clearance mechanisms and make lungs more vulnerable to respiratory disease. This product contains a chemical known to the State of California to cause cancer (Proposition 65).

Adhesive is a two component adhesive which is fully cured when the finished product leaves the manufacturing facility. It is classed not controlled by WHIMS.

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## SECTION 2 – PREPARATION INFORMATION

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**MSDS prepared by:** ModulR TS Inc.

**Department:** Health & Safety Department

**Phone:** 1-506-576-6206

**Date of Preparation:** July 12, 2011

**SECTION 3 – HAZARDOUS INGREDIENTS**

Ingredient	CAS No.	% (wt / wt)	LD <sub>50</sub> (species and route) LC <sub>50</sub> (species and route)
<b>TOP COMPONENT</b>			
Mineral Wool	65977-17-3	94 - 95%	1f/cc (for fibres longer than 5µm with a diameter of less than 3µm)
Cured Urea Extended Phenolic Formaldehyde Binder	25104-55-6	2 - 5%	LD <sub>50</sub> (oral, rodent-rat) = 7g/kg
Oxidized Bitumen	8052-42-2	1 - 2%	Grade 1; LD <sub>50</sub> 5 to 15g/kg
<b>BOTTOM COMPONENT</b>			
Polyisocyanurate Foam	None	80 - 100%	Breathable dust (10mg/m <sup>3</sup> )
Fiberglass	65997-17-3	7 - 13%	1f/cc (for fibres longer than 5µm with a diameter of less than 3µm)
Carbon Black	1333-86-4	1 - 5%	Breathable dust (3.5mg/m <sup>3</sup> )
<b>ADHESIVE</b>			
2 component adhesive (cured)	Not applicable	100%	Not applicable

**SECTION 4 – PHYSICAL DATA**

**Physical State:**

Mineral Wool: Semi-rigid grey/green fibrous board with black asphalt facing containing imbedded sand to create surface texture.

Polyisocyanurate foam: Solid

Adhesive: Solid

**Odour and appearance:**

Mineral Wool: Asphalt layer is a dark-brown to black, solid to semi-solid in consistency, and has a tar odour. The mineral fibre layer is a grey to green fibrous bat or board, and might have a slight resin odour.

Polyiso: White or cream coloured solid with a black fibreglass or paper facing.

Adhesive: Black, slight petroleum odour.

**Odour threshold:** Not available

**Specific gravity:**

Mineral wool: 2.540 g/cu. Cm. (Type II, mats); Asphalt (estimated) – 1.00 at 20°C (liquid).

Polyiso: Not determined

Adhesive: 1.24 g/cm<sup>3</sup> @20°C

**Vapour pressure:**

Mineral wool: V.P. is exceedingly low and not measurable, Asphalt – ranges from 0.018 lb/sq. in. @ 210 deg. F. to 2.909 lb/sq. in. @ 380 deg. F.

Polyiso: Not applicable

Adhesive: Not available

**Vapour density:** Not available

**Relative density:**

Mineral Wool: 2.5 to 2.6 (water = 1)

Polyiso: Not applicable

Adhesive: Not available

**Evaporation rate:**

Mineral Wool: Not available

Polyiso: Not available

Adhesive: Negligible

**Boiling point:**

Mineral wool: Not available, Asphalt: 350° C. (approximate)

Polyiso: Not available

Adhesive: Not available

**Melting point:**

Mineral fibre: 1177°C; Asphalt: 54-173°C

Polyiso: Not available

Adhesive: Not available

**Freezing point:** Not available

**pH:** Not available

**Coefficient of water/oil distribution:** Not available

**Solubility:**

Mineral fibre: insoluble in water, Asphalt: insoluble in water, alcohols, acids, and alkalis; and soluble in oil, turpentine, petroleum, carbon disulphide, chloroform, and acetone.

Polyiso: insoluble in water

Adhesive: Not available

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**SECTION 5 – FIRE AND EXPLOSION HAZARD – Mineral wool**

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**Conditions of Flammability:**

Asphalt:

NFPA Ratings

Health – 0 – Materials that, on exposure under fire conditions, offer no hazard beyond that of ordinary combustible material

Flammability – 1 – Includes materials that must be preheated before ignition will occur, such as Class III B combustible liquids, solids and semi-solids with flash-points above 200 deg. F. (93.4 deg. C.), as well as most ordinary combustible materials. Water may cause frothing if it sinks below the surface of the burning liquid and turns to steam. However, a water fog that is gently applied to the surface of the liquid will cause frothing that will extinguish the fire.

Reactivity – 0 – Includes materials that are normally stable, even under fire exposure conditions, and that do not react with water. Normal firefighting procedures may be used.

## ProtecRSS Composite (flat or tapered) – MATERIAL SAFETY DATA SHEET

**Means of Extinction:** Asphalt – Extinguish with water, dry chemical, foam, carbon dioxide, or sand. Water or foam may cause frothing.

**Flash point and means of determination:** Asphalt – 280 deg. C. (Cleveland open cup)

**UFL:** Not available

**LFL:** Not available

**Auto Ignition Temperature:** Asphalt – > 370°C.

**Extinguishing media:** Water spray, Dry chemical, Carbon Dioxide for small fires.

**Hazardous combustion products:** Asphalt – when heated to decomposition, it emits smoke and irritating; Cured urea extended phenolic formaldehyde binder – Primary combustion products when heated above 200°C include carbon monoxide, carbon dioxide, ammonia, water and trace amounts of formaldehyde. The released gases may be irritating to the eyes, nose and throat.

**Explosion Data – sensitivity to mechanical impact:** Not applicable

**Explosion Data – sensitivity to static discharge:** Not applicable

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### SECTION 5 – FIRE AND EXPLOSION HAZARD – Polyisocyanurate Foam

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**Flammability:** Not applicable

**Explosion data:** Not applicable

**Flash point:** Not applicable

**Auto-ignition temperature:** Not available

**Inflammability limits in air (% in volume):** Not applicable

**Fire hazards:** The product is a solid article that will burn if exposed to an ignition source of sufficient heat and intensity, or open flame, such as a welder's torch. It should be installed with a 15-minute thermal barrier between it and the structure's interior.

**Combustion products:** Under certain fire conditions, combustible gases can be generated creating rapidly spreading, high intensity flames and dense, black smoke. Burning of this product can produce irritating and potentially toxic fumes and gases, including carbon monoxide and carbon dioxide; other undetermined hydrocarbon fractions could be released in small quantities.

**Extinguishing media:** Carbon dioxide, dry chemical, water spray.

**Special procedures:** Wear self-contained breathing apparatus and appropriate protective clothing in accordance with standards.

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### SECTION 5 – FIRE AND EXPLOSION HAZARD – Adhesive

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**Flashpoint:** Not applicable

**Upper flammable limit:** Not available

**Lower flammable limit:** Not available

**Auto ignition temperature:** Not available

**Hazardous combustion products:** Carbon monoxide, carbon dioxide, sulphur oxides

**Conditions of flammability:** Can be made to burn

**Explosion sensitivity:** Not sensitive

**Means of extinction:** Water fog, chemical foam, dry chemicals, carbon dioxide

**Special firefighting procedures:** Firefighters should wear self-contained breathing apparatus when fighting fires in a confined space

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## SECTION 6 – REACTIVITY DATA

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**Conditions under which the product is chemically unstable:** Asphalt - stable under normal storage and handling conditions; Mineral fibre – stable; Polyiso – Stable, avoid source of ignition; Adhesive – stable.

**Incompatible substances:** Asphalt - avoid contact of hot materials with liquid (water and volatile solvents); Polyiso – Acetone, methyl ethyl ketone, tetrahydrofuran, chlorine, chloroform, hydrogen peroxide, ethylene dichloride, dimethyl sulfoxide and dimethyl formamide; Adhesive – strong oxidizer.

**Conditions of reactivity:** Asphalt - Asphalt may readily ignite when mixed with naphtha and other volatile solvents; Cured urea extended phenolic formaldehyde binder - reacts with hydrofluoric acid; Adhesive – may react in presence of strong oxidizers.

**Hazardous decomposition products:** Asphalt - carbon monoxide, carbon dioxide, nitrogen dioxide, and sulphur dioxide; Adhesive – carbon monoxide, carbon dioxide and sulphur oxides on combustion.

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## SECTION 7 – TOXICOLOGICAL PROPERTIES

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**Routes of Entry:** Skin contact, eye contact, inhalation and ingestion

**Skin contact:** Mineral fibres – irritation (i.e. itching) or redness due to mechanical action. Asphalt – the hot liquid can cause severe burns because it is sticky and not readily removed from the skin; Polyisocyanurate Foam, Fibreglass – Direct contact with rough-cut foam or felt facers can cause mechanical abrasion cuts or puncture to fingers, hands or exposed skin; Adhesive – Direct skin contact.

**Skin absorption:** Not applicable

**Eye contact:** Mineral fibres – irritation (itching) or redness due to mechanical action. Asphalt - vapour can cause eye irritation. Contact with the hot liquid can cause burns. Greenish-yellow fume given off by boiling asphalt can cause photosensitization. Polyisocyanurate Foam, Fibreglass – Mechanical irritation, redness, tearing, and blurred vision can occur if dusts generated from these products come into contact with eyes. Carbon Black – Carbon black dust is not irritating to the eyes except as a "foreign object".

**Inhalation:** Mineral fibres – Temporary mechanical irritation of the upper respiratory tract (scratchy throat, coughing, and congestion) can result from exposure to dust and fibres; Asphalt - inhaling vapour, dust and fume may cause irritation of the respiratory system; Polyisocyanurate Foam – Dust may cause transient mechanical irritation of the upper respiratory tract; Fibreglass – Airborne fragments of glass fibres may cause mechanical irritation of the upper respiratory tract, particularly mouth, nose and throat; glass dust may cause transient irritation of the upper respiratory tract; Carbon Black – Carbon black does not appear to cause significant harmful effects after a single short-term exposure, except general effects that would be expected with any fine dust (high concentrations can cause coughing and mild, temporary irritation).

**Ingestion:** Mineral wool – Ingestion of mineral fibres is unlikely and not intended under normal conditions of use. Ingestion may cause gastrointestinal irritation; Polyisocyanurate foam – It is unlikely that toxic amounts of this product would be ingested with normal handling and use

**Existing Medical Conditions:** Mineral fibres – Pre-existing chronic eye, skin and respiratory conditions may temporarily worsen due to exposure to mineral fibres and dusts.

**Effects of Acute Exposure:** Mineral fibres – Dust from grinding asphalt or fumes from heating it may cause transitory inflammation and irritation of the surfaces of the eyes and respiratory passages, as well as pigmentation of the cornea. Prolonged exposure to high vapour concentrations can depress the central nervous system causing symptoms including headache, dizziness, and nausea. Skin or eye contact with the hot product can cause severe burns; Polyisocyanurate foam – breathing dust from this product may cause a scratchy throat, congestion, and slight coughing. Frequent or prolonged contacts may cause skin irritation. The dust may cause eye irritation; Adhesive – Skin contact, little to no irritation, symptoms of over-exposure due to inhalation and ingestion unlikely to occur.

**Effects of Chronic Exposure:** Mineral fibres – Fumes of hot asphalt can cause dermatitis and acne-like lesions as well as mild keratosis on prolonged and repeated exposure; Polyisocyanurate foam – Not significant; Adhesive – No known health effects due to chronic exposure.

**Exposure limits (mineral fibres):**

Source	Exposure Limit	Exposure
ACGIH	1 f/cc (respirable fibres) – 8 hr. TLV-TWA	Synthetic Vitreous Fibres, > 5 micron length, < 3 micron diameter
ACGIH	0.5 mg/m <sup>3</sup> – 8 hr. TLV-TWA (Inhalable fraction and vapour, as benzene-soluble aerosol)	Asphalt -, with an A4 Notation (Not classifiable as a human carcinogen).
ACGIH	10 mg/m <sup>3</sup> – 8 hr. TLV-TWA (inhalable particulate) 3 mg/m <sup>3</sup> – 8 hr. TLV-TWA (respirable particulate)	Particulate not otherwise classified, containing no asbestos and < 1% crystalline silica
NIOSH	5 mg/m <sup>3</sup> – REL (Ceiling)	Asphalt Recommended Exposure Limit

ACGIH – American Conference of Governmental Industrial Hygienists, 2006 TLVs and BEIs

NIOSH – National Institute of Occupational Safety and Health

**Irritancy of Product:** Asphalt vapours cause a slight smarting of the eyes or respiratory system if present in high concentrations. The effect is temporary. Liquid or solid irritant characteristics are similar, and may include first degree burns on short exposure and secondary burns on long term exposure.

**Sensitization to Product:** Not applicable

**Carcinogenicity:** Mineral fibres – Inadequate evidence in humans for the carcinogenicity of glass wool, continuous glass filaments, or rock (stone) wool/slag wool (IARC – Monographs on the evaluation of the Carcinogenic Risk of Chemicals to Man. Geneva: World Health Organization, International Agency for Research on Cancer, 1972-Present (Multi-volume work), (2002). Glass wool fibres are classified as A3 by ACGIH (Confirmed Animal Carcinogen with Unknown Relevance to Humans); Asphalt – NIOSH considers asphalt fumes to be a potential occupational carcinogen. It is classified as A4 by ACGIH (Not classifiable as a Human Carcinogen), which means that it is considered an agent of concern that could be carcinogenic to humans but cannot be assessed conclusively because of a lack of data; Polyisocyanurate foam – No information available; Fibreglass – Results from epidemiological studies have not shown any increase in respiratory disease or cancer. The International Agency for Research on Cancer (IARC) has classified continuous filament fibreglass “Not Classifiable as to Carcinogenicity to Humans” (Group 3); Adhesive – None known.

**Reproductive toxicity:** No information available

**Teratogenicity:** No information available

**Mutagenicity:** No information available

**Toxicologically synergistic products:** No information available

## SECTION 8 – PREVENTIVE MEASURES

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**Personal Protective Equipment (PPE) and Clothing:** Since hot asphalt can cause severe skin burns, wear impervious clothing, in good condition, with the neck closed and sleeves rolled down. Hand and arm protection should be worn. Wear heat resistant gloves when working with the hot product. Safety shoes should be 15 cm. high and laced. Eye protection should also be used when there is potential for exposure to mineral fibre and Polyiso dust. Segregate used protective clothing and launder separately. At concentrations above the exposure limit (e.g. in confined or enclosed spaces with inadequate ventilation), respiratory protection is required. The appropriate type of respiratory protection depends on the process and contaminant concentrations, and should be selected by a qualified individual. When respiratory protection is required, the employer must develop a code of practice, and provide training and individual fit testing.

**Specific Engineering Controls:** Maintain airborne concentrations below exposure limits. Use general dilution ventilation and/or local exhaust ventilation as required for grinding and cutting operations, and hot processes, to maintain airborne concentrations below applicable exposure limits.

**Procedures to follow in case of a spill or leak:** Isolate area. Keep unnecessary personnel away. If hot asphalt is spilled allow time to cool completely and place in a container for disposal. Otherwise, pick up large pieces and scoop up dusts and fibres after they have settled out of air. These materials will disperse and settle along the bottom of waterways and ponds, and cannot easily be removed once waterborne. Follow recommended work practices and use protective equipment and clothing as described in this section. Avoid generating airborne dusts and fibres during clean-up. Do not use compressed air. If dry methods must be used, ensure all personnel in the area wears appropriate respiratory protection. Clean dust and fibres with a HEPA filtered vacuum cleaner. Place material in an appropriate container, dispose according to regulatory requirements and prevent from entering waterways or sewers.

**Waste disposal:** Recycle any unused portions for its approved use or return it to the manufacturer or supplier. Ultimate disposal must consider the material's impact on air quality; potential migration in soil or water; effects on animal, aquatic and plant life; and conformance with environmental and public health regulations. Check local legislation and disposal requirements.

**Handling procedures and equipment:** Unpack material at application site to avoid unnecessary handling of product. Keep work areas clean. Avoid unnecessary handling of scrap material and debris by placing such materials in suitable containers, which should be kept as close to the work area as possible. Ensure adequate ventilation. Avoid excessive eye and skin contact with dusts, fibres, fumes and vapours. Follow recommended clean up procedures to avoid build-up of dusts and fibres in the work area. Wash or shower daily at the end of each shift and change into uncontaminated clothing before leaving the work premises. Practice good hygiene and maintain personal cleanliness to prevent disease. Contact lenses should not be worn when working with hot asphalt.

**Storage requirements:** Keep material in original packaging until it is to be used. Store the product to protect it against adverse conditions, including precipitation.

**Special shipping information:** This product is not regulated under transportation of dangerous goods legislation.

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## SECTION 9 – FIRST AID MEASURES

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### Specific First Aid Measures

**Skin:** If there is contact with molten asphalt, flush skin immediately with large volumes of water. Obtain medical attention. Severe burns may result from contact with hot asphalt. If molten asphalt strikes exposed skin, cool the skin immediately by quenching with cold water. A burn should be covered with a sterile dressing and the patient should be taken immediately to a hospital. If irritation persists after contact with mineral fibres, do not rub or scratch. Rinse under running water prior to washing with mild soap and water. Use a washcloth to help remove fibres. If irritation persists, consult a physician.

**Eyes:** Flush eyes with water for at least 15 minutes, occasionally lifting the lower and upper lids. Do not rub the eyes. Immediately obtain medical attention for contact with hot asphalt. For exposure to mineral fibres, consult with a physician if irritation persists.

**Inhalation:** For respiratory exposure to large amounts of mineral fibre, remove from exposure, drink water and blow nose to clear dusts and fibres from throat and nose. If irritation persists, consult a physician. If a person inhales a large amount of asphalt vapour, move the exposed person to fresh air at once. If breathing has stopped, perform mouth-to-mouth resuscitation. Keep the person warm and at rest. Get medical attention as soon as possible.

**Ingestion:** Ingestion of this product is unlikely and not intended under normal conditions of use. Immediately obtain medical attention.

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To the best of our knowledge the information contained herein is accurate. However neither the above named supplier nor any of its subsidiaries assumes any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All material may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

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